MIND THE COLOR

MINDTHECOLOR

©CARLO DIAMANTI

USER MANUAL - MINDTHECOLOR v3

PREFACE

MindTheColor was born from years of experience in photography, post-production, color science, software development and education.

Over time, working on real images, the continuous exchange with photographers, retouchers, printers and imaging professionals, and the need to tackle complex color problems made one requirement clear: having tools that allow working on color with a higher, more consistent and more predictable level of control than what standard workflows normally offer.

MindTheColor grew out of this concrete need.

The software was not conceived as a collection of effects, nor as an automatic correction system designed to standardize results. It was developed as a working environment dedicated to look building, professional color correction and image analysis. At a time when many tools tend to simplify the process to the point of flattening it, MindTheColor sits on a different plane: not as a shortcut, but as a tool for those who wish to understand color, read it with greater depth and intervene consciously.

Edition September 2024

Why This Transition Matters

MindTheColor was not born from the desire to add yet another panel to Photoshop, but from the need to work with color using tools that are more consistent with visual perception and better suited to the conscious construction of a look.

Classical color theories remain fundamental. Goethe, Chevreul, Itten, and many others built a visual grammar without which it would not be possible to speak seriously about harmony, contrast, balance, or chromatic structure. To these contributions we must add the work of Munsell, who pioneered the organization of color according to measurable attributes connected to perception: Hue, Value, and Chroma.

However, visual grammar and the early systems of color order do not yet coincide with modern color engineering. It is one thing to describe relationships useful for interpretation and composition; it is quite another to have mathematical models, color spaces, and operational tools capable of handling color in a way that is closer to how it is actually perceived.

This preface is meant to clarify precisely this transition: from color theory as a descriptive system to color as a perceptual, operational, and authorial problem.

From the Color Wheel to Perceptual Models and Color Spaces

For a long time, an important part of visual practice relied mainly on hue, meaning the position of a color on the color wheel. This has been a useful approach, and in many cases it still is. But later research has clearly shown that hue alone is not enough to explain the harmony, pleasantness, or perceptual salience of a color combination.

Ou and Luo's quantitative model for two-color combinations, based on 1431 experimentally evaluated combinations, shows that harmony does not depend on a single rule, but on several factors: hue relationship, chroma relationship, and lightness structure. In particular, the model shows that lightness cannot be treated as a secondary factor: it is not enough to look for colors with the same lightness, because an ordered lightness difference can also contribute decisively to the perception of harmony. The work is also validated on an independent dataset with good correlation,

indicating that the problem can be modeled in a rigorous, quantitative, and non-trivial way.

The work of Szabó, Bodrogi, and Schanda takes a further step: it moves from a description based on the CIELAB color space to the CIECAM02 color appearance model, showing that harmony can be described with good accuracy through the perceptual attributes of hue, chroma, and lightness, but that there is no single formula valid for every case. Here too, the results converge on a decisive point: similar hues tend, on average, to appear more harmonious, but similar chroma, non-identical lightness, and a well-organized tonal structure also matter greatly.

This is the turning point: color can no longer be treated as a simple shift along a wheel, because what we perceive depends on the relationship between hue, chroma, lightness, tonal distribution, context, and the narrative function of color itself.

Why Perceptual Color Spaces Really Matter

Representations derived from RGB, such as HSL and HSV, remain useful tools and, in many cases, indispensable ones. MindTheColor itself uses them when they offer a real operational advantage. But their usefulness does not coincide with perceptual uniformity. This is why, in recent years, color spaces and models designed to handle lightness, chroma, and hue as distinct attributes have become increasingly important.

OKLab also belongs in this context: a perceptual color space developed by Björn Ottosson for image processing. In the original presentation of OKLab, Ottosson explains that a perceptual color space useful for image processing must predict lightness, chroma, and hue well, allowing operations such as changing chroma while keeping perceived hue and lightness more stable, or creating more uniform transitions. In the same text, HSV is described as a very widespread representation but unsuitable for meeting these uniformity requirements.

This does not mean that a new color space or model automatically replaces all the others. More precisely, it means that each space, model, or representation has its own range of validity and a different quality of response. It is from this awareness that MindTheColor's multi-model and multi-domain architecture is born: not the idea of a single formula, but the choice of the most suitable domain for the problem being addressed.

Harmony, preference and salience are not the same thing

One of the most important contributions of modern research has been to clarify that many discussions about color become confused when different visual judgments are mixed as if they were equivalent.

Schloss and Palmer clearly distinguish at least three levels: pair preference, meaning how pleasant a pair of colors appears as a whole; pair harmony, meaning how well the two colors seem to go together; and figural preference, meaning how pleasant the color of the subject appears when placed on a specific background.

Their results show that preference and harmony both increase with hue similarity, but preference depends more than harmony on both the liking of the individual colors and lightness contrast. Moreover, when moving from the judgment of an isolated pair to a figure-ground judgment, hue contrast can become a very effective tool for making the subject stand out, without necessarily making the combination more harmonious in a strict sense.

In other words, a combination can be very effective in terms of narrative and visual focus without being the most harmonious according to classical criteria.

This distinction is crucial for anyone working with images. The color of a photograph, portrait, or cinematic scene never serves a single purpose. Sometimes the goal is cohesion. Sometimes separation. Sometimes calm, other times tension. Sometimes the subject must blend into the atmosphere, while at other times it must stand apart from it with precision.

Thinking that all of this can be reduced to a single automatic score of harmony, beauty, or matching means confusing deeply different visual phenomena.

Why Authorial Color Does Not Coincide with Automation

Automation can be very useful. It can speed up work, standardize large volumes of images, solve basic corrections, and offer an initial normalization. But authorial color does not coincide with a statistically plausible average balance.

The reason is not ideological, but structural. If harmony, overall preference, perceptual similarity, and figure-ground salience are distinct judgments, then no automatic system can, by itself, exhaust what an author decides to prioritize in a scene. An algorithm can

optimize a single metric; an author chooses among conflicting goals, narrative hierarchies, expressive intent, and stylistic coherence.

The same work by Schloss and Palmer also suggests another important aspect: the relationship between preference and harmony changes with the degree of color training. Those with an initial or conventional training more easily tend to prefer classically harmonious combinations, while those with greater experience and visual sensitivity can learn to use less harmonious but more expressive combinations effectively. This means that visual maturity does not coincide with simply following a rule.

For this reason, the goal of professional software should not be to make decisions for the user, but to enable the user to operate on more perceptually meaningful attributes and with finer control over chromatic relationships.

Confirmation from More Recent Research

More recent research points in the same direction. A 2022 study on real multi-color scenes taken from film and television screenshots quantified 16 color characteristics and showed that harmony is significantly correlated not only with hue, but also with overall lightness, lightness contrast, tonal distribution, warm-cool contrast, and the number of colors present. Here too, the picture that emerges is multidimensional: harmony cannot be explained by a single rule.

Why MindTheColor

MindTheColor was born precisely within this working space.

It does not start from the idea that one theory is sufficient, nor that color correction can be reduced to automation. It starts from a more concrete observation: to work well on images, we need tools that allow us to intervene on tonal structure, perceptual separation, chroma, hue, local salience, and overall coherence, without forcing everything into a single scheme.

For this reason, MindTheColor integrates different color spaces, models, and representations, scopes designed to read relationships that traditional tools only partially reveal, and controls designed not to replace the author's judgment, but to make it more precise, more readable, and more repeatable.

In other words, MindTheColor does not promise color that is “correct” in an absolute sense. It offers something more useful: the possibility of building intentional color.

Practical rule

When working on an image, do not ask only whether the colors go well together. Always ask yourself which of the following goals you are pursuing: palette cohesion, overall pleasantness, subject separation, visual tension or calm, stylistic identity, fidelity, or interpretation.

Only after this choice does it make sense to decide which tools to use and which color space or model should guide the work.

This is where authorial work truly begins.

References

Ou & Luo (2006) — Quantitative model based on 1431 colour pairs

Ou, L.-C., & Luo, M. R. (2006). A colour harmony model for two-colour combinations. Color Research & Application, 31(3), 191–204.

Szabó, Bodrogi & Schanda (2010) — Extending colour harmony to CIECAM02

Szabó, F., Bodrogi, P., & Schanda, J. (2010). Experimental modelling of colour harmony. Color Research & Application, 35(1), 34–49.

Schloss & Palmer (2011) — Distinguishing preference, harmony and figural preference

Schloss, K. B., & Palmer, S. E. (2011). Aesthetic response to color combinations: Preference, harmony, and similarity. Attention, Perception, & Psychophysics, 73(2), 551–571.

Ottosson (2020) — OKLab

Ottosson, B. (2020). A perceptual color space for image processing. Published 23 December 2020, available at: https://bottosson.github.io/posts/oklab/

Wang et al. (2022) — Color harmony in real-life multi-color scenes

Wang, S., Liu, J., Jiang, J., Jiang, Y., & Lan, J. (2022). Attribute analysis and modeling of color harmony based on multi-color feature extraction in real-life scenes. Frontiers in Psychology, 13, Article 945951. https://doi.org/10.3389/fpsyg.2022.945951

Introduction

Manual Purpose

This manual describes the structure, operational functions and usage criteria of MindTheColor v3 for Adobe Photoshop. The goal is to provide a clear working basis: understanding what each tool does, what logic it operates on, which parameters it controls and in which cases its use is appropriate.

MindTheColor brings together primary and secondary correction tools, chromatic selection, mask building, look generation, analytical monitoring and preset management. The whole is organized as a modular panel, in which each tool maintains its own interface and its own operational logic.

MindTheColor's Added Value

MindTheColor’s contribution does not consist merely in organizing existing commands, but in introducing tools with specific operational logic and controls capable of acting on more complex chromatic relationships.

The central element is the internal calculation engine, which allows different tools to operate in different color spaces, models, and representations, while returning the result to the RGB document. In this way, for example, the Curve Lab tool can operate on CIELAB coordinates while remaining within an RGB workflow.

For the user, the advantage is practical: access to more specific controls without changing the final domain of the file.

Introductory Note on Models, Color Spaces, and Working Domains

Before going into the individual tools, it is useful to clarify a few terms that will appear often throughout the manual: color model, color space, derived representation, and working domain.

A color model is the general way in which color is described through numbers.

For example, RGB describes each color with three values: red, green, and blue. CMYK, on the other hand, describes color through four components related to printing: cyan, magenta, yellow, and black.

A color space gives precise meaning to the numbers of a color model.

For example, RGB is the general model, but there are many different ways to define which reds, greens, and blues are used. sRGB, Adobe RGB, Display P3, ProPhoto RGB, and Rec.2020 are all color spaces based on RGB, but they do not contain exactly the same colors.

The practical difference is this: the same numerical RGB value can indicate different colors depending on the color space in which it is interpreted. The RGB value 255, 0, 0 always indicates the red primary of the RGB space in use, but that primary is not necessarily identical in sRGB, Display P3, ProPhoto RGB, or Rec.2020. This is why the color space is fundamental: it gives precise meaning to the numbers.

There are also color spaces that are not organized as RGB spaces, such as CIELAB and OKLab. In these cases, color is not described through red, green, and blue, but through coordinates designed to better represent certain perceptual relationships, such as lightness, chromatic opposition, or visual differences between colors.

A derived representation is a different way of organizing existing coordinates.

For example, HSL and HSV are derived from RGB: instead of presenting color as red, green, and blue, they organize it into hue, saturation, and lightness or value. Similarly, CIELCh is the polar representation of CIELAB, while OKLCh is the polar representation of OKLab. In these cases, the available color does not necessarily change: what changes is the way it is read, described, and adjusted.

In this manual, when the context is operational rather than strictly theoretical, some derived representations, such as HSL, HSV, or HSP, may also be referred to as models or derived models, following common usage in graphics, photography, and color correction software.

In this manual, we will use the expression working domain in a practical sense: it indicates where a tool actually performs its calculations.

A Photoshop document can remain in RGB, while a tool may temporarily convert the pixels into another domain, such as CIELAB, OKLCh, HSL, or HSP, perform the correction there, and then return the final result to the RGB document.

For example, Curve Lab works on CIELAB coordinates, even though the document remains RGB. B&W Mixer works in OKLCh. Other tools allow you to choose between multiple domains, such as HSP, HSV, HSL, CIELCh, OKLCh, or JzCzHz.

This distinction is important because MindTheColor does not use a single system for all tools. Each function adopts the domain best suited to the type of adjustment required, in order to provide controls that are more coherent with the nature of the operation being performed.

Models, Color Spaces, and Fields of Use

Each tool adopts the working domain best suited to the type of operation required and, in several cases, allows the user to choose between multiple domains.

CIELAB and CIELCh

Curve Lab operates on the coordinates of the CIELAB color space: lightness (L*), the green-magenta axis (a*), and the blue-yellow axis (b*).

CIELCh is the polar representation of CIELAB, expressed through lightness, chroma, and hue, and is also used in the analytical scopes LCHscope and LABscope.

HSP, HSL, and HSV/HSB

HSV and HSB refer to the same representation, based on Hue, Saturation, and Value or Brightness: the difference lies only in the name used by different software.

HSL and HSV/HSB are representations derived from RGB and are available as alternatives in several tools.

HSP is a representation based on Hue, Saturation, and Perceived brightness, and is the reference domain for many secondary curves: Hue-Hue, Hue-L, Lum-S, Sat-L, Sat-S, and for the H, S, and L masks.

OKLab, OKLCh, JzCzHz and CAM16 - UCS

Grid and SL Grid offer multiple selectable methods. OKLab, OKLCh, JzCzHz, and CAM16

Several tools adopt more recent perceptual color spaces, derived representations, or color appearance models, or allow the user to choose between multiple domains.

OKLab is a perceptual color space; OKLCh is its polar representation, expressed through lightness, chroma, and hue.

JzCzHz is the polar representation of JzAzBz, with coordinates related to lightness, chroma, and hue.

CAM16 is a color appearance model; in the software, it is used through the coordinates J as a lightness correlate, C as a chroma correlate, and h as hue.

The B&W Mixer uses OKLCh. Hue-Chroma offers six selectable domains: HSP, HSV, HSL, CIELCh, OKLCh, and JzCzHz. Grid exposes seven domains, including CAM16. Mask Builder also includes HSP, HSV, HSL, RGB, and CIELCh.For each tool, the manual specifies the domain being used, so that the reader always knows in which mathematical environment the tool is operating.

Why Curves Remain Central

One of the most important advantages of curves is not only that they define a starting point and an ending point, but that they define the shape of the transition between them. It is precisely this shape that determines how the correction propagates through the intermediate values.

This aspect is fundamental because many Photoshop tools, and more generally many software applications that manipulate color, still operate through curves, but often with internal simplifications, predefined shapes, or interpolation algorithms that the user cannot directly control. When the shape of the transition becomes controllable, the author can explicitly decide how soft a correction should be, how selective it should be, how it should propagate through neighboring colors, and where it should stop.

Color literature and more recent standards show that attributes such as hue, chroma, and lightness require distinct treatments, and that the result also depends on the working domain and on the interpolation method being used. For this reason, tools that appear similar can produce different results: it is not enough to know what they correct; what also matters is how the intermediate values are constructed.

In this sense, MindTheColor helps avoid many implicit or predefined transitions, often built in domains that are not well suited to perceptual color control, in favor of more controllable interpolations that are more consistent with visual perception.

In MindTheColor, this translates into a high degree of technical and expressive freedom: the user does not accept a hidden curve, but can build their own relationship between colors, control points with numerical precision, and work on canvases of different sizes to better adjust density, distance, and progression of transitions.

Analysis System

The Scopes section provides six image-reading tools: Vectorscope, Waveform RGB, Parade, WaveformL, LCHscope, and LABscope. The scopes can be displayed in single, double, or wall layout, with four tools side by side, and are intended as verification tools during the workflow, not as mere accessories.

Their role is to support visual observation with readable information about tonal distribution, chromatic balance, and the behavior of the applied transformations. WaveformL reads lightness in the CIELAB domain; LCHscope and LABscope describe the chromatic distribution respectively in CIELCh and CIELAB coordinates.

Supported Color Profiles

The software processing chain manages documents and conversions in five RGB color spaces: sRGB, Adobe RGB (1998), Display P3, ProPhoto RGB, and Rec.2020.

When the behavior of a tool depends on the document color space, the manual explicitly indicates it. The strategies adopted for wide gamuts are not necessarily identical across all modules: some tools use dedicated safety procedures, while others work with direct conversions specific to the active profile.

Guide Criteria

This guide describes each tool in its operational aspects, in the logic governing it and in the limits of its field of application. Internal implementation details are reported only when they truly help understand a behavior perceivable by the user; otherwise, the text favors the tool's practical function.

Terminology Note

In this manual, perceptual and colorimetric terms are used with their rigorous meaning when referring to spaces such as CIELAB, CIELCh, OKLab, and OKLCh. In these contexts, lightness, chroma, and hue refer to perceptual or colorimetric attributes.

In RGB-derived representations such as HSL, HSV/HSB, and HSP, terms such as Lightness, Value, Brightness, Saturation, and Perceived brightness are used as coordinate names. They correspond to the terminology of the representation or the interface, but they should not automatically be interpreted as equivalent to the perceptual attributes defined by the CIE.

For example, Lightness in HSL is the L coordinate of the HSL representation, not CIE lightness. Value in HSV and Brightness in HSB are coordinate names, not direct measurements of perceptual brightness. Perceived brightness in HSP is used because the model is designed to approximate perceived luminance relationships more closely than standard HSL or HSV.

This convention allows the manual to remain faithful to the names used by the tools while preserving the distinction between operational coordinates and rigorous perceptual terminology..

How to Read This Guide

The chapters follow a recurring structure that includes: tool function, color system used, working domain, operating principle, interface controls, behavior, usage conditions, and version notes. The order and depth of sections may vary based on the tool's complexity, but the approach always serves to distinguish three levels: what the tool shows in the interface, what it actually processes and what is useful to know for using it in a real workflow.

When a function requires a specific callout, the manual uses three recurring markers. These markers appear only where truly needed and help distinguish between new content, tools introduced in v3 and changes in the operational workflow.

New tool: Indicates a module introduced as a standalone tool in version 3.

New in v3: Indicates a new function or new behavior within an already existing tool.

Updated workflow: Indicates a change in the correct way to use the tool, even when the underlying logic remains the same.

Where necessary, the text signals the difference between observable software behavior and theoretical interpretation of the adopted model.

To make this guide accessible even to those approaching color science for the first time, technical terms are clarified in the context where they appear. The introductory terminology note provides the conventions adopted in the manual.

TABLE OF CONTENTS

1. Installation

1.1 Chapter Purpose

This chapter describes the installation procedure for MindTheColor v3, the initial activation and the essential checks to perform when a .ccx file is not accepted by Adobe Creative Cloud Desktop.

1.2 Basic Requirements

- Adobe Photoshop 26 or later.
- Compatible with macOS and Windows.
- Adobe Creative Cloud Desktop installed and up to date.
- MindTheColor installation package provided in .ccx format.
- Active Internet connection for login, account verification and plugin installation.

If your system meets Photoshop's official requirements, it also meets those of MindTheColor. For CPU, RAM, GPU, operating system and disk space, refer to Adobe's up-to-date specifications for your platform.

1.2.1 Reference to official Photoshop requirements

Windows: For Photoshop 26.0 and later, Adobe specifies a multicore Intel, AMD or WinARM processor, 64-bit Windows 10/11 in a supported version, at least 8 GB of RAM, a DirectX 12 compatible GPU with at least 1.5 GB of video memory, a 1024×768 or higher monitor and available disk space for installation and temporary files. Adobe recommends 16 GB of RAM or more.

macOS: For Photoshop 26.0 and later, Adobe specifies a multicore Intel or Apple Silicon processor, macOS 13, 14 or 15, at least 8 GB of RAM, a GPU with Metal support, at least 1.5 GB of video memory, a 1024×768 or higher monitor and available disk space for installation and temporary files. On Mac, Adobe also recommends 16 GB of RAM or more.

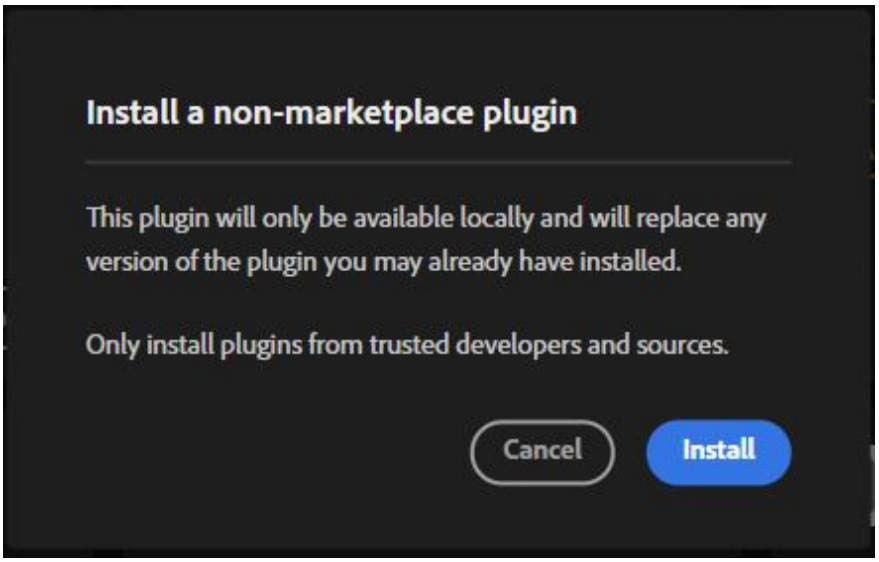
1.2.2 Apple Silicon, M1-M5 and the difference between UXP and CEP

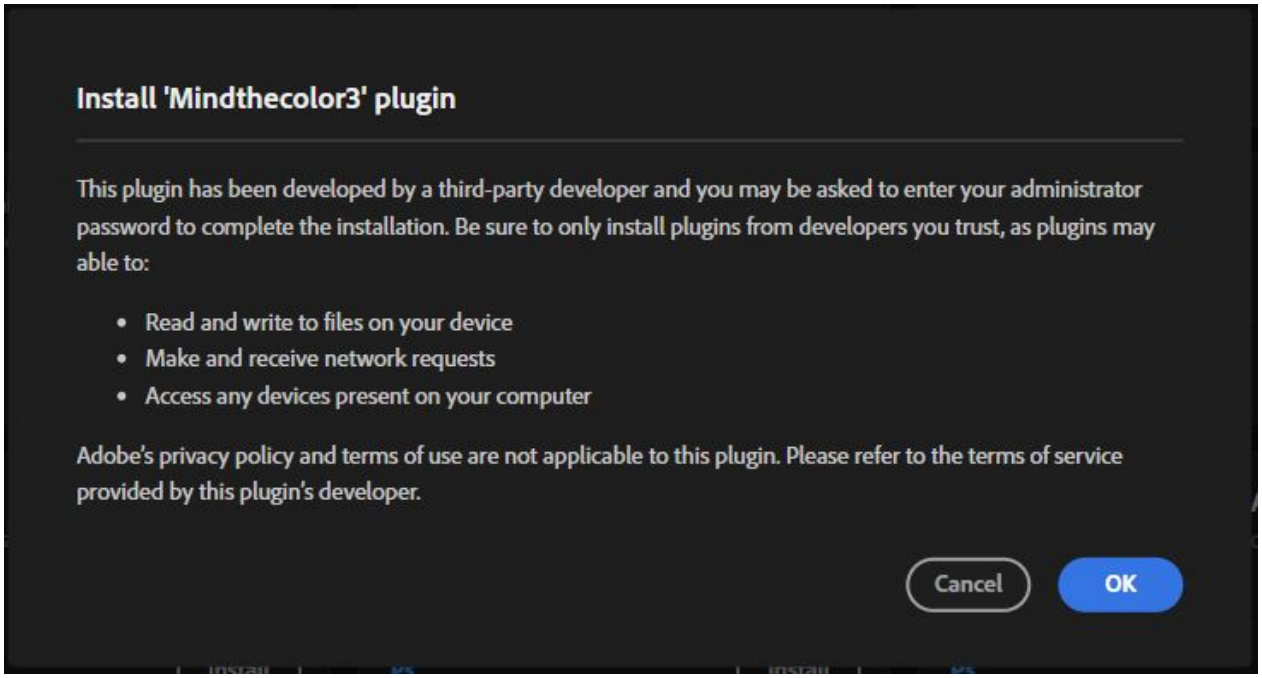
On Mac it is useful to clarify a point that often causes confusion: MindTheColor v3 is not a legacy CEP panel, but a UXP plugin for Photoshop. The limitations historically associated with some CEP extensions should not therefore be automatically transferred to this version of the software. Adobe also states that Photoshop runs natively on Apple

Silicon. Since the official requirements mention Apple Silicon processors and not a specific model, the M1, M2, M3, M4 and M5 family falls within practical compatibility, provided the Mac also meets the other specifications required by Photoshop for OS version, memory, GPU and disk space. In summary: the correct criterion is not asking whether the computer uses an old CEP environment, but whether it correctly runs Photoshop in a compatible version and within Adobe specifications.
• For Apple Silicon Macs, the correct reference is Photoshop's official compatibility with Apple Silicon, not past CEP plugin issues.

1.3 Standard Procedure

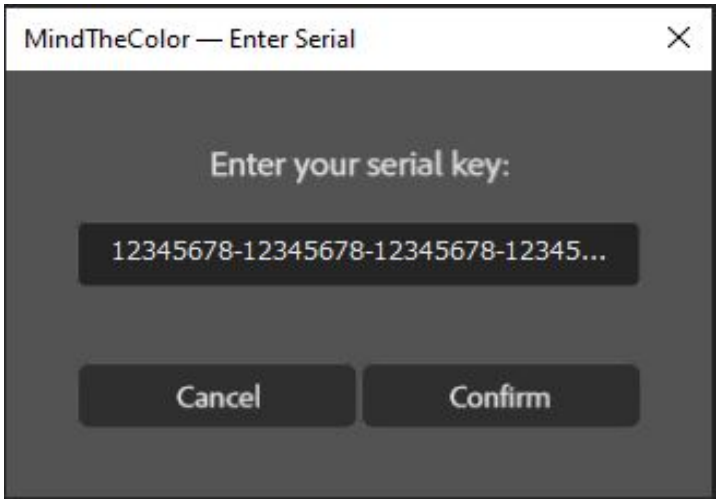
1. Close Photoshop if the application is open.
2. Double-click the .ccx installation file received with the plugin.
3. When Adobe Creative Cloud Desktop opens, confirm the plugin installation.
4. Wait for the procedure to complete without closing Creative Cloud Desktop.
5. Open Photoshop and launch MindTheColor from the Plugin menu.

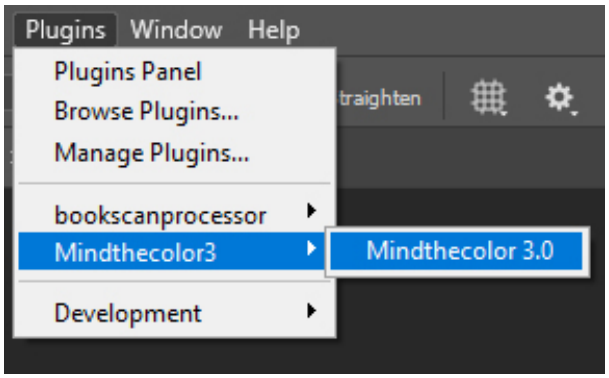




1.4 First Activation

On first launch, MindTheColor requires entering the serial number provided at the time of purchase. After confirmation, the panel becomes available for normal use.





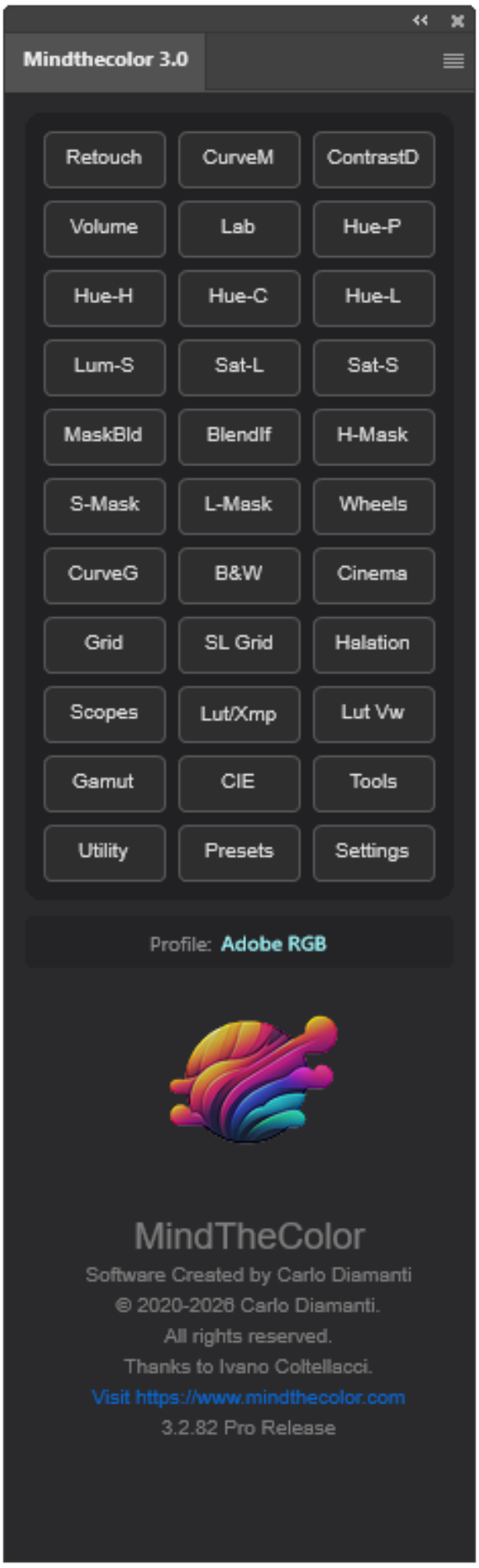
v1.5 Post-installation Verification

1. Check that MindTheColor appears in the Photoshop Plugin menu.
2. Open the panel and verify that loading occurs without error messages.
3. If the plugin is installed but does not appear in Photoshop, close and reopen both Photoshop and Creative Cloud Desktop.

1.5.1 Serial recovery, download and updates

For those purchasing through Gumroad, the purchase receipt contains the link to access the software and the serial number. This is the first document to keep.

For direct access to software and updates, the most practical method is to register and log in to Gumroad with the same email used for the purchase: the product will appear in the account Library, along with updated files and any published updates.



1.6 Common Installation Problems

.ccx file associated with the wrong application: If double-clicking opens Photoshop or the message "Creative Cloud cannot open files of this type" or "Photoshop does not recognize this type of file" appears, the .ccx file has been associated with the wrong application. In this case use Open With and select Unified Plugin Installer Agent.

Windows path for Unified Plugin Installer Agent: C:\Program Files\Common Files\Adobe\Adobe Desktop Common\RemoteComponents\UPI\UnifiedPluginInstallerAgent\UnifiedPluginInstallerAgent

macOS path for Unified Plugin Installer Agent: /Library/Application Support/Adobe/Adobe Desktop Common/RemoteComponents/UPI/UnifiedPluginInstallerAgent.app

Creative Cloud Desktop not updated or corrupted: If Creative Cloud Desktop itself fails to install or update correctly, it is best to update or reinstall the application. Adobe often associates error codes 1, P1, 50, P50, 301, C301, 1001 and 1002 with this scenario. If reinstalling is not enough, the next step is the Creative Cloud Cleaner Tool.

Message "Compatible App Required": This message indicates that the .ccx file requires a host application that is not installed or an incompatible version of Photoshop. Therefore verify that Photoshop is present and up to date.

Incompatible installation language: Adobe reports that some plugins may be incompatible with a specific installation language set in Creative Cloud Desktop. If the plugin is not recognized, check Account > Preferences > Apps for the Default install language setting.

Plugin installed but not visible: If the installation appears completed but the plugin does not show up in Photoshop, Adobe recommends signing out of Creative Cloud Desktop, restarting the computer, signing back into the same account and reopening Photoshop.

1.7 Common .ccx Package Errors

- **Error -2**: file system problem, permissions or insufficient disk space.
- **Error -3**: compressed package corrupt, incomplete or insufficient disk space.
- **Error -6**: plugin not compatible with installed Creative Cloud applications.
- **Error 1002**: permissions problem or unconfirmed credentials during installation.
- **Error 1003**: plugin operation timeout; close and reopen Creative Cloud Desktop and check the connection.

1.8 Operational Tips

Before repeating the installation multiple times, always check that Photoshop and Creative Cloud Desktop are up to date.

If an error code appears, note it down: it allows you to quickly distinguish between compatibility, network, permissions or corrupted package problems.

If double-clicking does not work, do not open the .ccx file with Photoshop: the correct application is Unified Plugin Installer Agent.

2. License and Activation

2.1 Purpose of This Chapter

This chapter describes the operational behavior of the MindTheColor v3 license from the user's perspective: how the plugin is activated, when an internet connection is required, and how to handle the most common special cases.

For the complete contractual terms, personal data processing information, and terms of use, please refer to the EULA document (see section 2.7).

2.2 License Model

MindTheColor v3 is distributed through unique serial numbers, generated at the time of purchase and associated with the individual transaction. Each serial number identifies a personal, non-transferable license, valid for using the plugin within the holder's Adobe Creative Cloud account.

The license does not limit the number of workstations, provided that all of them are asso ciated with the same Adobe account.

2.3 Required Internet Connection

MindTheColor v3 requires an active internet connection each time the plugin is launched. The verification is performed automatically when the panel opens and typically takes only a few seconds.

Once the initial verification has been completed, the plugin operates normally without an internet connection for the rest of the Photoshop session. The connection becomes necessary again the next time the plugin or Photoshop is restarted.

If the online verification cannot be completed at launch, the plugin displays the message "**Connection Required**" and does not activate. Once the connection has been restored, the Reload button allows the verification to be completed and normal operation to continue.

2.4 Adobe Account Binding

On first use, the serial number is linked to the active Adobe Creative Cloud account on the workstation. From that moment on, the same serial number can be used exclusively with that account, regardless of the number of computers on which the plugin is installed.

Operational cases:

- Multiple workstations with the same Adobe account: the plugin works regularly on all of them. This is the typical case for professionals working both in the studio and on the move.
- Changing computer while keeping the same Adobe account: no additional procedure is required.
- Changing Adobe account: the account binding must be unlocked by writing to
- support@mtclicense.com
- This is a free operation, normally completed within 24 business hours.

2.5 Service Status

To allow users to independently check the status of the licensing system, a public real-time monitoring page is available:

https://stats.uptimerobot.com/y0ULCS0yoR

In case of repeated “Connection Required” errors despite an active internet connection, this is the first reference to consult. We recommend adding the page to your browser bookmarks for quick access.

In the event of a service interruption, Photoshop sessions in which the plugin is already active will continue to operate normally; new sessions will become available once the service is restored.

2.6 Revocation or Suspension

A license may be revoked in the event of a payment dispute or a documented violation of the terms of use. In this case, the message “**License Revoked**” will be displayed at the next launch.

A license may also be automatically suspended when the system detects patterns compatible with the sharing of the serial number among multiple users. In this case, the message displayed is “**License Suspended**”.

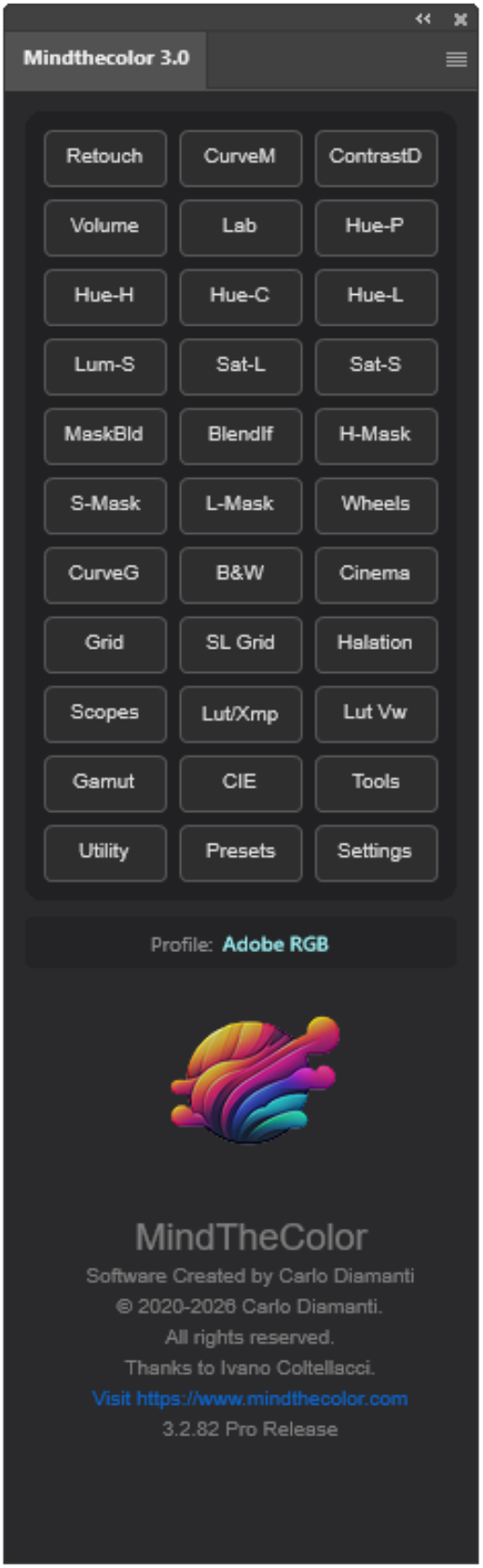
In both cases, the legitimate user may request restoration by writing to **support@mtclicense.com**

2.7 References

For the complete contractual terms, personal data processing information, and terms of use:

- EULA (License Agreement):https://www.mindthecolor.com/license-terms-2
- Technical support: support@mtclicense.com
- Status page: https://stats.uptimerobot.com/y0ULCS0yoR

3. The Main Panel



3.1 Panel Function

The main panel is the access point to all MindTheColor v3 tools. It contains a grid of 34 buttons, the color profile display of the active document, and the plugin version information. The button order follows a functional logic and not a mandatory workflow sequence. The user can also reorder the buttons, see section 3.4, and assign a custom color to each one, see section 3.5.

3.2 Button Organization

The buttons are grouped by area of operation. Some labels are abbreviated to fit the grid space, for example MaskBld stands for Mask Builder, B&W for the black and white module, and Lut Vw for Lut Viewer.

Primary correction and retouching: Retouch, CurveM, ContrastD, Volume, Lab, and Hue-P.

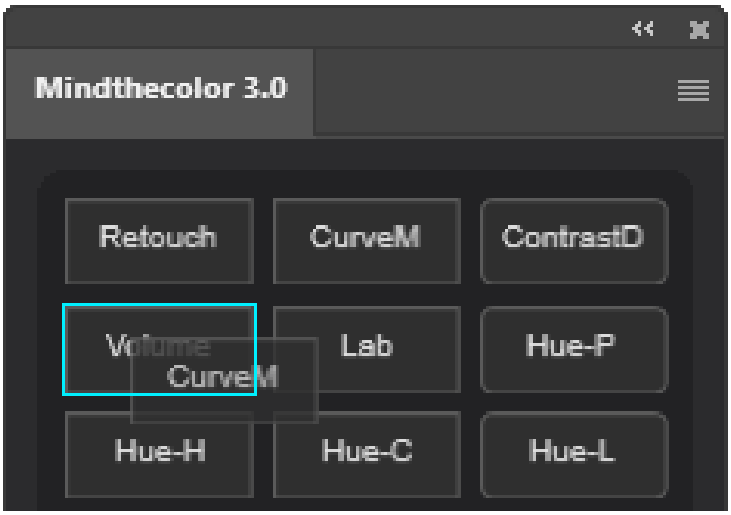
Secondary correction: Hue-H, Hue-C, Hue-L, Lum-S, Sat-L, and Sat-S.

Selections and masks: MaskBld, BlendIf, H-Mask, S-Mask, and L-Mask.

Look and grading: Wheels, CurveG, B&W, Cinema, Grid, SL Grid, and Halation.

Analysis and utilities: Scopes, Lut/Xmp, Lut Vw, Gamut, CIE, Tools, Utility, Presets, and Settings.

3.3 Button Reordering, drag-reorder



The positions of the buttons in the main panel can be freely reorganized through a swap-based drag and drop mechanism.

How to activate it: from the Settings panel, enable the Enable Button Drag-Reorder option, see section 37.3.

How to use it:

Short click on a button opens the tool as usual. Reordering does not interfere with normal panel use.

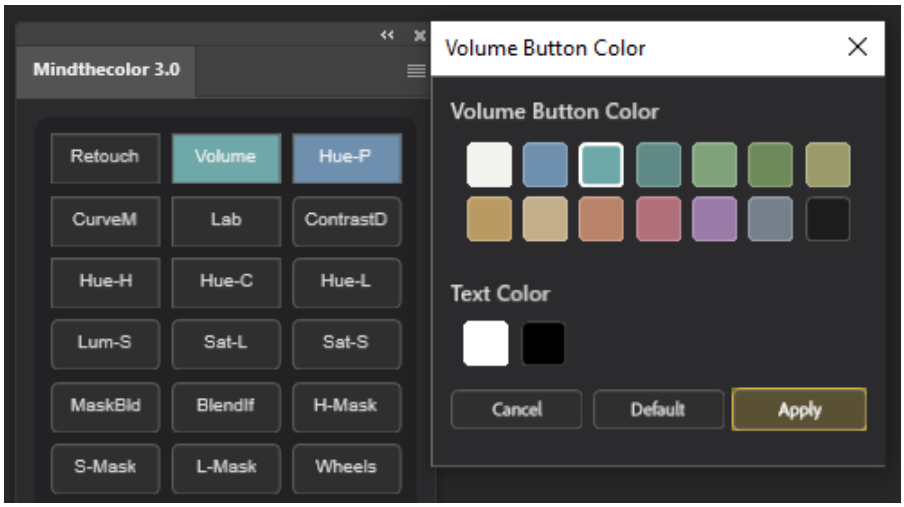
Click and hold, then drag a button over another button: during dragging, a semi-transparent preview follows the cursor to indicate the destination position.

On release over the destination button: the two buttons swap positions. The other buttons do not move.

Reset: from the Settings panel, Main Button Order > Reset all restores the original order of all buttons.

Persistence: the custom order is saved and restored each time the plugin starts. (see section 37.4)

3.4 Customizing Button Colors



Each button in the main panel can be individually customized in color.

How to open the color picker: right-click on any button in the main panel.

What can be selected:

Button background color, chosen from a predefined palette of 14 colors (**White, Mist Blue, Dusty Cyan, Teal Grey, Sage, Moss, Olive Grey, Soft Ochre, Sand, Clay, Rosewood, Mauve, Slate, Black**).

Text mode: **White Text, Black Tex**t.

Real-time preview on the button during selection. If the user closes the dialog without applying the change, the previous state is restored.

Reset: from the Settings panel, Main Button Colors > Reset all clears all custom colors from the main panel buttons, with a Yes/No confirmation dialog.

Persistence: the choices are saved and restored each time the plugin starts.

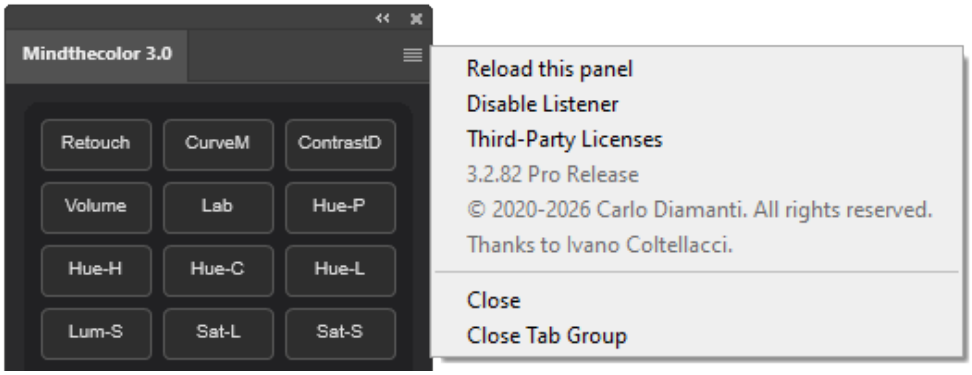
The same customization mechanism is also available for the buttons in the Retouch panel, see section 4.9 of the Retouch manual.

3.5 Panel Menu

The panel menu, accessible through the ≡ icon in the upper-right corner, contains two utility commands, information about the installed version, and the licenses for third-party components.

- **Reload this panel**: reloads the panel. Useful if the interface does not update correctly.

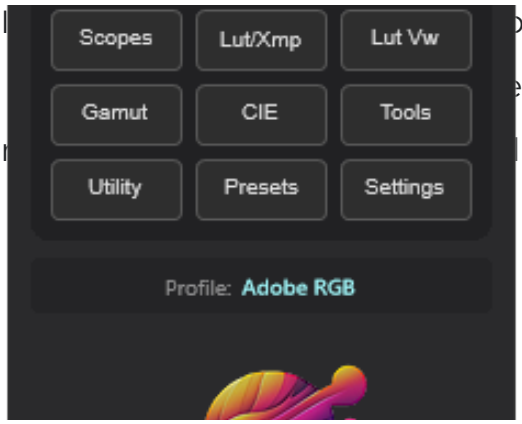
- **Disable Listener / Enable Listener**: enables or disables document event monitoring. For correct software operation the listener must remain active.
- **Third-Partys License:** The page is organized into 12 collapsible sections and includes the full license texts, togheter with information about the third-party libraries, components, and resources used by MindTheColor.



3.6 Color Profile Display

Below the button grid the "**Profile**" field appears, showing the color profile of the active document: sRGB, Adobe RGB, Display P3,ProPhoto RGB or Rec.2020.

The display updates automatically when switching documents, opening a new one or changing the color profile. I oes not occur, clicking the Profile field forces a refresh ed profile to all open tools. Without a readable docume lback value



3.7 Window Management

MindTheColor uses a single-window system for its correction tools. When a tool is opened, any correction tool already open closes automatically. To reopen a previously

used tool, simply select its corresponding layer. The selected tool will reopen, replacing the one currently active. Scopes, Tools, CIE 1931, Gamut 3D, Lut Viewer and Settings remain independent: they can stay open while switching correction tools.

3.7.1 Focus Keyboard

In some cases, keyboard focus may remain on the tool window. Pressing **Esc** button returns it to Photoshop, making its shortcuts available again.

The tool's internal shortcuts continue to work normally as long as the focus remains on its window.

3.8 Information Area

At the bottom of the panel the logo, author, website and release number are visible. This information is useful for quickly verifying which version is in use.

3.9 Automatic Preference Backup

Main panel customizations are protected by an automatic backup system. The backup includes the button order, the custom colors assigned to the main panel buttons, and those assigned to the Retouch panel buttons.The settings are saved as a JSON file in the MindTheColor data folder. If the customizations are accidentally reset, the plugin detects the backup the next time it is launched and allows you to choose which elements to restore:

button order;

main panel colors;

Retouch panel colors.

The backup file is stored in the plugin's UXP data folder.

Windows:%APPDATA%\Adobe\UXP\PluginsStorage\PHSP\<Photoshop version>\External\<plugin ID>\PluginData

macOS: ~/Library/Application Support/Adobe/UXP/PluginsStorage/PHSP/<Photoshop version>/External/<plugin ID>/PluginData

For Photoshop 2026, the Photoshop version folder is 27.

3.10 Operational Tips

Use the panel as a map of the suite: the button position, which can be changed, see section 3.4, helps identify the functional area of each tool.

If you work with many tools consecutively, enable Single Window Mode to reduce the number of open windows.

Use color customization, right-click, to highlight the most frequently used tools: for example, assigning an accent color to your favorites makes them very quick to identify in the grid.

Drag-reorder is an optional feature: users who want to avoid accidentally moving a button can leave Enable Button Drag-Reorder disabled.

Reload this panel is a service command, to be used in case of an internal error, not as a standard working procedure.

If Photoshop shortcuts stop responding after working inside a tool, press **Esc** button to return focus to Photoshop

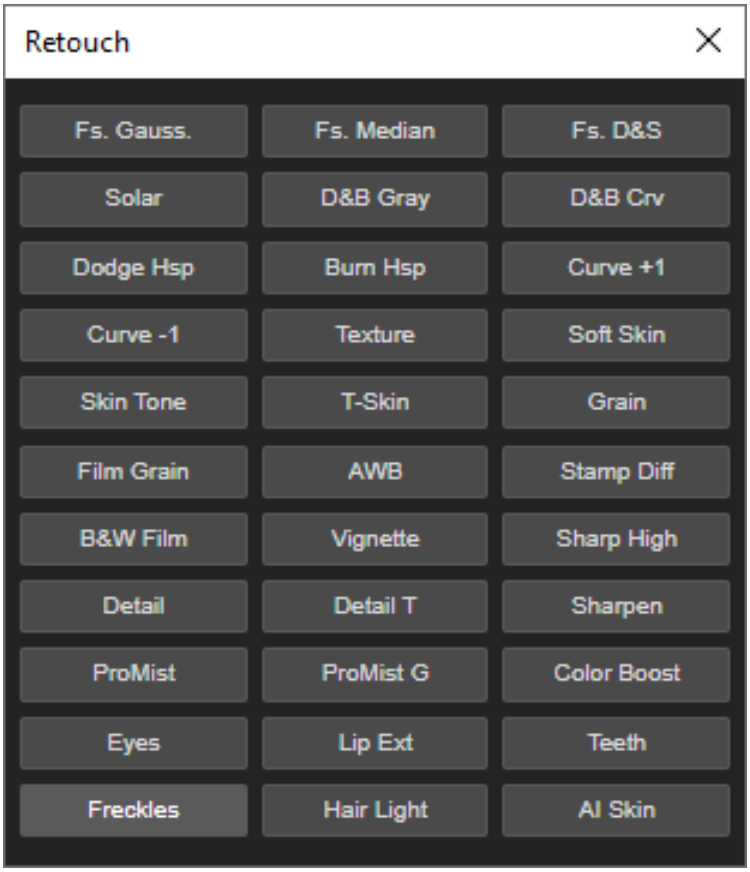
3.11 Version Notes

New in v3: added color customization for the main panel buttons, right-click on the button. Predefined palette of 14 colors, configurable text mode, local persistence.

Added button reordering through swap-based drag-reorder. It is enabled from Settings, Enable Button Drag-Reorder. A short click continues to open the tool; dragging swaps the button with the one it is released onto.

Added reset for the main panel button order from the Settings panel, Main Button Order > Reset all.

4. Retouch



4.1 Tool Function

The Retouch section of MindTheColor 3 brings together utilities for different stages of retouching and image processing. The available functions include frequency separation, diagnostic tools, Dodge & Burn, skin retouching, color balancing, black-and-white conversion, grain, diffusion, sharpening, and portrait-specific adjustments. Depending on the selected command, layers, groups, and masks may be prepared, selections created, or editable adjustments and effects applied. Preset management is covered in the dedicated chapter.

Most commands leave the original layer unchanged and add new layers, Smart Objects, or groups to the document. When an inverted mask is created, the effect can be applied selectively by painting in white over the desired areas. Some utilities, such as AI Skin, do not add layers but generate an active selection. The tools in the Retouch section can be used with 8-bit and 16-bit RGB documents; documents in Lab mode and 32-bit documents are not supported.

4.2 Frequency Separation and Diagnostics

Frequency separation divides the image into two components: low frequencies, which contain color, tone, and general volumes, and high frequencies, which contain texture, fine detail, and edges. This separation makes it possible to retouch tone and color without affecting texture, or vice versa. MindTheColor offers three variants, distinguished by the filter used on the low frequencies: Gaussian blur, Median, and Dust & Scratches. The three variants produce the same uniform layer structure, so they can be exchanged without changing the workflow.

Fs. Gauss.: creates a frequency separation using Gaussian Blur on the low-frequency component. The result is a group named Fs. Gaussian, containing six layers: Solar, disabled by default and used for diagnostic purposes, High, High for work, color correction, Low, and Low for work. The color correction layer is positioned between the layers dedicated to the high frequencies and those dedicated to the low-frequency work. The procedure automatically adapts to 8-bit and 16-bit documents.

Fs. Median: creates a frequency separation using the Median filter on the low-frequency component. The result is a group named Fs. Median, with a structure similar to that of Fs. Gauss., but without the color correction layer.

Fs. D&S: creates a frequency separation using the Dust & Scratches filter on the low-frequency component. It provides an alternative to Gaussian Blur and the Median filter when the skin texture requires a different treatment. The result is a group named Fs. D&S, with the same five-layer structure as Fs. Median.

Solar: creates a Curves layer with a six-point solarization curve. It is a diagnostic layer: it makes micro dust, cloning defects, discontinuities, and irregularities visible, even when they may be hard to notice with the naked eye.

Stamp Diff: creates a layer containing only the pixels that differ from the original image. It is useful after retouching to check which areas have actually been modified and to reduce file size by saving only the real differences.

4.3 Dodge & Burn and Local Exposure

Dodge and burn consists of selectively lightening, dodge, and darkening, burn, areas of the image to control volume, three-dimensionality, and visual attention. It is still one of

the most widely used techniques by professional retouchers for skin retouching. MindTheColor offers several variants, each with a different working logic.

D&B Gray: creates a "D&B Gray" group with a 50% gray layer and a Black & White layer. The work is done by painting in white, to lighten, and black, to darken, on the gray layer with a low-opacity brush.

D&B Crv: creates a "D&B Crv" group with three Curves layers in Luminosity blending mode. Unlike gray-based D&B, curves allow finer control over the tonal distribution of lightening and darkening.

Dodge Hsp: generates a LUT based on the HSP model that lightens the image by approximately one stop, acting on perceived brightness. The layer is created with an inverted mask: the user paints in white only where the effect should be applied.

Burn Hsp: complementary to Dodge Hsp, it darkens by approximately one stop, still working on perceived brightness in HSP, with the same inverted mask logic to be painted manually.

Curve +1: creates a Curves layer preset to lighten by approximately one stop, with an inverted mask. The layer takes the name of the button, "Curve +1".

Curve -1: creates a Curves layer preset to darken by approximately one stop, with an inverted mask. The layer takes the name of the button, "Curve -1".

4.4 Skin and Portrait

Texture: generates a texture that simulates skin detail, useful when excessive retouching has removed too much fine detail. The layer is created with a mask: the user paints to reintroduce texture only in the desired areas.

Soft Skin: applies a skin softening effect that reduces micro-detail to obtain a smoother and more even appearance. The layer is a smart object, "Skin Softening": by double-clicking it, the internal filters can be accessed and adjusted. For optimal results, the **High Pass** value should be a **multiple of 3**, while the **Gaussian** value should be set to **one third** of the selected High Pass value. The default High Pass value is 12 px and can be changed in the dialog that opens. The layer is created with a black mask: the user paints in white only on the areas to be treated.

Skin Tone: applies a LUT dedicated to skin tone correction with a black mask. The resulting layer is named Skin Tone. By painting in white, magenta and pink casts are reduced in the desired areas.

T-Skin: corrects skin tones through a statistical analysis of the active layer, based on color transfer in CIELAB. It acts mainly on magenta and red tones. T-Skin works only on pixel layers, sampling the pixels of the active layer. If the active layer is not a pixel layer, the plugin shows a warning and does not proceed.

AI Skin: calls Photoshop's person detection system to automatically select the skin areas of the face and body, excluding hair, clothing, and background. It does not create layers: it produces an active selection on which the user can work with any tool. AI Skin works only on pixel layers. If the active layer is not a pixel layer, the plugin shows a warning and does not proceed. If no skin is detected in the image, the plugin reports it.

4.5 Balancing and Conversion

AWB: performs automatic white balance without using Adobe Camera Raw. The created layer is named "AWB".

B&W Film: creates a series of layers divided into groups, allowing the user to adjust tonal distribution, contrast, and grading, toning, of the image. The opacity of each layer can be adjusted independently.

Color Boost: creates a "color boost" group with four layers. Two base layers in separation mode, "toning" for brightness and "color" for color, and two clipped Curves layers that work independently on tone, "luminosity", Luminosity blend mode, and color, "saturation", Color blend mode. This separation makes it possible to work independently on color and tone.

4.6 Grain and Diffusion

Grain: adds grain to the image through Adobe Camera Raw. Although Photoshop has introduced its own grain filter, Camera Raw produces a softer and more uniform rendering, especially in fine-detail areas where the native filter tends not to apply evenly. The result is a smart object: the grain parameters can be adjusted by reopening the filter.

Film Grain: builds film grain across multiple layers, with a more layered rendering than Grain. The grain acts differently on midtones and shadows, allowing finer control over the overall effect.

Vignette: creates a black radial gradient with progressive transparency from the center to the edges. The layer is created with active dithering to reduce visible transition banding in the shadows. The layer is named "Vignette". The effect is adjusted using layer opacity and blending mode.

ProMist: simulates the effect of optical diffusion filters, such as Black Pro-Mist, softening contrast and adding a slight glow to the highlights. It creates four layers with descriptive names: "Glow", "Black Lift", "Highlights", and "Detail".

ProMist G: extends ProMist by adding a grain component and broader diffusion, for a richer result closer to the rendering of physical filters. It creates three layers with descriptive names: "Glow + Grain", "Contrast", and "Tint

4.7 Detail and Sharpening

Sharp High: increases micro-detail using the High Pass filter. The result is controlled through layer opacity.

Detail: similar to Sharp High, but with the option to also vary tint and contrast.

Detail T: modifies image contrast by applying two curves that adjust highlights and shadows.

Sharpen: increases detail locally, using a layer mask to limit the effect only where needed.

4.8 Portrait Retouching

Eyes: creates a nested structure dedicated to eye retouching. It generates an external "eyes" group containing two subgroups: "Iris", with two Curves layers, "Iris light" in Screen and "Iris dark" in Multiply, both with inverted masks, and "Eye whites", with a Hue/Saturation layer named "desaturate" and a Curves layer named "light" in Screen, both with inverted masks. The tool works on any type of active layer.

Lip Ext: increases the three-dimensionality of the lips. It creates a pixel layer named lip extrude with an Unsharp Mask applied and a black mask: the user paints in white on the lips to reveal the effect.

Teeth: creates a "teeth" group to whiten teeth. The group contains a Hue/Saturation layer that desaturates magenta and red tones, and a Curves layer in Screen that lightens, both with inverted masks.

Freckles: enhances freckles in the image. The created layer is named "Emphasizing Freckles". The result can be adjusted through layer opacity and mask.

Hair Light: creates a Curves layer named hair light in Linear Dodge to add or reinforce highlights in the hair, with an inverted mask to be painted using an appropriate brush size and hardness.

4.9 Customizing Retouch Button Colors

The buttons in the Retouch panel can be individually customized in color.

How to open the color picker: right-click on any button in the Retouch panel.

What can be selected: the buttons in the Retouch panel can be individually customized in color. By right-clicking a button in the panel, the color picker opens, allowing the user to choose one of the 14 available predefined colors and set the text mode: auto, calculated based on the background luminance, White Text, or Black Text.

Automatic effects:

Button background, foreground, and border.

Hover color, automatically calculated according to the luminance of the selected color.

Real-time preview on the button during selection. If the user closes the dialog without applying the change, the previous state is restored.

Persistence: the choices are saved locally and restored each time the plugin starts.

Reset: the Settings panel contains a Reset all button that clears all custom Retouch colors in a single operation.

4.10 Usage Conditions

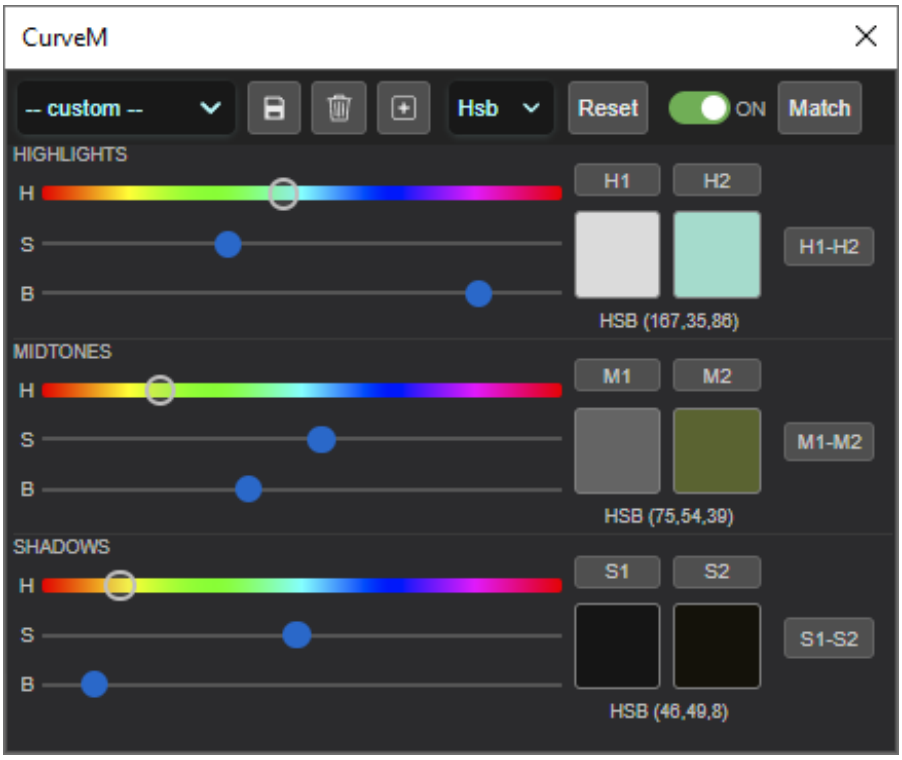
- Retouch is not a mandatory sequence: it is a collection of utilities to call upon based
- on the problem to solve.
- Many commands create new layers from the visible composite.
- Tools with inverted masks should be refined manually with a low-opacity white brush.

- Documents in Lab mode and 32-bit documents are not supported: the plugin reports
- the limitation without producing ambiguous results.

4.11 Version Notes

New in v3: AI Skin introduces automatic skin selection based on Photoshop's people detection.

5. CurveM



5.1 Tool Function

CurveM is a color correction, color grading, and color matching tool. It allows you to define a color transformation using three pairs of colors and automatically convert it into a Photoshop RGB Curves adjustment.

Instead of working directly on the individual Red, Green, and Blue channels, the user can work with colors more intuitively through the H, S, and B components of the HSB color model: **Hue**, **Saturation**, and **Brightness**.

The transformation is defined across three areas called **Highlights**, **Midtones**, and **Shadows**. Each area includes a source color and a target color:

H1, **M1**, and **S1** represent the source colors.

H2, **M2**, and **S2** represent the target colors.

CurveM builds the adjustment required to transform the three source colors into their corresponding target colors.

5.2 Panel Structure

The panel consists of a top bar and three stacked sections: Highlights, Midtones, and Shadows.

The top bar contains:

- the preset menu;
- the button for saving the current preset;
- the button for deleting the selected preset;
- the button for creating a new CurveM layer;
- the Reset button;
- the ON/OFF toggle;
- the Match button.

All three tonal sections share the same layout. On the left side, there are three sliders:

- H adjusts Hue;
- S adjusts Saturation;
- B adjusts Brightness in the HSB color model.

The sliders modify the target color of the corresponding section: H2 for Highlights, M2 for Midtones, and S2 for Shadows.

On the right side of each section, there are two buttons and two color swatches:

- H1, M1, and S1 open the color picker to set or sample the source colors;
- H2, M2, and S2 open the color picker to set or sample the target colors;
- The left swatch displays the source color;
- the right swatch displays the target color.

The HSB values of the target color are displayed below the two swatches. Moving the H, S, and B sliders updates both the right swatch and the corresponding numerical values.

An additional button is located to the right of the swatches:

- H1-H2 for the Highlights section;
- M1-M2 for the Midtones section;
- S1-S2 for the Shadows section.

These buttons copy the source color to the target color of the corresponding section.

In the names H1 and H2, the letter H stands for Highlights. In the names S1 and S2, the letter S stands for Shadows. These labels should not be confused with the H and S sliders, which stand for Hue and Saturation.

5.3 Source and Target Samples

The H1, M1, and S1 colors are the inputs of the transformation. They represent the colors present in the image before correction.

The H2, M2, and S2 colors are the outputs. They represent the colors you want to obtain. The relationships are therefore:

- H1 is transformed into H2;
- M1 is transformed into M2;
- S1 is transformed into S2.

The names Highlights, Midtones, and Shadows describe the initial organization of the three points, but the colors can be sampled freely. However, the source samples must remain ordered from lightest to darkest: H1 must be lighter than **M1, and M1 must be lighter than S1.**

If this order is not respected, CurveM reports that the interpolation cannot be calculated. Samples that are too close to one another may also produce very steep curves and abrupt transitions.

5.4 Panel Controls

Preset menu: allows you to select and load a saved configuration.

Save button: identified by the floppy disk icon, it saves the current configuration as a preset.

Delete button: identified by the trash can icon, it deletes the selected preset.

+ button: creates a new Curves adjustment layer whose name contains Mtc CurveM.

Reset: restores the panel's default values. If the active layer is a valid CurveM layer, it also updates the applied adjustment.

ON/OFF toggle: when enabled, moving the sliders updates the CurveM layer in real time. When disabled, the sliders modify the values displayed in the panel without immediately applying the correction to the layer.

Match: applies the panel's current configuration to the active CurveM layer. It can be used to confirm the correction when the ON/OFF toggle is disabled.

H1-H2, M1-M2, and S1-S2: copy the source color to the corresponding target color. This resets the pair to a neutral mapping from which a new adjustment can be created.

Right-clicking the sliders: right-clicking any H, S, or B slider resets all three sliders in the corresponding tonal section.

5.5 Working Layer

CurveM applies corrections exclusively to Curves adjustment layers whose name contains "**Mtc CurveM**".

The + button automatically creates a valid layer. When an existing CurveM layer is selected, the panel recognizes it and allows you to resume working from its saved configuration.

The layer name can be customized by adding text before or after Mtc CurveM, provided that this text remains part of the name.

If the active layer is not a valid CurveM layer, the panel does not apply the correction. When a valid layer is selected again, the panel reloads the source and target colors, slider positions, and toggle state saved in that layer.

5.6 Color Matching

CurveM can be used to bring the colors of one image closer to those of a reference image.

To perform color matching:

- H1, M1, and S1 are sampled from the image to be corrected;
- H2, M2, and S2 are sampled from the reference image.

CurveM then builds the Curves adjustment that transforms the three colors sampled from the image being corrected into the corresponding colors sampled from the reference image.

For a consistent result, it is advisable to select samples from the same material or from corresponding areas of the subject. When comparing two portraits, for example, you can sample three points on the skin by choosing one highlight area, one midtone area, and one shadow area.

This allows the transformation to relate values belonging to the same type of surface, avoiding the use of different materials as references.
If a source color matches its corresponding target color, for example M1 = M2, that mapping remains neutral. Nearby values may still be affected by the overall interpolation of the curve.

Colors can also be sampled from a color palette instead of another image. The logic remains the same: samples labeled 1 represent the colors to be transformed, while samples labeled 2 represent the colors to be obtained.

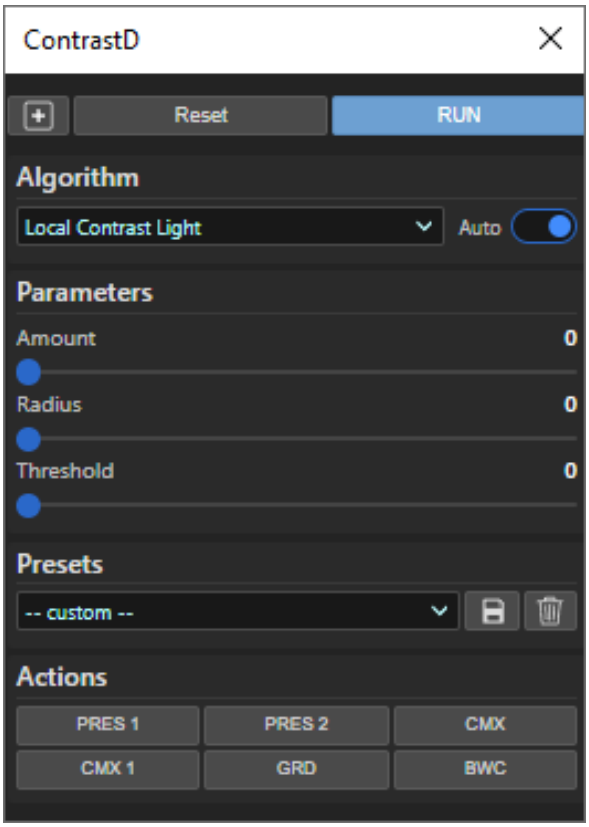
5.7 Usage Conditions

- CurveM requires an RGB document.
- The correction can only be applied to a valid CurveM layer.
- The H1, M1, and S1 source colors must remain ordered from lightest to darkest.
- If the sample order is invalid, CurveM reports that the interpolation cannot be calculated.
- Source samples that are too close to one another may produce abrupt transitions.
- The quality of the color matching depends on selecting genuinely corresponding samples from the images.

5.8 Version Notes

New in v3: Real-time layer update during slider adjustment (ON toggle).

6. ContrastD



6.1 Tool Function

ContrastD increases local contrast and the perceived sharpness of the image. Compared with a standard Unsharp Mask, it provides separate control over the light and dark components of the adjustment, limiting the appearance of halos along the edges of objects.

ContrastD is primarily designed for local contrast. The quick actions described in section 6.4 are available for increasing the overall contrast of the image.

The result is placed on a separate layer. The layer name contains the algorithm identifier and the three values used, for example **contrastD1(20,290,0)**. This information makes it possible to identify and recreate the applied adjustment at a later time.

6.2 Algorithms and Parameters

The drop-down menu at the top of the panel allows you to select one of the three available algorithms. The names and functions of the parameters change according to the selected algorithm.

Values can be adjusted using the sliders or entered numerically. Double-clicking the displayed value turns it into an editable field. Press **Enter** to confirm the new value or **Esc** to cancel the change.

Local Contrast Light and Local Contrast Dark: Local Contrast Light and Local Contrast Dark are designed to increase local contrast while providing more selective control than a standard Unsharp Mask.

Unsharp Mask increases perceived sharpness by emphasizing differences along edges. However, when high Amount or Radius values are used, it can produce light and dark halos along more pronounced edges.

The two ContrastD algorithms provide separate control over the light and dark components:

Local Contrast Light affects the light components of local contrast.

Local Contrast Dark affects the dark components of local contrast.

This separation makes it possible to adjust the two effects independently and limit halos. A typical example is the outline of a mountain against the sky, where a standard adjustment may produce a clearly visible light or dark edge.

Both algorithms use the same parameters:

Amount: adjusts the intensity of the effect.

Radius: determines, in pixels, the size of the surrounding area used to calculate contrast. Lower values affect finer details, while higher values act on larger structures and broader transitions.

Threshold: sets the minimum tonal difference required for the algorithm to take effect. It prevents very subtle variations from being emphasized.

Clarity Enhance: Clarity Enhance is designed to increase local contrast. It analyzes the differences between neighboring areas and emphasizes them at the scale determined by the Radius value.

With low Radius values, the adjustment primarily affects fine detail and microstructure. With higher values, it acts on broader transitions and can increase the visual separation between volumes, strengthening the impression of depth.

Clarity Enhance uses the following parameters:

Radius: determines the scale of the details and transitions on which local contrast is increased.

Remove Halos: adjusts the reduction of halos that may appear when contrast is increased.

Dynamic Range: adjusts the relationship between the increase in contrast and the protection of the lightest and darkest areas. It improves separation between areas of the image while reducing the risk of losing detail in the extreme tonal regions.

6.3 Panel Controls

The effect is not updated continuously while the sliders are being dragged. When Auto is enabled, processing is performed when the mouse button is released. When Auto is disabled, the effect is applied by pressing the RUN button.

+ button: identified by a + symbol inside a square: it crea tes the dedicated ContrastD layer. It does not need to be used before running the algorithm. If the layer has not already been created, ContrastD creates it automatically when the effect is applied.

Auto: when enabled, the algorithm is applied when the slider is released. When disabled, the sliders only modify the values displayed in the panel, and processing must be started by pressing RUN.

RUN: executes the selected algorithm using the current parameters.

Reset: restores the sliders to their initial values and selects the first algorithm again.

Presets: Through this section, you can save the panel settings as presets, which will be displayed in the drop-down menu. Once the desired preset is selected, it will be applied automatically.

6.4 Presets and Quick Actions

PRES 1: applies a basic configuration designed for the light components, intended as a starting point for close-up portraits.

The values provided by these presets can be adjusted later according to the characteristics of the image.

Quick actions for overall contrast

The following actions do not use the ContrastD algorithm controls. Instead, they add layers designed to adjust the overall contrast of the image:

CMX: adds contrast using a Channel Mixer adjustment layer.

CMX 1: uses a Channel Mixer adjustment layer with stronger lightening of the Blue channel.

GRD: adds a slight amount of contrast using a Gradient Map adjustment layer.

BWC: adds a slight amount of contrast using a Black & White adjustment layer.

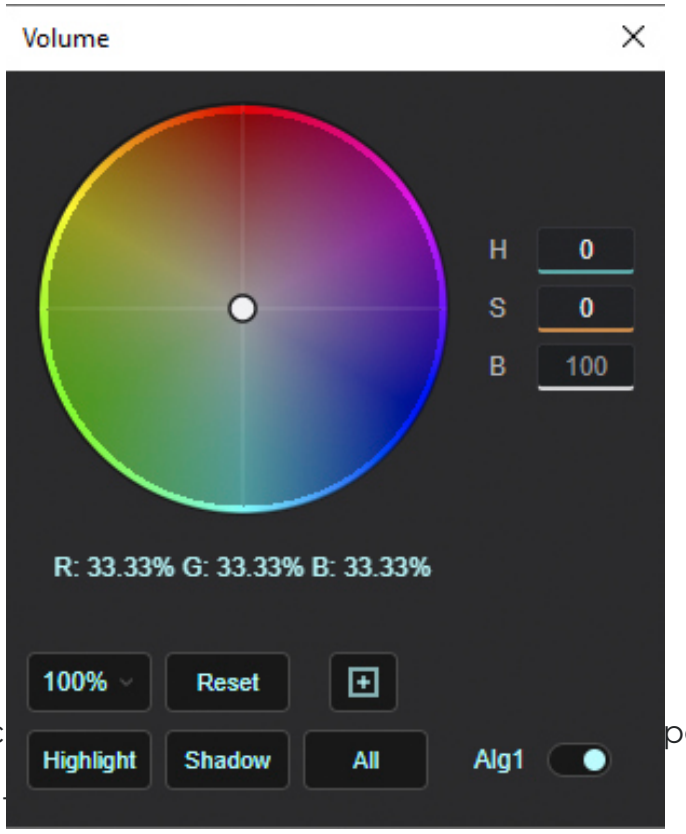
6.5 Usage Conditions

- Requires an RGB document.
- The result remains on a standalone layer, adjustable with opacity and mask.

6.6 Version Notes

Updated workflow: Descriptive algorithm names.

7. Volume



PRES 2: applies a basic ponents, intended as a starting point for close-

ick actions for overall contrast

7.1 Tool Function

Volume modifies image contrast through a monochrome Channel Mixer adjustment layer. The Color Wheel provides visual control over the percentage weights of the Red, Green, and Blue channels used to build the final brightness.

Moving the cursor toward a color changes the contribution of the corresponding channels. For example, moving it toward blue increases the weight of the Blue channel. Areas of the image containing more blue therefore tend to become brighter than areas dominated by red or green.

As the cursor moves away from the center of the wheel, the differences between the RGB channel contributions become more pronounced. Depending on the selected direction, one or two channels gain more weight while the contribution of the others decreases. Near the edge, one channel may become predominant and one of the other

channels may reach 0%. The exact combination depends on the cursor position and the selected algorithm. The R, G, and B percentages displayed below the wheel show the actual contribution of each channel at all times.

This redistribution changes the relative brightness of different areas of the image and can produce very pronounced variations in contrast.

The generated layer uses the Luminosity blending mode. The adjustment therefore modifies the brightness component of the image without directly altering its hue and saturation.

7.2 Panel Structure

The central area of the panel contains the Color Wheel and three numerical fields: H, S, and B.

H represents Hue, meaning the hue selected on the wheel.

S represents Saturation and corresponds to the distance of the cursor from the center of the wheel.

B remains fixed at 100 and cannot be modified. Volume uses the color direction and saturation to determine the relationship between the channels, without using the Brightness component of the wheel.

The H and S values can be adjusted in two ways. Dragging a numerical value horizontally makes the field work like a slider. Clicking the value allows it to be entered directly.

Below the Color Wheel, the panel displays the resulting percentages of the three channels, for example:

R: 33.33% G: 33.33% B: 33.33%

These values indicate the weights of the Red, Green, and Blue channels used to build the final brightness. They provide direct feedback on the effect produced by moving the cursor.

7.3 Intensity Selector

The intensity selector offers values from 100% to 150%, in 5% increments, and controls the strength of the effect.

With **Alg1**, increasing the intensity increases the separation between the channel contributions, while the sum of the three percentages always remains equal to 100%. This means that no additional overall gain is introduced through the sum of the coefficients. The brightness of individual areas may still change because the relative weights of the channels are modified.

With **Alg2**, the sum of the channel percentages matches the selected intensity value. Increasing the intensity above 100% therefore affects both the separation between the channels and the overall brightness produced by the Channel Mixer.

When the intensity is set to 100%, Alg1 and Alg2 produce the same result. The difference between the two algorithms becomes visible starting at 105%.

7.4 Controls

+ button: identified by a + symbol inside a square, it creates a new Volume layer whose name contains Mtc Volume. The layer is initially neutral and does not modify the image until one of the tool's controls is used.

Reset: resets H and S to zero, returns the intensity to 100%, and selects Alg1 again.

Right-clicking the Color Wheel: returns the cursor to the neutral value HSV 0, 0, 100, while leaving the intensity, algorithm, and other selected controls unchanged. Unlike Reset, it only affects the cursor position and the color selected on the wheel.

Highlight: restricts the effect to the highlights.

Shadow: restricts the effect to the shadows.

All: applies the effect across the entire tonal range. This is the default setting.

Alg1 / Alg2: selects the method used to calculate the channel percentages. Alg1 keeps their sum at 100%, while Alg2 allows the sum to exceed 100% and reach the value selected with the intensity control.

The Highlight, Shadow, and All buttons update the layer's blending options. The tonal restriction therefore remains visible in the layer properties and can be further adjusted through Photoshop's Blending Options.

7.3 Working Layer

The working layer contains "**Mtc Volume**" in its name. Depending on the selected tonal range, it may be named:

- Mtc Volume;
- Mtc Volume - highlight;
- Mtc Volume - shadows.

The layer does not need to be created before you begin. If no valid Volume layer is active when the first adjustment is made, the panel creates one automatically. Automatic creation occurs when the Color Wheel is used, the intensity is changed, or Highlight, Shadow, or All is selected.

The + button remains useful when you want to create a new neutral layer explicitly, for example to add a second Volume adjustment above a layer that has already been adjusted.

When an existing layer whose name contains Mtc Volume is selected, the panel recognizes it and reloads its saved settings. If a different type of layer is selected while the Volume window is open, the window closes. This keeps the tool associated with its working layer.

Reset is an exception. If no valid Volume layer is active, it restores the interface to its initial values without creating a new layer or modifying the document.

A layer created with the + button is initially neutral. When the first actual adjustment is made, Volume initializes the Channel Mixer using the percentages calculated from the Color Wheel. If the cursor is still at the center, all three values are set to 33.33%. This transition may produce a slight change in brightness even if the cursor has not been moved away from the center.

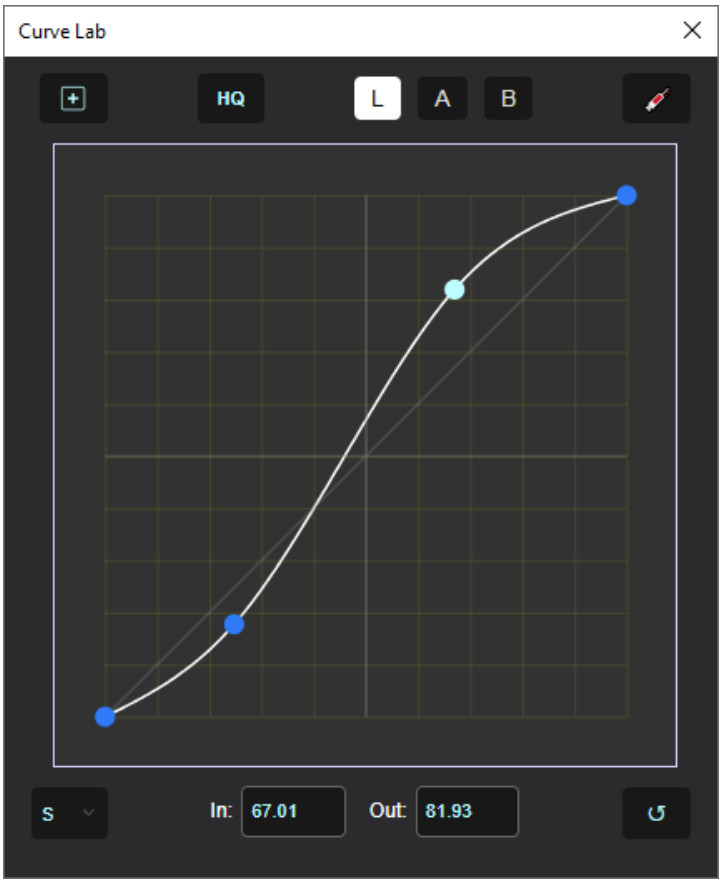
7.4 Usage Conditions

- Requires an RGB document.

7.5 Version Notes

New in v3: Dragging the cursor on the Color Wheel updates the layer in real time.

8. Curve Lab



8.1 Tool Function

Lab, or Curve Lab, is the tool dedicated to building CIELAB curves on three separate axes: L*, a*, and b*. Its function is to allow corrections on lightness and the CIELAB chromatic axes while keeping the document in the normal RGB workflow.

From an operational standpoint, the panel does not change the file mode to Lab. Instead it uses an internal computation engine that converts the document's RGB values into the CIELAB domain, applies the user-defined curves and converts the result back to the document's RGB profile. For this reason Lab curves can be used without leaving RGB mode.

This is the point that makes the tool truly special in the panel workflow: it does not force moving the document outside the normal RGB workflow, but brings a CIELAB-based logic into the file as it is. The advantage is not just theoretical. It means being able to use curves based on lightness and Lab chromatic axes while staying in an environment compatible with the rest of the Photoshop workflow, with real-time updates and without destructive manual conversions.

8.2 Conversions and Supported Profiles

In the current Lab engine, dedicated conversions are available for these document profiles: sRGB IEC61966-2.1, Adobe RGB (1998), Display P3, Image P3, and ProPhoto RGB.

- All CIELAB calculations use a D50 white point.
- The color picker and curve application use the current document profile, not a fixed conversion for all files.
- If the document changes profile, subsequent processing and sampling realign to the new document profile.

This is why the tool remains rigorous even when working in different gamuts: it does not treat sRGB, Adobe RGB, P3 and ProPhoto RGB as if they were equivalent, but applies the conversion consistent with the actually active profile.

8.3 Panel Structure

+ button inside a square: creates the dedicated Lab working layer.

HQ button: applies a high-quality LUT for final refinement.

L, A and B buttons: select the active curve.

Eyedropper button: opens Photoshop's color picker to sample a color and convert it to CIELAB coordinates.

XS, S, M, L selector: changes the canvas working size.

Reset: returns curves to their starting condition: no changes applied.

8.4 Meaning of the Three Curves

L curve: controls the L* component of CIELAB, that is, lightness.

A curve: controls the a* axis of CIELAB, green-magenta.

B curve: controls the b* axis of CIELAB, blue-yellow.

In normal use one curve is selected at a time. The panel shows the active curve being worked on, while the others remain available without being visually overlaid.

8.5 Point Insertion and Management

Points can be added directly to the active curve. The endpoints cannot be removed and define the full range of the curve, while intermediate points can be added, moved, removed, or modified numerically.

Clicking the canvas adds a new point at the selected position.

Clicking an existing point selects it and displays the In and Out numerical fields below the canvas.

Right-clicking an intermediate point removes it.

Pressing the **D** key while the pointer is over an intermediate point removes it.

Selected points can also be modified using the In and Out numerical fields.

In version 3, a single click is sufficient to create a point. In previous versions, a double-click was required.

8.6 Sampling and Color Picker

The Eyedropper button opens Photoshop's Color Picker. The selected color is converted into CIELAB coordinates according to the current document profile.

Clicking Eyedropper normally: adds points to all three curves.

Holding Ctrl on Windows or Command on macOS while clicking Eyedropper: adds the point only to the active curve.

When Ctrl or Command is held down: the Eyedropper and Reset buttons light up to indicate that the corresponding shortcut is available.

8.7 Numeric Inputs and Precise Adjustment

When a point is selected, the In and Out numerical fields appear below the canvas. These fields allow precise coordinates to be entered without having to position the point exclusively through the graph.

Numerical input is particularly useful when working with known CIELAB values or values that need to be repeatable or consistent across multiple images.

On the L curve, the In and Out values range from 0 to 100.

On the A and B curves, the values range from -128 to +127.

Changing a numerical value updates the selected point and the working layer according to the active curve.

8.8 Reset, Grid and Construction Shortcuts

Normal click Reset: resets all three curves.

Ctrl or Command + click on Reset: resets only the active curve.

C key pressed repeatedly: works only on the selected curve and inserts first 1 center point, then 3, then 5, then 7 equidistant points and finally returns to 0 points.

The C key cycle does not act on all curves together: it prepares only the active curve. This is useful when you want to start from an ordered structure on a single axis before manually refining individual points.

8.9 Common Shortcuts in the Curve Editors (IMPORTANT)

The Curve Lab, Hue-P, Hue-Hue, Hue-Chroma, Hue-Lum, B&W Mixer editors, and the Hue Mask, Sat Mask and Lum Mask masks share the same keyboard shortcuts.

To move the selected point:

- **Arrow key**s: move the point by 1 unit.
- **Shift + arrow keys**: move the point by 10 units.

To navigate between points:

- **+ selects the next point.**
- **- selects the previous point.**

If no point is selected, + starts from the first point and - from the last one. The selection is circular.

To change the grid density:

G switches to a denser grid.

- **Shift + G switches to a less dense grid.**
- **Grid density is circular as well.**

To use the shortcuts, the curve editor window must be active. It is enough to click anywhere inside the window, except on the title bar, which, due to UXP limitations, does not correctly activate focus on the editor.

When using the eyedropper, the point added to the curve is automatically selected.

8.10 Real-time and HQ Button

In v3 adjustment is real-time: during point dragging the tool sends a preview update, and on mouse release it writes the final working update. This makes evaluating the effect much more immediate compared to a workflow limited to mouse-up only.

During dragging, the panel works in fast preview mode.

On mouse release the standard final update with **32^3 LUT** is applied.

The 32^3 LUT already provides good working quality and is sufficient in many cases; it is therefore the recommended level for normal use of the tool.

The HQ button recalculates the layer with a higher quality LUT, useful as a final precision step.

The HQ size depends on the HQ LUT Size setting in the Settings panel, where today you can choose between **64^3** and **96^3**.

When HQ is pressed, the button shows a flashing hourglass: it means the layer is calculating. Wait for the hourglass to return to HQ and the button to stay lit.

Operationally, the 32^3 value remains the most balanced compromise for most cases, and is consistent with the standard working quality already used in the 2.6 series. The HQ step should therefore be understood as final refinement: it produces a denser, more precise LUT, but also more computationally expensive. On less powerful computers the wait time can increase noticeably.

8.11 Resizable Window and Canvas Size

The Lab window in v3 is resizable and also allows choosing the inner canvas size. This improves both the precision of fine work and readability on different monitors.

• The XS, S, M, L selector changes the canvas working size.

8.12 Working Layer and Persistence

The + button (inside a square) creates a Color Lookup adjustment layer with a name that includes "**Mtc curve_LAB**". This is the correct working layer for the tool.

• Lab requires an RGB document. If the document is not RGB, the tool advises that it must first be converted.

• If you reopen the tool on an existing layer whose name includes Mtc curve_LAB, the panel reloads curves, canvas size and quality state saved in that layer.

• Keeping the result on a dedicated layer makes work controllable in the stack: opacity, mask, duplication and comparison remain available as with any other adjustment layer.

8.13 Conditions for Correct Use

• Before working it is advisable to verify the document's color profile, because Lab conversions depend on that profile.

• HQ is recommended as a final step when you want to consolidate the result with higher LUT quality, not as a mode to keep always active during curve construction.

8.14 Version Notes

New in v3: Point creation has been unified with the more immediate interface behavior: in v3 a single click in the canvas suffices, while before a double click was required.

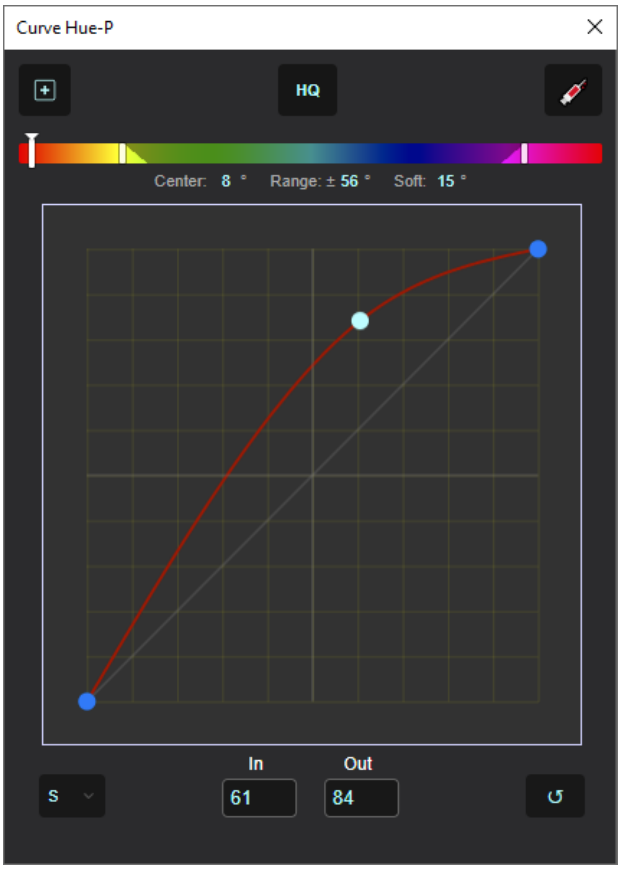
New in v3: Point dragging updates the layer in real time during movement, while the previous version essentially worked on mouse release.

New in v3: The Lab window is no longer constrained to a fixed size: it is resizable and adds direct canvas size control.

New in v3: The tool introduces a more extensive and readable shortcut set: single click to create points, Ctrl or Command for Eyedropper and Reset variants, C key for equidistant structures on the active curve, + and - keys for point navigation, and G / Shift + G for grid density.

New in v3: In and Out numeric fields are present for precise point adjustment and the HQ button for high-quality recalculation.

9. Hue-P



9.1 Tool Function

A family of colors may sometimes appear too light or too dark while the rest of the image is already correct. For example, vegetation may look too bright, or a sky may need greater depth. A standard tonal curve would affect the entire image. Hue-P instead allows you to select a family of hues, such as greens or blues, and apply the curve primarily to those colors.

The tool therefore performs two operations:

- 1. it determines which hues should be affected;
- 2. it determines which light or dark areas within those hues should be modified.

9.2 Selecting the Hue

The color region affected by Hue-P is defined through three controls: Center, Range, and Soft.

Center indicates the central hue. It is the color from which the selection begins.

Range determines how wide the region receiving the full effect should be, extending to the right and left of Center. Its value is indicated by the ± symbol. A Range of ±30° therefore creates a full-effect region with a total width of 60°.

Soft adds a gradual transition toward neighboring hues. As the distance from the Range increases, the effect progressively decreases until it disappears completely.

A simple example:

- Center is positioned on the greens;
  Range includes the greens on which the curve should act fully;
  Soft gradually reduces the adjustment toward yellow-greens and blue-greens.

The selection is symmetrical around Center. The color track displays the full-effect region and the transition areas, providing an immediate visual guide. The result should still be evaluated directly on the image, because similar colors may respond differently depending on their saturation and brightness.

The hue scale is circular. After 359°, it returns to 0° without interruption. Reds can therefore be selected with the same continuity as any other hue.

9.3 Reading the curve

After selecting the hue, the curve determines which tonal regions should be modified.

The horizontal axis represents the original value:

- darker areas are located on the left;
- midtones are located in the center;
- lighter areas are located on the right.

The vertical axis represents the value obtained after the adjustment.

When the curve matches the diagonal, no adjustment is applied. Adding a point and moving it upward lightens that tonal region. Moving it downward darkens it.

To lighten only the midtones of the greens, for example, you can add a point in the central region of the curve and raise it slightly while keeping the shadows and highlights close to the diagonal.

The curve therefore controls how brightness should change, while Center, Range, and Soft determine where along the hue circle the adjustment should be applied.

9.4 The HSP Reference

Hue-P uses perceived brightness as the tonal parameter of the curve. This makes it easier to create selective lightening or darkening that remains visually credible within the chosen color region.

The selected hue determines where the effect should be applied. The curve controls the remapping of P, the perceived brightness component in HSP.

9.5 A Full-Effect Selection and a Soft Transition

Within the Range, the curve is applied at full strength.

In the region defined by Soft, the effect decreases gradually. Outside the Range and Soft regions, the tool does not intentionally apply the adjustment.

It is useful to imagine the selection as a full-effect central region surrounded by two soft edges. Range controls the full-effect area, while Soft prevents an abrupt transition between adjusted and unaffected colors.

This gradual transition makes the adjustment appear more natural, especially when the image contains many closely related color variations.

9.6 Using the Eyedropper

The eyedropper helps identify the hue and tonal value from which to begin.

During normal use:

- the central hue, Center, is updated;
- a point corresponding to the sampled P value is added to or selected on the curve.

The point is initially placed on the diagonal, so it does not yet modify the image. After sampling, it can be moved upward or downward to lighten or darken that tonal region.

If Center is already correct and you want to sample only a tonal value, hold Ctrl on Windows or Command on macOS while using the eyedropper. In this mode, called Lock Hue, the central hue remains unchanged and only the P value is used.

The eyedropper button is highlighted when the modifier key is detected.

9.7 The Hue-P Layer

Hue-P applies the result through a layer whose name contains "**Mtc Curve_HueP**".

If no valid Hue-P layer is active when the first adjustment is made, MindTheColor creates one automatically.

The + button, displayed inside a square, allows you to create a new Hue-P layer manually. This is useful when you want to begin a separate adjustment without modifying the existing one.

The tool settings are associated with the layer. When that layer is selected again, the curve, Center, Range, Soft, canvas size, and LUT quality can all be restored.

9.8 Preview, Result, and HQ

While curve points or the hue selector are being dragged, Hue-P uses a preview LUT. This lighter version allows the image to update quickly while you work.

When the mouse button is released, the result is recalculated using a more accurate 32^3 LUT.

The HQ button performs the final calculation using the LUT size selected in the MindTheColor settings. A flashing hourglass appears during processing. It is advisable to wait until the hourglass disappears and the HQ button becomes stable again.

After any change to the curve or hue selection, the previous HQ calculation no longer represents the current result. HQ should therefore be applied once the adjustment is complete.

9.9 Window and Canvas Size

The Hue-P window can be resized. The curve canvas is available in XS, S, M, and L sizes.

A larger canvas provides more space for positioning and moving points accurately. It does not change the principle of the adjustment, but it makes the curve easier to control.

The selected size is saved in the layer and restored when the tool is reopened.

9.10 Recommended Procedure

A simple way to begin is to follow these steps:

1. identify the family of colors that needs to be adjusted;
2. set Center using the eyedropper or the selector;
3. begin with a relatively narrow Range;
4. increase Soft to blend the adjustment into neighboring hues;
5. add a point to the curve in the tonal region you want to modify;
6. move the point gradually while observing the entire image;
7. verify that other elements with similar hues have not been modified unintentionally.

10. Hue-Hue

10.1 Tool Function

Hue-Hue is a curve that allows one hue to be transformed into another. It can be used, for example, to shift a sky toward cyan, warm a green toward yellow, or correct a color cast while limiting the adjustment to a specific region of the hue circle.

The most important aspect of the tool is the way this transformation takes place. When a hue is shifted using traditional tools, the resulting color may appear lighter or darker than the original. This happens because different hues, even when they have apparently comparable numerical values, are not perceived by the eye as having the same brightness. Consequently, an adjustment intended to change only the color may also alter the tonal balance of the image.

Hue-Hue addresses this problem through perceptual remapping. As the hue is shifted, the tool keeps its perceived brightness stable. The affected region therefore changes color without unintentionally becoming lighter or darker, preserving the tonal

relationships already established within the image. Compared with a standard Photoshop Hue/Saturation adjustment, Hue-Hue does not simply shift the hue numerically, but compensates for the difference in perceived brightness between the colors involved in the transformation.

The purpose of the tool is not to modify saturation or reshape brightness, but to change the position of a color within the hue circle while preserving its perceptual balance. The user decides which hue to transform, which new hue it should be shifted toward, and how far the transition should extend into neighboring colors. The shape of the curve makes it possible to modify a very specific region or create a broader, more gradual transition toward surrounding hues.

This type of control is particularly useful in photographs illuminated by colored LEDs and in concert images, where the balance between color and brightness can be very delicate. In these situations, it may be necessary to shift a magenta toward red or a blue toward cyan without changing the visual weight of those lights within the scene.

10.2 HSP Reference

Hue-Hue uses HSP as its working domain, allowing hue to be shifted while keeping the saturation and perceived brightness of the original color as reference values. In practice, hue can be modified directly without losing the perceptual reference of the original color.

- H is the hue.
- S is the saturation.
- P is the perceived brightness.

From an operational standpoint, this makes the tool intuitive: you reason about the hue to correct without losing the perceptual sense of the original color.

For this reason hue variations tend to appear more natural and consistent with visual perception, especially when you want to harmonize nearby hues without introducing visible discontinuities in the rest of the image.

10.3 Curve Principle

Hue-Hue does not apply the same shift to every color in the image. For each input hue, the curve determines whether it should remain unchanged or be rotated around the hue circle, and by how many degrees.

The horizontal axis, or X-axis, represents the input hue from 0° to 360°.

The vertical axis, or Y-axis, represents the hue shift, with values ranging from −180° to +180°.

The central horizontal line represents the starting condition, in which no hue shift is applied.

If the curve remains on the central line, the layer does not modify the hues. When a section of the curve is raised or lowered, the colors within that hue region are rotated around the hue circle by the indicated amount.

Moving a point upward produces a positive rotation, up to +180°. Moving it downward produces a negative rotation, down to −180°. This provides direct control over the transformation of the selected hue.

The structure of the curve makes the tool particularly flexible. With only a few points, the transition between hues remains broad and gradual. By adding constraint points, the adjustment can be progressively restricted to a more precise region of the hue circle.

The advantage lies not only in choosing which hue to modify, but also in defining how the shift should be distributed among neighboring hues. The result depends both on the shape of the curve and on the method used to calculate the intermediate values. Hue-Hue makes this transition visible and editable, allowing the user to shape its progression directly.

10.4 Panel Structure

Reset: returns the curve to the neutral horizontal line.

Eyedropper: opens Photoshop's color picker to sample a color, derive its hue, and add the corresponding point.

+ button inside a square: creates the dedicated Hue-Hue working layer.

XS, S, M, L, selector: changes the canvas size.

R, Y, G, C, B, M buttons: add standard points on red, yellow, green, cyan, blue and magenta.

All pts: adds all standard points at once if not already present.

HQ: recalculates the layer with a high-quality LUT.

10.5 Points, Endpoints and Curve Continuity

The hue scale is circular: both 0° and 360° represent red. On the curve, however, these two values appear at opposite ends of the horizontal axis.

To prevent an abrupt transition where the hue circle closes, the two endpoints must always produce the same hue shift. For this reason, they are created automatically in the neutral position and remain linked to each other.

• The two endpoints cannot be deleted.

• When one endpoint is moved upward or downward, the other automatically moves to the same vertical position.

• This synchronization maintains the continuity of the curve between 0° and 360°.

• Intermediate points can instead be freely added, moved, or removed to create the desired transformation.

This allows hues close to red to be processed continuously, even though they appear divided between the beginning and the end of the axis in the curve's linear representation.

10.6 Point Insertion, Selection and Removal

In v3, point insertion has been standardized to a single click in the canvas.

• A single click in the usable portion of the curve adds a point.

• A click on an existing point selects it.

• Right-clicking an intermediate point removes it.

• The D key, with the pointer on the point, removes the selectable intermediate point.

• During dragging the point updates the curve in real time.

10.7 In and Out Numeric Fields

An important v3 novelty is the presence of numeric fields. When a point is selected, the In and Out fields appear for precise coordinate adjustment.

• In allows precisely defining the input hue of the point.

• Out allows precisely defining the hue shift of the point.

• Values are entered in degrees and directly update the curve.

This makes the tool more rigorous for repeatable corrections as well, because it does not force working only by eye on the canvas.

10.8 Working Layer and Correct Workflow

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc curve_HueHue**".

There is no need to create it before starting. When the curve is adjusted for the first time, if no valid Hue-Hue layer is active, the panel creates one automatically. The + button inside a square remains useful when you want to start from a new, neutral layer, for example, to place a second Hue-Hue layer above one that has already been adjusted.

If a layer whose name includes Mtc curve_HueHue already exists, simply select it to resume working. The panel reloads the curve, canvas size, and quality status saved in that layer.

If a different type of layer is selected, the Hue-Hue window closes. The tool always remains linked to its own layer, preventing a curve from being applied to the wrong layer.

The Reset button is the only exception, as it does not create a layer. If no valid Hue-Hue layer is active, it returns the curve displayed in the panel to its neutral position without modifying the document.

10.9 Real-Time Processing, Standard Quality, and HQ

Hue-Hue updates the result in real time while points are being dragged. The preview and the final update use different quality levels to keep the workflow responsive.

While a point is being dragged, the panel uses a reduced-resolution preview.

When the point is released, and whenever a point is added or removed, the layer is updated using a 32^3 LUT.

The 32^3 LUT is the standard working quality and normally provides the right balance when building the curve.

HQ recalculates the layer using the LUT size specified in the Settings panel.

During HQ processing, the button displays a flashing hourglass. Wait until the button becomes stable again and remains lit.

Any subsequent change cancels the HQ status. Moving, adding, or removing a point returns the layer to the 32^3 LUT and switches off the button.

This is not a limitation, but the intended logic. A high-resolution LUT describes that specific curve, not a different one. HQ should therefore be used as the final refinement step, as the system itself suggests.

10.10 Resizable Window and Canvas Size

The Hue-Hue window can be resized and provides a canvas selector with four sizes: XS, S, M, and L. The selected size does not change the working domain. It changes the usable area available for controlling the curve, affecting the precision with which points can be positioned and improving readability across different monitors.

- The XS, S, M, and L selector changes the usable canvas area.
- The selected size is stored in the layer and restored when the tool is reopened on that same layer.

10.11 Reset and Restoring Saved Settings

Reset returns the curve to its neutral configuration, represented by the central horizontal line, where no hue is shifted. When the tool is reopened on an existing layer, the panel reloads the saved curve and the canvas size used to create it.

10.12 Version Notes

New in v3: Point insertion in the canvas occurs with a single click, no longer with a double click.

New in v3: In and Out numeric fields are present for precise point adjustment.

New in v3: The HQ button is available for final high-quality recalculation.

New in v3: The window is resizable and the canvas can be set from XS to L.

11. Hue-Chroma

11.1 Tool Function

Hue-Chroma is the curve that controls chromatic intensity as a function of hue. It is useful when you want to work selectively on a specific color range: making the blues of a sky more vivid without affecting skin tones, reducing an overly aggressive red while preserving the surrounding colors, or building a palette in which each color family has the desired visual weight.

In version 3, the tool provides six working domains, each of which describes and controls chromatic intensity according to different criteria. In the **RGB**-derived domains **HSP**, **HSV**, and **HSL**, the curve adjusts saturation. In the cylindrical-coordinate domains **CIELCh**, **OKLCh**, and **JzCzHz**, it adjusts chroma instead.

Saturation and chroma are not equivalent quantities. Selecting a different domain does not merely change the name of the parameter, but also changes how chromatic intensity is represented and adjusted. Consequently, the same curve can produce different results depending on the domain used.

11.2 Saturation and chroma: two different concepts

Before describing the available domains, it is important to clarify a fundamental distinction. In everyday language, saturation and chroma are often used as synonyms. In color science, however, they describe two different attributes.

According to CIE terminology, **chroma** describes the colorfulness of an area judged relative to the brightness of a similarly illuminated neutral reference. In practical terms, it expresses how chromatically intense a color appears in relation to that reference.

Saturation, in the CIE sense, describes the colorfulness of an area judged relative to its own brightness. In practical terms, it expresses how intense the chromatic component appears in relation to the perceived brightness of the area itself.

Within Hue-Chroma, this distinction results in two different families of working domains.

In **HSP**, **HSV**, and **HSL**, the curve adjusts the **Saturation** coordinate, identified as S. This coordinate does not correspond to the perceptual attribute of saturation defined by the CIE, but is calculated according to the specific definition used by each model.

In **CIELCh** and **OKLCh**, the curve instead adjusts **chroma**, represented by the C coordinate. In JzCzHz, chroma is represented by the Cz coordinate. In these domains, chroma expresses the distance of a color from the neutral axis. Increasing its value makes the color chromatically more intense, while reducing it moves the color progressively closer to neutral. Two colors can have the same chroma while having different lightness levels.

Throughout this chapter, saturation in the HSP, HSV, or HSL domains therefore refers to the S coordinate of the selected model. Chroma in the CIELCh, OKLCh, or JzCzHz domains refers to the C or Cz chroma of the corresponding domain.

Selecting a different domain does not merely change the name of the parameter. It determines how the chromatic component is represented and adjusted. Consequently, the same curve can produce different results in different domains, and the choice should be evaluated according to the image and the intended adjustment.

11.3 Available Working Domains

Hue-Chroma allows the working domain to be selected from the panel menu. This is the most important change to the tool because it changes how the chromatic component controlled by the curve is represented and adjusted.

HSP: the curve adjusts the Saturation of the HSP representation, which uses Perceived Brightness P as its luminous component. Its behavior remains close to that of the previous Hue-Sat tool in MindTheColor 2.6.
HSV: the curve adjusts the Saturation of the HSV model.
HSL: the curve adjusts the Saturation of the HSL model.
CIELCh: the curve adjusts chroma C in the CIELCh representation derived from CIELAB.
OKLCh: the curve adjusts chroma C in the OKLCh representation derived from OKLab.
JzCzHz: the curve adjusts chroma Cz in the JzCzHz representation derived from JzAzBz.

The key point is this: in HSP, HSV, and HSL, the control operates on the Saturation coordinate of the corresponding RGB-derived representation, not on perceptual saturation as defined by the CIE. In CIELCh, OKLCh, and JzCzHz, the control instead operates on chroma. For this reason, the name Hue-Chroma is more accurate than the previous Hue-Sat.

Note: JzCzHz is the cylindrical representation of JzAzBz, a color space designed to represent image signals with wide gamuts and high dynamic range. MindTheColor currently operates on SDR data, so the specific advantages associated with HDR are not used. JzCzHz remains useful because it provides a different way of organizing lightness, chroma, and hue and can produce different responses from the other domains, depending on the image.

11.4 Curve Principle

The curve defines, for each input hue, how much to increase or decrease the chromatic component of the active domain.
The horizontal axis, or X axis, represents the input hue from 0° to 360°.

The vertical axis, or Y axis, represents the intensity of the chromatic correction for that hue.

The center line is the starting condition: no increase and no decrease.

- Moving a point upward increases the chromatic component in the chosen domain: saturation in RGB-derived domains, chroma in perceptual or colorimetric domains.
- Moving a point downward decreases the chromatic component until progressively making that sector achromatic.

As with all curves in this family, with few points the intervention remains wide and smooth; adding containment points narrows the action to a more precise hue zone.

Here too the decisive point is not only increasing or decreasing chroma in a hue, but deciding how the correction should propagate among nearby colors. The curve makes the interpolation visible and controllable: this is why it offers much greater technical freedom than tools that hide the transition behind a fixed algorithm.

11.5 Classic Method and Adv Mode

Hue-Chroma offers two working methods: the **classic** method and **Adv** mode.

Classic method: The curve directly and proportionally increases or decreases the saturation or chroma of the affected hue. This is the most linear and readable behavior, suitable when you want a simple relationship between curve shape and result.

Adv mode: Adv mode mainly modifies the behavior of increases above the starting line. Instead of applying the same increment to all colors of the same hue sector, the tool doses the increase based on the tonal zone and starting chroma: less chromatic colors can be supported more, while already intense ones remain more controlled. When decreasing below the starting line to reduce the chromatic component, the behavior remains essentially that of the classic method.

Adv mode is useful when a simple increase is too uniform or too ineffective on low chromatic intensity components. If you are desaturating, the difference from the classic method is minimal.

11.6 Document Profile and Gamut Management

Hue-Chroma updates based on the color profile of the active document, and this matters especially when working in CIELCh, OKLCh, or JzCzHz.

·f the active document changes or the document profile changes, the tool realigns its working domain.

The background gradient and hue references may change based on the selected domain and document profile.

In very wide profiles, the software uses an accurate **gamut mapping** mechanism to keep the result controlled.

In the case of ProPhoto RGB documents, when using the CIELCh, OKLCh, or JzCzHz domains, the tool temporarily passes through Rec.2020 linear as an intermediate working space. This choice was made because ProPhoto RGB is a very wide gamut and includes colors that, in a direct perceptual calculation, can make the relationship between hue and chroma less stable. Using Rec.2020 linear as an intermediate step allows maintaining a still very wide gamut, but more controllable in calculation, so corrections are more consistent and with fewer chromatic distortions. The document, in any case, remains in its original profile: this is only an internal processing step.

11.7 Panel Structure

Reset: returns the curve to the starting line and deactivates Adv mode.

Eyedropper: opens Photoshop's color picker and inserts a neutral point on the sampled hue.

+ button inside a square: creates the dedicated Hue-Chroma working layer.

XS, S, M, L selector: changes the canvas size.

Domain menu: allows you to choose HSP, HSV, HSL, LCh, OKLCh, or JzCzHz. In the panel, LCh is used as a short label for CIELCh.

Adv checkbox: activates the advanced chromatic increase distribution method.

R, Y, G, C, B, M buttons: add standard points on reference hues.

All pts: inserts all available standard points without duplicating already present ones.

HQ: recalculates the layer to the high quality defined in the Settings panel.

11.8 Standard Points, Sampling and Hue References

The standard buttons and the Eyedropper make it possible to build the curve quickly, without having to add and position every point manually.

It is important to remember that the angular position of hues changes between domains. In HSP, HSV, and HSL, 0° corresponds to red. In CIELCh, OKLCh, and JzCzHz, hue angles follow the coordinates of the corresponding domain and do not necessarily match those of RGB-derived representations.

For this reason, the R, Y, G, C, B, and M buttons are recalculated according to the selected domain, so that they always correspond to the indicated hue.

- In HSP, HSV, and HSL, the R, Y, G, C, B, and M points are placed at the conventional angular positions of the six primary and secondary hues.
- In CIELCh, OKLCh, and JzCzHz, their positions are adapted to the selected domain and the color profile of the active document.
- The Eyedropper samples a color from the image and adds a neutral point at the corresponding hue.

The standard points are therefore more than just a shortcut for building the curve. They also provide chromatic references that remain consistent with the selected working domain.

A practical example is the correction of an overly saturated yellow dress. In HSP, to reproduce the familiar behavior of the previous Hue-Sat tool, you can sample the yellow and lower the point that is added. You can then add one or more neutral points to the hues you want to protect. If the image contains blue elements that should remain unchanged, for example, adding a neutral point to the blue helps keep that part of the curve in its original position.

11.9 Point Insertion, Selection and Adjustment

In v3, point management has been simplified: adding a point to the curve now requires only a single click.

- A single click anywhere along the curve adds a new point.
- Clicking an existing point selects it.
- Right-clicking an intermediate point removes it.
- Pressing the D key removes the selected intermediate point.
- While a point is being dragged, the result is updated in real time.

This system makes building and editing the curve faster than in previous versions, where adding a point required a double-click.

11.10 In and Out Numeric Fields

When a point is selected, the In and Out numerical fields appear below the curve area. These fields allow the position of the point to be set precisely, without relying exclusively on dragging within the canvas.

In defines the hue at which the point is positioned.

Out defines the amount and direction of the adjustment applied to that hue, increasing or decreasing saturation or chroma according to the selected domain.

• Numerical input makes it possible to repeat the same settings and accurately recreate an adjustment.

11.11 Working Layer and Settings Recovery

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc curve_ HueChroma**".

It does not need to be created before you begin. When the curve is adjusted for the first time, the panel automatically creates the layer if a valid Hue-Chroma layer is not already active. The + button, enclosed within a square, remains useful when you want to start from a new neutral layer, for example to add a second adjustment on top of an existing curve. If the document already contains a layer whose name includes Mtc curve_ HueChroma, simply select it to resume working. The panel reloads the curve, canvas size, working domain, Adv state, and quality state saved in that layer.

Selecting a different type of layer closes the Hue-Chroma window. This keeps the tool associated with its own layer and prevents the curve from being applied to the wrong layer.

The Reset button is the only exception, as it does not create a layer. If no valid Hue-Chroma layer is active, Reset returns the displayed curve to its neutral position without modifying the document.

11.12 Real-time, Standard Quality and HQ

Hue-Chroma works in real time, but uses different quality levels for construction and refinement.

During point dragging the preview uses a preview LUT.

On point release, point addition, or point removal, the layer is recalculated with a 32^3 LUT.

The 32^3 LUT is the standard working quality and is already adequate for most adjustments.

The HQ button uses the LUT size set in the Settings panel.

When HQ is in progress, the button shows a flashing hourglass: wait for it to stabilize and stay lit.

The correct operating criterion is to build the curve at standard quality and use HQ as a final step, especially on slower systems or when the high LUT generates longer computation times.

11.13 Resizable Window and Canvas

The Hue-Chroma window is resizable and the canvas can be adjusted from XS to L. This does not change the working domain, but improves the precision of reading and point manipulation.

A larger canvas helps better separate points when the curve is dense.

The chosen size is saved in the layer and restored when reopening the tool on the same layer.

11.14 Conditions for Correct Use

If you want behavior close to the old Hue-Sat, it is best to work in HSP.

If you want to stay consistent with a classic saturation workflow, you can use HSP, HSV or HSL based on your usual reference.

If you want to work in terms of perceptual chroma and with more attention to wide gamuts, it is best to use CIELCh, OKLCh, or JzCzHz.

A few well-positioned points are almost always preferable to many points too close together.

11.15 Version Notes

New in v3: Hue-Chroma expands on the previous Hue-Sat tool, which operated exclusively in HSP, and now allows you to choose from six working domains: HSP, HSV, HSL, CIELCh, OKLCh, and JzCzHz.

New in v3: The gradient, chromatic references and calculation realign to the document's color profile.

New in v3: Adv mode is available, making chromatic increase more selective and balanced compared to the classic method.

New in v3: Single click to create points, In and Out numeric fields, HQ button and resizable window are present.

12. Hue-Lum

12.1 Tool Function

Hue-Lum, shown as Hue-L in the interface, controls perceived brightness according to hue. Depending on the shape of the curve, it can be used for either a global adjustment or a selective correction.

When only the two synchronized endpoints are present, moving either one upward or downward raises or lowers the entire curve, uniformly lightening or darkening all hues. Adding intermediate points makes it possible to restrict the adjustment to specific color families.

Hue-Lum can therefore lighten or darken the entire image or apply a targeted adjustment, for example by darkening a sky, lightening skin tones to separate them from the background, or increasing the tonal weight of reds without affecting greens in the same way.

Hue-Lum establishes a relationship between hue and perceived brightness, allowing you to decide which color families should become more prominent, which should have less tonal weight, or whether all hues should be adjusted equally.

12.2 HSP Reference

Hue-Lum uses the HSP-derived representation. In this context, **H** identifies hue, **S** identifies saturation, and **P** identifies Perceived brightness.

The P component is calculated from the RGB channels using a weighted calculation that accounts for the different contributions of red, green, and blue to perceived brightness. The tool adjusts the P component of the selected hues without requiring separate adjustments to the individual RGB channel curves.

- **H** represents hue.
- **S** represents saturation.
- **P** represents perceived brightness.

The correct English term is Perceived brightness, not Perceptive brightness. In the Italian version of this manual, it is translated as luminosità percepita.

In practical terms, Hue-Lum allows you to decide which chromatic areas should appear lighter or darker, while keeping the adjustment linked to the P component of the HSP representation.

12.3 Curve Principle

The curve determines how much the perceived brightness of each hue should be adjusted.

The horizontal axis, or X axis, represents the input hue from 0° to 360°.

The vertical axis, or Y axis, represents the perceived brightness adjustment applied to the selected hue.

The central horizontal line represents the neutral condition, in which no adjustment is applied.

- Moving a point upward lightens the affected hues.
- Moving a point downward darkens the affected hues.

The shape of the curve also determines the range of the adjustment. With only a few points, the adjustment extends more broadly and gradually into the surrounding hues. Adding neutral points on either side of the affected hue makes it possible to narrow the adjusted color range.The result therefore depends not only on the position of the main

point, but also on how the curve connects that point to the surrounding hues. This provides precise control over both the strength and the range of the adjustment.

12.4 Panel Structure

Reset: returns the curve to its neutral configuration.

Eyedropper: opens the Photoshop color picker, samples a color, and adds a point at the corresponding hue.

+ button, enclosed within a square: creates a new Hue-Lum layer with a neutral curve.

XS, S, M, L selector: changes the canvas size.

R, Y, G, C, B, M buttons: add points at the six reference hues.

All pts: adds all standard points without creating duplicates.

HQ: recalculates the layer using the LUT size selected in the Settings panel.

12.5 Sampling and Practical Use

The curve can be built using the standard points or by sampling a color directly from the image.

To increase the visual presence of reds, for example, sample the desired hue with the Eyedropper and move the added point upward. If the adjustment affects too wide a range of hues, add one or more neutral points on either side of the main point to limit its range.

12.6 Adding, Selecting, and Numerically Adjusting Points

In v3, point management has been simplified: adding a point to the curve now requires only a single click.

- A single click anywhere along the curve adds a new point.
- Clicking an existing point selects it.
- Right-clicking an intermediate point removes it.
- Pressing the D key removes the selected intermediate point.

When a point is selected, the In and Out numerical fields appear below the curve area.

In defines the hue at which the point is positioned.

Out defines theamount and direction of the perceived brightness adjustment applied to that hue.

The numerical fields make it possible to position points precisely, repeat the same settings, and recreate an adjustment without relying exclusively on dragging within the canvas.

12.7 Working Layer and Restoring Settings

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc curve_ HueLum**".

It does not need to be created before you begin. When the curve is adjusted for the first time, the panel automatically creates the layer if a valid Hue-Lum layer is not already active. The + button, enclosed within a square, remains useful when you want to start from a new neutral layer, for example to add a second adjustment on top of an existing curve. If the document already contains a layer whose name includes Mtc curve_ HueLum, simply select it to resume working. The panel reloads the curve, canvas size, and quality state saved in that layer.

Selecting a different type of layer closes the Hue-Lum window. This keeps the tool associated with its own layer and prevents the curve from being applied to the wrong layer. The Reset button is the only exception, as it does not create a layer. If no valid Hue-Lum layer is active, Reset returns the displayed curve to its neutral position without modifying the document.

12.8 Real-Time Processing, Standard Quality, and HQ

Hue-Lum updates the result in real time while points are being dragged. The preview and final update use different quality levels to keep the workflow responsive.

While a point is being dragged, the panel uses a reduced-resolution preview.

When the point is released, or whenever a point is added or removed, the layer is updated using a 32^3 LUT.

The 32^3 LUT is the standard working quality and provides a good balance between precision and responsiveness.

HQ recalculates the layer using the LUT size selected in the Settings panel.
During HQ processing, the button displays a flashing hourglass. Wait until it becomes stable and remains illuminated.
Any subsequent change to the curve cancels the HQ state. Moving, adding, or removing a point returns the layer to the 32^3 LUT and turns the button off.
For this reason, it is advisable to build the curve using the standard quality and apply HQ only after the adjustment has been completed.

12.9 Resizable Window and Canvas Size

The Hue-Lum window is resizable and provides four canvas sizes: XS, S, M, and L.
A larger canvas provides more room for positioning points and can improve precision and readability, especially when working with closely spaced points.
The selected size is saved in the layer and restored when the tool is reopened on the same layer.

12.11 Version Notes

New in v3: points are added to the canvas with a single click and no longer require a double-click.

New in v3: the In and Out numerical fields provide precise control over point position and adjustment strength.
New in v3: the tool updates the result in real time while points are being dragged.

New in v3: the HQ button and a resizable window with XS, S, M, and L canvas sizes are now available.

13. Lum-Sat

13.1 Tool Function

Lum-Sat, shown as Lum-S in the interface, establishes a relationship between the tonal position of the image and its chromatic component. Depending on the shape of the curve, it can apply a uniform adjustment or differentiate the effect between shadows, midtones, and highlights.

Moving the entire curve upward or downward increases or decreases saturation or chroma throughout the tonal range. Adding intermediate points makes it possible to determine where the chromatic component should increase, where it should be reduced, and how gradually it should transition between tonal regions.

This is useful when a global adjustment is too general. Shadows, midtones, and highlights do not necessarily require the same treatment, and Lum-Sat allows the distribution of the chromatic component to be adapted to the tonal structure of the image.

13.2 Why It Is Useful in Practical Work

In many images, saturation or chroma may need to be adjusted differently across the tonal range. For example, the chromatic component can be reduced in the shadows, supported in the midtones, or increased in the highlights.

- It allows saturation or chroma to be increased only in the desired tonal regions.
- It allows the chromatic component to be reduced in areas where it produces less pleasing results or makes noise and color casts more visible.
- It allows a gradual transition to be created between tonal regions receiving different adjustments.

In very dark areas, chromatic differences tend to be less evident and the signal captured by the sensor generally has a lower signal-to-noise ratio. An excessive increase in the chromatic component can therefore make color noise more visible or strengthen unwanted color casts. This does not mean that shadows should always be desaturated, but it explains why adjusting them separately can be useful.

Another common grading technique is to keep the ends of the tonal range more neutral by reducing the chromatic component near black and white while retaining more color in the shadows, midtones, and highlights. This makes it possible to color the body of the image without introducing unwanted casts into its tonal extremes.

13.3 Available Working Domains

Lum-Sat provides two working domains, which can be selected from the HSP/LCh menu in the panel.

HSP: uses perceived brightness P as the tonal axis and adjusts the Saturation coordinate S of the HSP representation. This domain maintains the historical behavior of the tool.

LCh: uses lightness L* as the tonal axis and adjusts chroma C in the CIELCh representation derived from CIELAB.

The difference is not limited to the names of the coordinates. In HSP, the curve establishes a relationship between P and the Saturation of the HSP representation. In CIELCh, it establishes a relationship between lightness L* and chroma C. The same curve

can therefore produce different results in the two domains, without either one being universally better than the other.

13.4 Curve Principle

The curve determines how much the chromatic component should be increased or decreased according to tonal position.

The horizontal axis, or X axis, represents tonal position: P in the HSP domain and L* in the CIELCh domain.

The vertical axis, or Y axis, represents the increase or decrease applied to the chromatic component.

The central horizontal line represents the neutral condition, in which no adjustment is applied.

Moving the curve above the central line increases saturation in HSP or chroma in CIELCh.

Moving the curve below the central line decreases saturation in HSP or chroma in CIELCh.

With only a few points, the transition remains broad and gradual. Adding neutral containment points makes it possible to determine more precisely where the adjustment should begin, increase, fade, or end.

13.5 Panel and Main Controls

Reset: returns the curve to its neutral configuration.

Eyedropper: samples a color from the image and adds a neutral point at the corresponding tonal position.

+ button, enclosed within a square: creates a new Lum-Sat layer with a neutral curve.

XS, S, M, L selector: changes the canvas size.

HSP/LCh menu: selects either the HSP domain or the CIELCh domain.

Low, Mid, High: add points at three reference tonal positions.

All pts: adds the Low, Mid, and High points with a single command, without creating duplicates.

HQ: recalculates the layer using the LUT size selected in the Settings panel.

13.6 Standard Points, Sampling, and Point Management

The **Low**, **Mid**, and **High** buttons provide a quick way to build a basic curve. The points are placed approximately at positions 25, 50, and 75 on the tonal axis.

Low adds a point in the shadow region.

Mid adds a point in the midtone region.

High adds a point in the highlight region.

All pts adds all three points at the same time.

The Eyedropper makes it possible to begin from a tonal position that is actually present in the image. The sampled color is analyzed in the selected domain, and the panel adds a neutral point at the corresponding P or L* position.

In v3, manual point management requires only a single click.

- A single click anywhere along the curve adds a new point.
- Clicking an existing point selects it.
- Right-clicking an intermediate point removes it.
- Pressing the D key removes the selected intermediate point.

When a point is selected, the In and Out numerical fields appear below the curve area.

In defines the tonal position of the point, expressed as P in HSP or L* in CIELCh.

Out defines the amount and direction of the adjustment applied to saturation or chroma.

The numerical fields make it possible to position points precisely, repeat the same settings, and recreate an adjustment without relying exclusively on dragging within the canvas.

13.7 Document Profile, CIELCh, and Gamut

Lum-Sat adapts its calculations to the color profile of the active document. This is particularly important when working in the CIELCh domain.

The L*, C, and h coordinates describe color in colorimetric terms, but the range of colors that the document can represent depends on its RGB profile. Two documents with different profiles can therefore reach their gamut boundaries at different points during the adjustment.

The panel updates its reference when the profile of the active document changes.
Wider gamuts may provide more available chroma in some hue and lightness regions, but not uniformly for every color.
The tool applies its gamut-management process when an adjustment generates colors that cannot be represented by the active profile.
These calculations do not change the document profile, which remains the profile selected by the user in Photoshop.

13.8 Working Layer, Real-Time Processing, and HQ

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc curve_ LumSat**".
It does not need to be created before you begin. When the curve is adjusted for the first time, the panel automatically creates the layer if a valid Lum-Sat layer is not already active. The + button, enclosed within a square, remains useful when you want to start from a new neutral layer, for example to add a second adjustment on top of an existing curve. If the document already contains a layer whose name includes Mtc curve_ LumSat, simply select it to resume working. The panel reloads the curve, working domain, canvas size, and quality state saved in that layer. Selecting a different type of layer closes the Lum-Sat window. This keeps the tool associated with its own layer and prevents the curve from being applied to the wrong layer. The Reset button is the only exception, as it does not create a layer. If no valid Lum-Sat layer is active, Reset returns the displayed curve to its neutral position without modifying the document.
Lum-Sat updates the result in real time while points are being dragged.
While a point is being dragged, the panel uses a reduced-resolution preview. When the point is released, or whenever a point is added or removed, the layer is updated using a 32^3 LUT.
The 32^3 LUT is the standard working quality and provides a good balance between recision and responsiveness.
HQ recalculates the layer using the LUT size selected in the Settings panel.
During HQ processing, the button displays a flashing hourglass. Wait until it becomes stable and remains illuminated.

Any subsequent change to the curve cancels the HQ state. Moving, adding, or removing a point returns the layer to the 32^3 LUT and turns the button off.

For this reason, it is advisable to build the curve using the standard quality and apply HQ only after the adjustment has been completed.

13.9 Resizable Window and Precision

The Lum-Sat window is resizable and provides four canvas sizes: XS, S, M, and L.

A larger canvas provides more room for reading the shape of the curve and positioning closely spaced points accurately. This can be particularly useful when building gradual transitions between shadows, midtones, and highlights.

The selected size is saved in the layer and restored when the tool is reopened on the same layer.

13.10 When to Use It

- When saturation or chroma should vary differently between shadows, midtones, and highlights.
- When a global adjustment excessively affects tonal regions that should remain more restrained.
- When the chromatic component needs to be increased or decreased in specific tonal regions.
- When the ends of the tonal range should remain more neutral.
- When a uniform adjustment is required throughout the tonal range by using a horizontal curve offset from the neutral position.

13.11 Common Mistake to Avoid

The most common mistake is creating very steep curves using numerous closely spaced points. These shapes can produce abrupt chromatic transitions between neighboring tonal regions.

It is generally preferable to begin with a few points and a simple curve shape. Containment points can be added later, only when part of the adjustment needs to be narrowed or controlled more precisely.

13.12 Version Notes

New in v3: Lum-Sat introduces the HSP/LCh selector, allowing you to choose between the HSP and CIELCh representations.

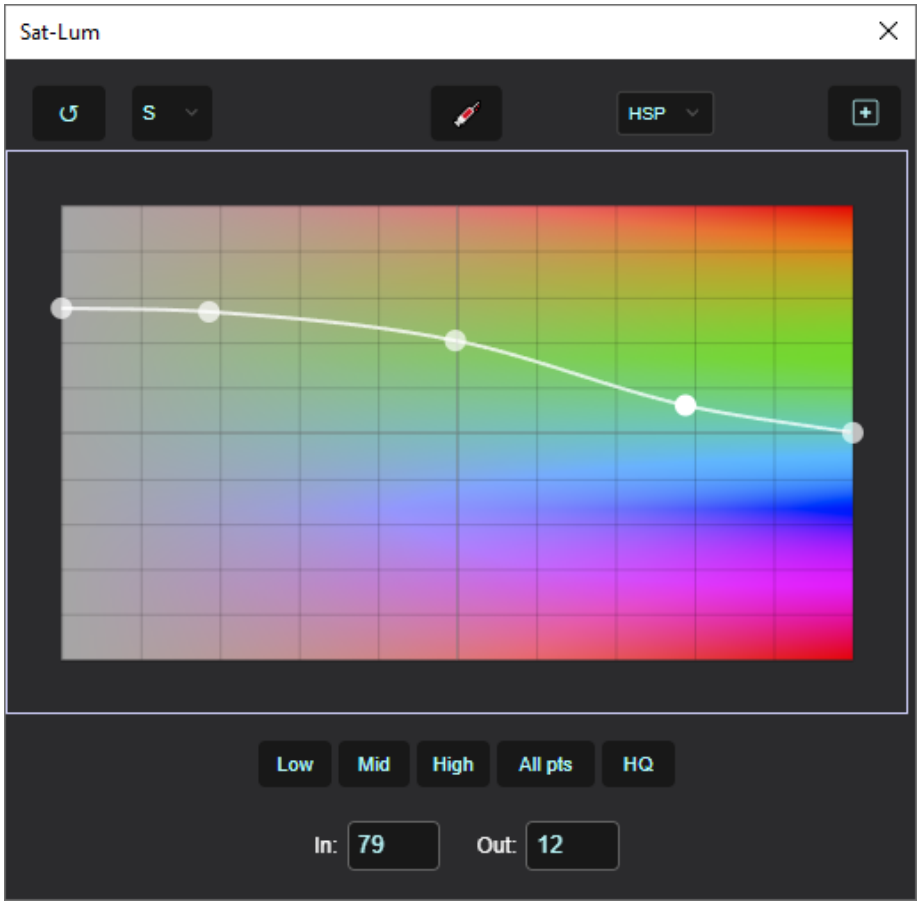
New in v3: the panel adapts its calculations to the color profile of the active document and manages the gamut in the CIELCh domain.

New in v3: points are added to the canvas with a single click and can be adjusted precisely using the In and Out numerical fields.

New in v3: the tool updates the result in real time while points are being dragged.

New in v3: the HQ button and a resizable window with XS, S, M, and L canvas sizes are now available.

14. Sat-Lum



14.1 Tool Function

Sat-Lum, introduced in version 3, lightens or darkens different areas of the image according to their chromatic intensity. It can be used, for example, to make highly intense colors darker and deeper, lighten more neutral areas, or primarily adjust the intermediate range.

Photoshop does not provide a tool or curve that directly represents this relationship. Sat-Lum makes it possible to build it within Photoshop using a dedicated curve.

14.2 Available Working Domains

Sat-Lum provides two working domains, which can be selected from the **HSP/LCh** menu.

HSP: uses the Saturation coordinate S of the HSP representation as the horizontal axis and adjusts perceived brightness P.

LCh: uses chroma C of the CIELCh representation as the horizontal axis and adjusts lightness L*. In HSP, the curve therefore establishes a relationship between Saturation and Perceived brightness. In CIELCh, it establishes a relationship between chroma and lightness. Since the two domains use different coordinates, the same curve can produce different results in each one.

14.3 Curve Principle

The curve determines how much an area should be lightened or darkened according to its chromatic intensity.

- The horizontal axis, or X axis, represents Saturation S in HSP or chroma C in CIELCh.
- The vertical axis, or Y axis, represents the applied tonal adjustment.
- The central horizontal line represents the neutral condition.
- Moving the curve upward lightens the affected areas.
- Moving the curve downward darkens the affected areas.

A horizontal curve offset from the neutral position adjusts the entire range of chromatic intensities. Adding intermediate points makes it possible to restrict the adjustment to a specific range and control the smoothness of the transitions.

14.4 Panel and Main Controls

Reset: returns the curve to its neutral configuration.

Eyedropper: samples a color from the image and adds a neutral point at its corresponding chromatic intensity.

+ button, enclosed within a square: creates a new Sat-Lum layer with a neutral curve.

XS, S, M, L selector: changes the canvas size.

HSP/LCh menu: selects the working domain.

Low, Mid, High: add three reference points along the chromatic intensity axis.

All pts: adds the Low, Mid, and High points at the same time, without creating duplicates.

HQ: recalculates the layer using the LUT size selected in the Settings panel.

14.5 Points, Sampling, and Numerical Fields

The **Low**, **Mid**, and **High** points are placed approximately at positions **25**, **50**, and **75** on the displayed scale.

- Low corresponds to low saturation in HSP or low chroma in CIELCh.
- Mid corresponds to the intermediate range.
- High corresponds to high saturation or chroma.
-

The Eyedropper analyzes the sampled color in the selected domain and adds a neutral point at the corresponding position.

- A single click anywhere along the curve adds a point.
- Clicking an existing point selects it.
- Right-clicking an intermediate point removes it.
- Pressing the D key removes the selected intermediate point.

When a point is selected, the In and Out numerical fields appear below the curve area.

In defines the chromatic intensity at which the point is positioned, expressed as Saturation S in HSP or chroma C in CIELCh.

Out defines the amount and direction of the tonal adjustment applied to P in HSP or L* in CIELCh.

14.6 Document Profile and Gamut

Sat-Lum adapts its calculations to the color profile of the active document. This is particularly important in the CIELCh domain because changing lightness can move some colors toward the boundaries of the gamut.

The L*, C, and h coordinates are not tied to a specific RGB space, but the colors that can be represented in the document depend on its active profile. The panel therefore updates its reference when the profile changes and applies its gamut-management process to colors that cannot be represented.

The document profile is not changed.

14.7 Working Layer and Restoring Settings

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc curve_ SatLum**".

It does not need to be created before you begin. When the curve is adjusted for the first time, the panel automatically creates the layer if a valid Sat-Lum layer is not already active. The + button can instead be used at any time to create a new neutral layer.

Selecting an existing Sat-Lum layer reloads the curve, working domain, canvas size, and quality state saved in that layer.

Selecting a different type of layer closes the Sat-Lum window. Reset is the only exception: it does not create a layer and, when no valid Sat-Lum layer is active, only returns the displayed curve to its neutral position.

14.8 Real-Time Processing, HQ, and Resizable Window

While points are being dragged, Sat-Lum updates the result in real time using a reduced-resolution preview.

When a point is released, added, or removed, the layer is updated using a 32^3 LUT, which is the standard working quality.

HQ recalculates the layer using the LUT size selected in the Settings panel. During processing, the button displays a flashing hourglass. Any subsequent change to the curve cancels the HQ state and returns the layer to the 32^3 LUT. HQ should therefore be used after the adjustment has been completed.

The window is resizable and provides four canvas sizes: XS, S, M, and L. The selected size is saved in the layer and restored the next time the tool is opened.

14.9 Usage Guidelines

Sat-Lum is particularly useful when areas with low and high chromatic intensity should have different tonal weight.

It is advisable to begin with a simple curve and evaluate the behavior of the intermediate range. Strong adjustments applied to components that are already highly

intense can move some colors toward the boundaries of the gamut. Containment points can be added later when the adjustment needs to be restricted.

The overall strength of the result can be refined using the layer opacity and mask.

14.10 Version Notes

New tool: Sat-Lum was introduced in version 3.

15. Sat-Sat

15.1 Tool Function

Sat-Sat, introduced in version 3, adjusts saturation according to its initial value. It therefore allows colors with low, medium, or high saturation to be treated differently.

It can be used, for example, to increase the saturation of weaker colors, keep the intermediate range stable, and restrain colors that are already highly saturated. Photoshop does not provide a tool or curve that directly represents this relationship.

15.2 HSP Reference and Curve Principle

Sat-Sat uses the Saturation coordinate S of the HSP representation. As explained in the previous chapters, this coordinate does not correspond to the perceptual attribute of saturation defined by the CIE, but belongs specifically to the HSP representation.

The horizontal axis, or X axis, represents the initial HSP saturation.

The vertical axis, or Y axis, represents the increase or decrease applied to HSP saturation.

The central horizontal line represents the neutral condition.

- Moving the curve upward increases saturation.

- Moving the curve downward decreases saturation.

A horizontal curve offset from the neutral position adjusts the entire saturation range.

Adding intermediate points makes it possible to apply different changes to the low, medium, and high ranges.

As the upper limit of the scale is approached, less room remains for further increases in saturation. Positive adjustments applied to colors that are already highly saturated should therefore be evaluated carefully.

15.3 Panel and Main Controls

Reset: returns the curve to its neutral configuration.

Eyedropper: samples a color from the image and adds a neutral point at its corresponding HSP saturation.

+ button, enclosed within a square: creates a new Sat-Sat layer with a neutral curve.

XS, S, M, L selector: changes the canvas size.

Low, Mid, High: add three reference points along the saturation axis.

All pts: adds the Low, Mid, and High points at the same time, without creating duplicates.

HQ: recalculates the layer using the LUT size selected in the Settings panel.

15.4 Points, Sampling, and Numerical Fields

The **Low**, **Mid**, and **High** points are placed approximately at positions 25, 50, and 75 on the displayed scale.

- Low corresponds to the low-saturation range.
- Mid corresponds to the intermediate range.
- High corresponds to the high-saturation range.

The Eyedropper analyzes the sampled color and adds a neutral point at the corresponding position on the curve.

- A single click anywhere along the curve adds a point.
- Clicking an existing point selects it.
- Right-clicking an intermediate point removes it.
- Pressing the D key removes the selected intermediate point.

When a point is selected, the In and Out numerical fields appear below the curve area.

In defines the initial HSP saturation level at which the point is positioned.

Out defines the amount and direction of the applied saturation adjustment.

The numerical fields make it possible to position points precisely and repeat or recreate an adjustment without relying exclusively on dragging within the canvas.

15.5 Working Layer and Restoring Settings

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc curve_ SatSa**t".

It does not need to be created before you begin. When the curve is adjusted for the first time, the panel automatically creates the layer if a valid Sat-Sat layer is not already active.

The + button can instead be used at any time to create a new neutral layer.

Selecting an existing Sat-Sat layer reloads the curve, canvas size, and quality state saved in that layer.

Selecting a different type of layer closes the Sat-Sat window. Reset is the only exception: it does not create a layer and, when no valid Sat-Sat layer is active, only returns the displayed curve to its neutral position.

15.6 Real-Time Processing and HQ

While points are being dragged, Sat-Sat updates the result in real time using a reduced-resolution preview.

When a point is released, added, or removed, the layer is updated using a 32^3 LUT, which is the standard working quality.

HQ recalculates the layer using the LUT size selected in the Settings panel. During processing, the button displays a flashing hourglass. Wait until it becomes stable and remains illuminated.

Any subsequent change to the curve cancels the HQ state and returns the layer to the 32^3 LUT. HQ should therefore be used after the adjustment has been completed.

15.7 Resizable Window and Canvas Size

The Sat-Sat window is resizable and provides four canvas sizes: **XS**, **S**, **M**, and **L**.

A larger canvas makes the curve easier to read and the points easier to position. The selected size is saved in the layer and restored when the tool is reopened on the same layer.

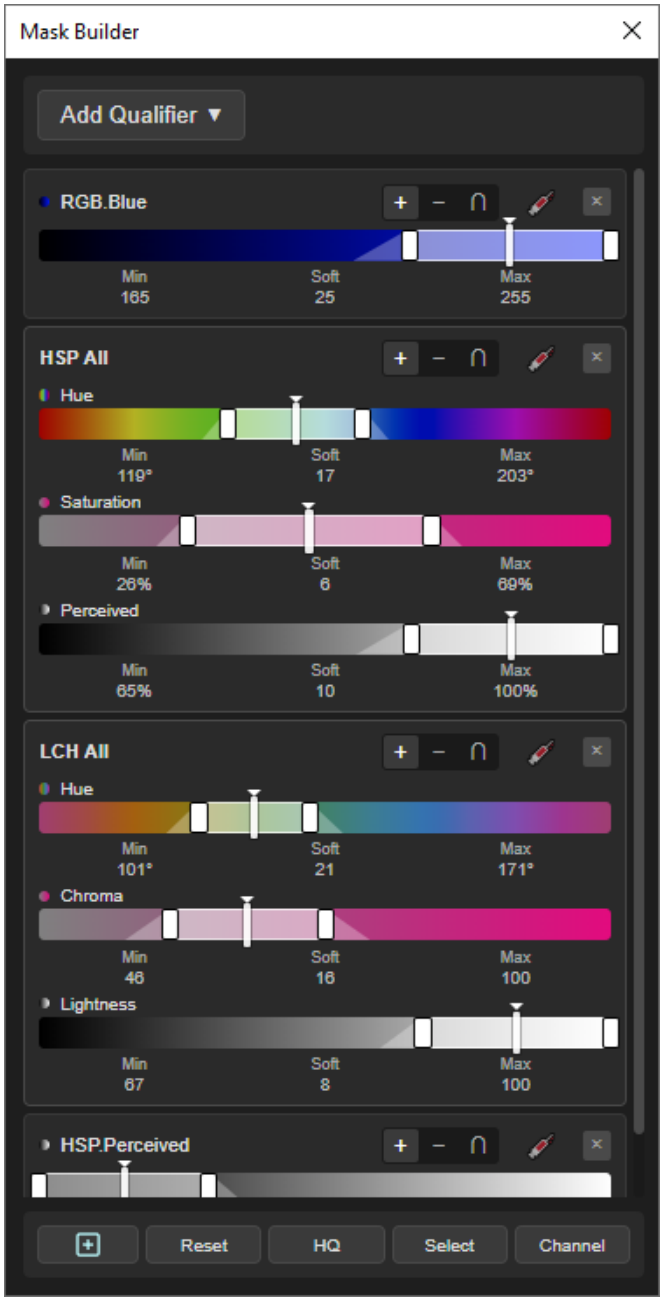
15.8 Usage Guidelines

- Sat-Sat is particularly useful for restraining colors that are already highly saturated without reducing the intermediate range in the same way, or for strengthening weaker colors without excessively increasing those that are already intense.
- It is preferable to begin with a simple, gradual curve. Irregular curves or abrupt changes can create unnatural transitions between colors with similar saturation levels.
- The overall strength of the result can be refined using the layer opacity and mask.

15.9 Version Notes

New tool: Sat-Sat is a tool introduced in version 3.

16. Mask Builder



17.1 Tool Function

Mask Builder creates chromatic masks by combining multiple qualifiers, including qualifiers from different color domains. Each qualifier can be added to the mask, subtracted from it, or used to restrict it through an intersection.

For example, a hue can be selected in HSV, restricted to a specific CIELCh or OKLCh lightness range, and then refined by subtracting a selected RGB component.

16.2 Available Domains

The **Add Qualifier** menu provides **six domains**. For each domain, you can add a single coordinate or an **All** block containing all three coordinates.

HSV: Hue from 0° to 360°, Saturation from 0% to 100%, and Value from 0% to 100%.

HSL: Hue from 0° to 360°, Saturation from 0% to 100%, and Lightness from 0% to 100%.

HSP: Hue from 0° to 360°, Saturation from 0% to 100%, and Perceived Brightness from 0% to 100%.

RGB: Red, Green, and Blue from 0 to 255.

CIELCh, shown as LCH in the menu: Hue from 0° to 360°, Chroma from 0 to the maximum value available for the active profile, and Lightness from 0 to 100.

OKLCh: Hue from 0° to 360°, Chroma from 0 to 50, and Lightness from 0 to 100.

16.3 Single Qualifiers and All Blocks

A single qualifier selects a range on one coordinate, such as Hue, Saturation, Chroma, or Lightness.

An All block combines the three coordinates of the same domain. Within the block, the three ranges are intersected: a pixel is included only when it falls within all three ranges. The complete block is then combined with the other qualifiers according to the selected composition mode.

Each slider provides the same controls:

- Two side handles define the lower and upper limits of the range.
- The central body moves the entire range without changing its width.
- Soft controls the gradual transition at the boundaries.
- The **Min**, **Soft**, and **Max** values displayed below the slider can be edited by double-clicking them.

The header of each qualifier contains the **Add**, **Subtract**, and **Intersect** controls, the Color Picker represented by an eyedropper icon, and an X button for removing the qualifier.

16.4 Composition Modes

The composition mode determines how each qualifier is combined with the mask already created.

Add: adds the area selected by the qualifier to the mask.

Subtract: removes the selected area from the mask.

Intersect: retains only the pixels included in both the existing mask and the qualifier selection.

This makes it possible to begin with a broad selection and refine it through successive steps.

16.5 Color Picker

The Color Picker, represented in the interface by the eyedropper icon, is available for both single qualifiers and All blocks.

When used with a single qualifier, the slider is automatically positioned around the sampled coordinate value. In a Hue qualifier, for example, the range is centered on the hue of the selected color.

When used with an All block, sampling updates all three sliders at the same time, positioning them around the coordinates of the sampled color in the selected domain.

In both cases, an initial symmetrical range is created around each sampled value. The boundaries and Soft regions can then be adjusted.

In the CIELCh and OKLCh domains, the sampled color is converted while taking the color profile of the active document into account.

16.6 Panel Controls

Add Qualifier: opens the menu used to select a domain and an individual coordinate or its corresponding All block.

+ button, enclosed within a square: creates a new Mask Builder layer. If a layer with the expected name already exists, the panel displays a warning.

Reset: removes all qualifiers and returns the panel to its initial state.

HQ: recalculates the mask using the high-quality setting selected in the Settings panel.

Select: loads the mask as an active selection in the document.

Channel: saves the mask as an alpha channel and asks the user to assign it a name.

16.7 Color Profile, CIELCh, and OKLCh

Mask Builder interprets colors according to the color profile of the active document. Supported profiles include sRGB, Adobe RGB, Display P3, ProPhoto RGB, and Rec.2020.

In the CIELCh domain, the maximum Chroma value and the Hue slider gradient are adapted to the gamut of the active profile. The maximum Chroma values use the same references as LChScope.

In the OKLCh domain, the interface uses a Chroma range from 0 to 50. Hue ranges from 0° to 360°, and Lightness ranges from 0 to 100.

The active document profile is taken into account when sampled colors are converted, but the profile itself is not changed.

16.8 Working Layer and Restoring Settings

The working layer is a Color Lookup adjustment layer whose name includes preview_M. It does not need to be created before you begin. When a slider is moved for the first time, the panel automatically creates the layer if a valid Mask Builder layer is not already active. The + button remains useful when you want to begin with a new layer.

Selecting an existing Mask Builder layer reloads all saved qualifiers, including their domains, coordinates, composition modes, Min and Max values, and Soft settings.

Selecting a different type of layer closes the Mask Builder window. Reset does not create a layer and, when no valid Mask Builder layer is active, only returns the panel to its initial state without modifying the document.

16.9 When to Use It

When a selection requires multiple color coordinates or domains.

When an initial selection needs to be expanded, restricted, or stripped of specific components.

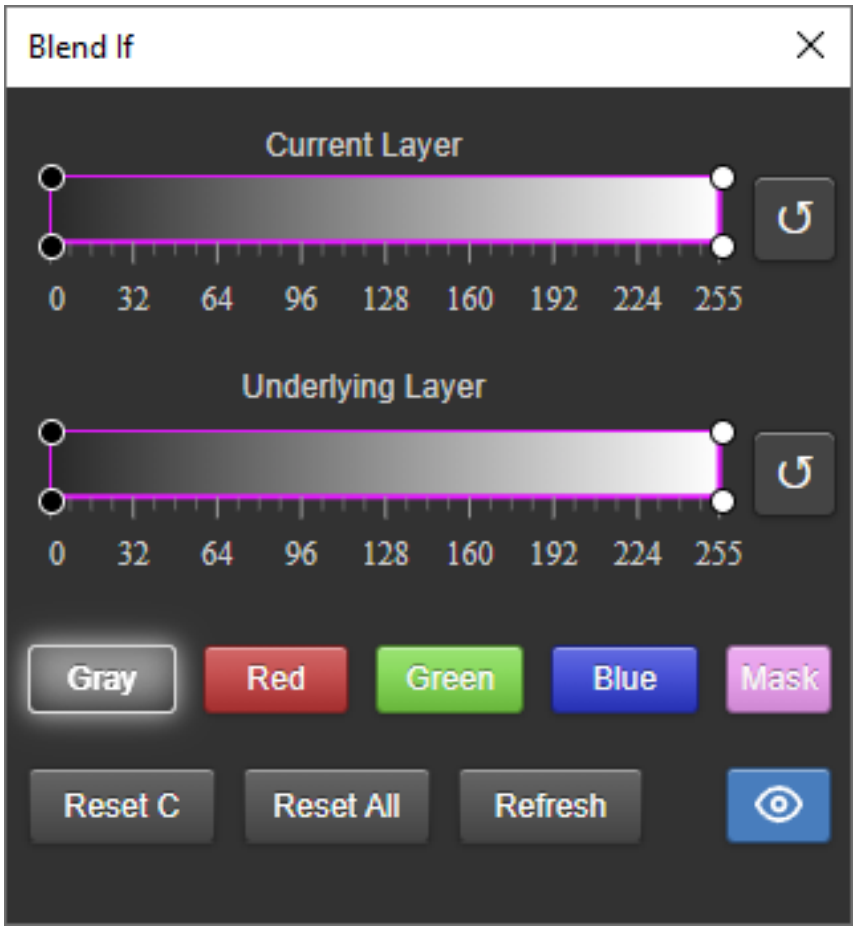
When different criteria need to be combined, such as an HSV hue and a CIELCh or OKLCh lightness range.

When the mask needs to be converted directly into an active selection or saved as an alpha channel.

16.10 Version Notes

New tool: Mask Builder was introduced in version 3.

17. Blend If



17.1 Tool Function

Blend If displays and modifies the channel-based blending options of the active layer without requiring you to open Photoshop's Layer Style dialog.

The tool determines where the layer is visible according to the tonal values of the layer itself or the underlying content. This makes it possible to create blend-based masking using either composite values or individual RGB channels, without manually creating a layer mask.

The sliders directly show the active ranges, while the Eye button temporarily disables and re-enables Blend If without losing the current settings.

17.2 Current Layer and Underlying Layer

The panel is divided into two sections: **Current Layer** and **Underlying Layer**.

Current Layer: controls the visibility of the active layer according to its own tonal values. For example, it can progressively hide the darkest shadows or brightest highlights of the layer.

Underlying Layer: controls the visibility of the active layer according to the tonal values of the underlying content. For example, it can make the layer visible only over light or dark areas of the layers below.

The two sections can be used separately or together.

17.3 Available Channels

The colored buttons select the channel to be adjusted.

- **Gray**: uses the composite tonal values.
- **Red**: uses the values of the Red channel.
- **Green**: uses the values of the Green channel.
- **Blue**: uses the values of the Blue channel.

Each channel stores independent settings for Current Layer and Underlying Layer.

17.4 Blending Sliders and Nodes

Each slider uses a scale from 0 to 255 and contains four nodes arranged in two pairs.

- The left pair controls the shadow transition.
- The right pair controls the highlight transition.

When the two nodes in a pair occupy the same position, the transition is sharp. Separating them creates a gradual transition.

The greater the distance between the two nodes, the softer the blend.

The area between the two inner nodes keeps the layer fully visible. Moving toward either end of the slider, visibility decreases through the transitions defined by the two pairs.

The numerical scale below each slider provides a reference for positioning the nodes accurately.

17.5 Additional Controls

Circular button next to Current Layer: resets only the Current Layer slider for the selected channel.

Circular button next to Underlying Layer: resets only the Underlying Layer slider for the selected channel.

Mask: displays the areas excluded from the blend in magenta, making the resulting masking easier to evaluate.

Eye: temporarily disables Blend If on the active layer. Clicking it again restores the previous values. When Blend If is disabled, the button turns red. The slider settings are preserved and restored unchanged.

Reset C: resets both sliders for the active channel.

Reset All: resets the settings for all channels.

Refresh: reads the current Blend If values from the active Photoshop layer and updates the panel.

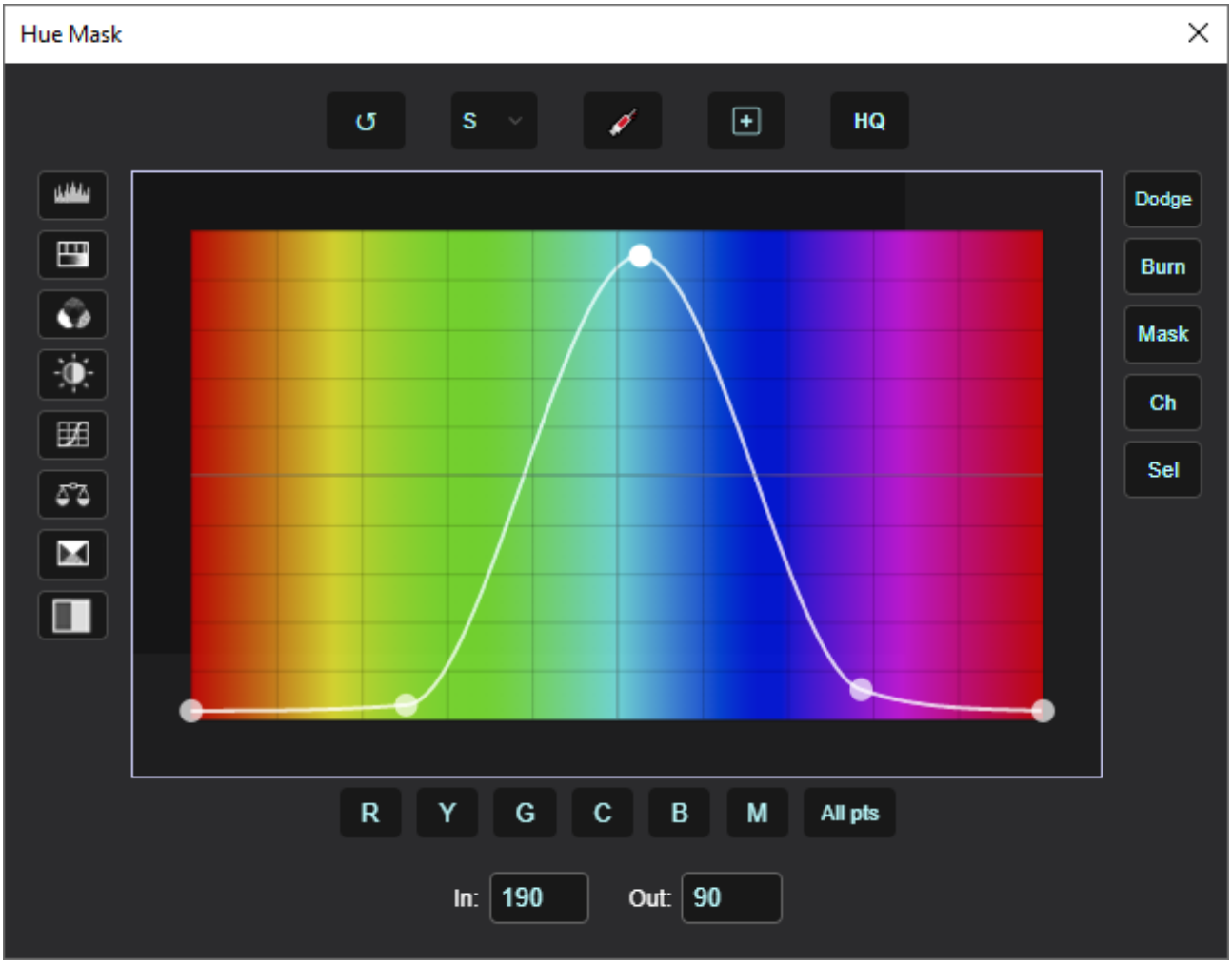
17.6 When to Use It

- When you want to limit the visibility of a layer according to tonal values without manually creating a mask.
- When an effect should apply only to shadows, midtones, or highlights.
- When the blend should depend on the tonal values of the underlying content.
- When the Red, Green, and Blue channels need to be controlled separately.
- When smoother transitions are required by separating the pairs of nodes.

17.7 Version Notes

New tool: Blend If was introduced in version 3.

18. Hue-Mask



18.1 Tool Function

Hue Mask creates selective masks based on hue. The tool analyzes the hue of each pixel and generates a mask that accurately isolates the color regions defined by the curve.

The tool is based on a spline curve. The horizontal axis represents the complete hue range from 0° to 360°, corresponding to the full hue cycle, while the vertical axis determines the intensity of each hue within the mask. By modifying the curve at a specific hue, the corresponding color region can be progressively **included** or **excluded**. **Raising** the value selects the hue, while lowering it progressively **reduces** its contribution until it is completely **excluded**.

18.2 HSP Reference

Hue Mask works in the HSP representation. Hue is obtained from the H component, while P represents perceived brightness. The selection generated by the tool depends on the H component.

While the curve is being constructed, the tool displays a real-time preview directly on the image. Areas included in the mask retain their original color, while excluded areas are displayed in middle gray. This makes it possible to immediately identify which color regions are included in the mask before applying it.

18.3 Building the Curve

The curve starts as a horizontal line in the center, representing the initial condition with no selection.

- A single click inside the canvas adds a point to the curve.
- Dragging the point defines the contribution of the corresponding hue region to the mask.
- During dragging, the preview is updated in real time.
- When the mouse button is released, the final mask update is completed.
- Right-clicking or pressing D removes the selected intermediate point.

The **R**, **Y**, **G**, **C**, **B**, and M buttons directly create a mask for the corresponding hue: red, yellow, green, cyan, blue, or magenta. Clicking one of these buttons resets and rebuilds the curve using the points required to isolate the corresponding color region.

All pts inserts points for all six primary hues.

18.4 Panel Controls

Reset: returns the curve to its initial state.

Eyedropper: samples a hue from the image and adds the corresponding point to the curve.

+ button inside a square: creates a new neutral working layer dedicated to Hue Mask. It is not necessary to use this button before starting. When the curve is modified for the first time, the panel automatically creates a working layer if a valid Hue Mask layer

is not already active. The button remains useful when you want to start a new mask on a separate layer.

XS, S, M, L selector: changes the canvas size.

HQ: recalculates the mask using the higher quality setting selected for final processing.

18.5 Left Sidebar: Adjustment Layers

The left sidebar contains eight buttons that create an adjustment layer above the active layer and automatically apply the current mask. The adjustment therefore affects only the areas selected by the curve.

The available adjustment layers are:

- **Levels**
- **Hue/Saturation**
- **Channel Mixer**
- **Brightness/Contrast**
- **Curves**
- **Color Balance**
- **Selective Color**
- **Black & White**

18.6 Right Sidebar: Application Modes

The right sidebar provides five ways to use the generated mask.

Dodge: creates a selective lightening layer in the areas included in the mask.

Burn: creates a selective darkening layer in the areas included in the mask.

Mask: applies the generated mask to the active layer. If the layer does not already have a mask, one is created automatically. If a mask is already present, its contents are replaced by the new mask.

Ch, Channel: saves the mask as an alpha channel in the document.

Sel (Select): loads the mask as an active selection.

18.7 Resizable Window

The Hue Mask window is resizable, and the canvas can be set from XS to L. The selected size is stored in the working layer and restored when the tool is reopened on the same layer.

18.8 Persistence

If the document already contains a **Hue Mask** working layer, simply select it to resume editing. The panel reloads the curve, canvas size, and quality state stored in the layer.
If a different type of layer is selected, the tool does not apply the curve to the wrong layer.

18.9 Version Notes

New in v3: points are added with a single click.

New in v3: the curve and preview are updated in real time while dragging.

New in v3: the window is resizable, and the canvas can be set from XS to L.

New in v3: the HQ button is available for the final high-quality calculation.

19. Sat-Mask

19.1 Tool Function

Sat Mask allows creating selective masks based on saturation. The tool analyzes each pixel's chromatic intensity and generates a mask that allows precisely isolating low, medium or high saturation areas.

Control is through a spline curve: the horizontal axis represents saturation from 0 to 100%, while the vertical axis defines the selection intensity. Acting on the curve in low saturation zones selects nearly neutral or weakly saturated colors; acting in higher saturation areas isolates the most intense and vivid colors.

19.2 HSP Reference

Sat Mask works in HSP. Saturation is read from the S component of the HSP representation.

As in Hue Mask, during curve construction the tool shows a real-time preview directly on the image: selected areas keep their original color, while excluded areas are brought to mid-gray.

19.3 Curve Construction

Operation is analogous to Hue Mask:

- click to add points
- drag to adjust
- right-click or press the D key to remove.

The **Low**, **Mid**, and **High** buttons add standard points in the **low**, **medium**, and **high** saturation zones respectively.

19.4 Controls, Sidebar and Application

The panel shares the same structure as Hue Mask: **+ button** inside a square to create the layer, **Reset**, **Eyedropper**, **XS-L** canvas selector, **HQ**, left sidebar with **8 adjustment layers**, and right sidebar with 5 application modes: **Dodge**, **Burn**, **Mask**, **Channel**, and **Select**.

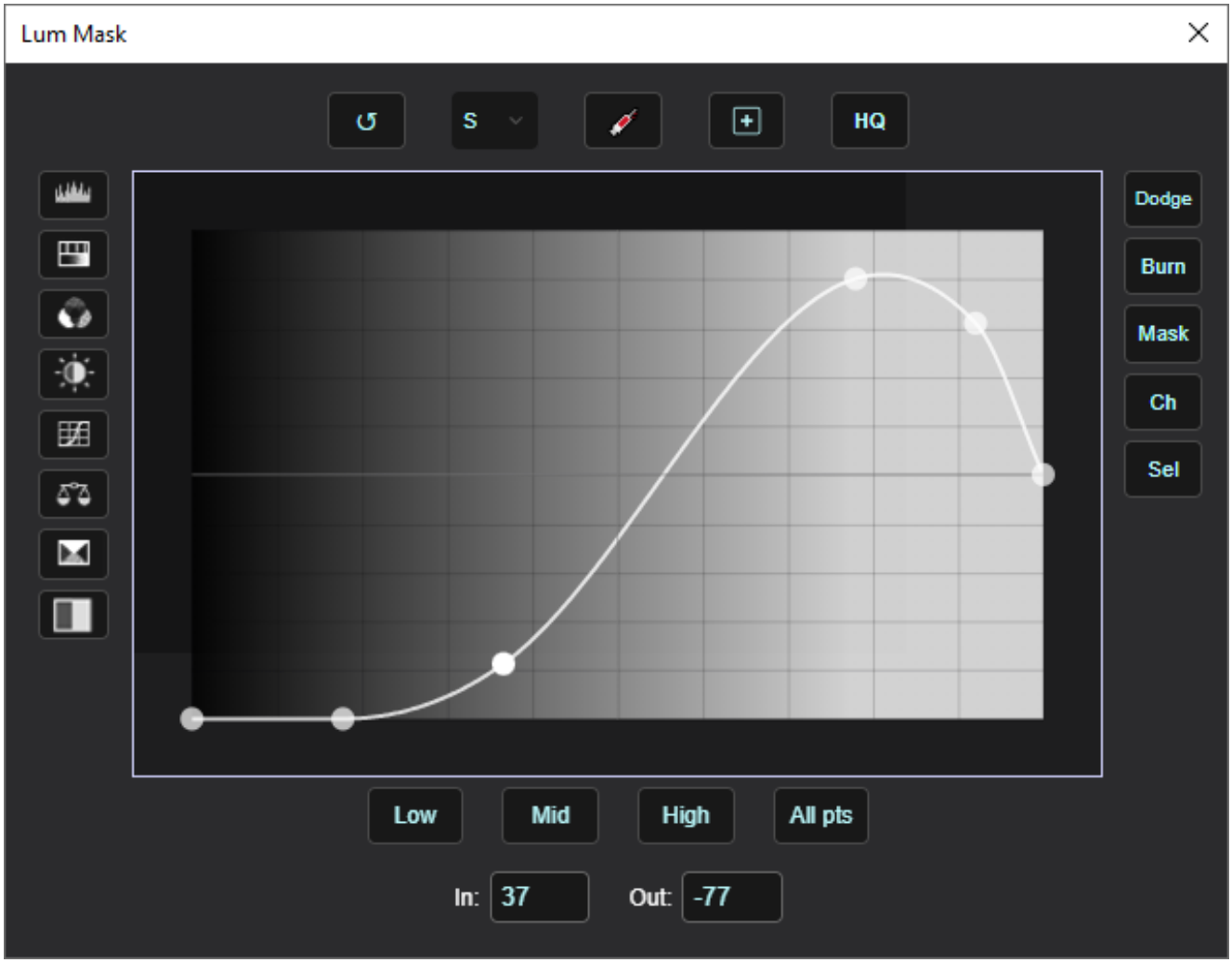
19.5 When to Use It

- To isolate low-saturation (near-gray) areas and intervene only on those.
- To select only vivid colors and adjust their saturation without touching neutrals.
- To create masks that separate chromatic zones from achromatic ones.

19.6 Version Notes

New in v3: single-click point insertion, resizable canvas, HQ button, real-time update.

20. Lum-Mask



20.1 Tool Function

Lum Mask allows creating selective masks based on perceived brightness. The tool analyzes each pixel's perceived brightness and generates a mask that allows precisely isolating **shadows**, **midtones** or **highlights**, according to the shape defined by the curve.

Control is through a spline curve: the horizontal axis represents perceived brightness from 0 to 100%, while the vertical axis defines the selection intensity. Acting on the curve in darker zones selects shadows, in the middle part midtones and in the lighter areas highlights.

20.2 HSP Reference

Lum Mask works in the HSP domain. Perceived brightness is read through the P component of the HSP representation.

As in Hue Mask and Sat Mask, during curve construction the tool shows a real-time preview: selected areas maintain their original color, while excluded ones are displayed in mid-gray.

20.3 Curve Construction

The operating principle is analogous to that of Hue Mask and Sat Mask. The **Low**, **Mid**, and **High** buttons add standard points in the **shadow**, **midtone**, and **highlight** zones respectively, facilitating the initial mask construction.

20.4 Controls, Sidebar and Application

The panel shares the same structure as Hue Mask and Sat Mask: **+ button** inside a square inside a square to create the layer, **Reset**, **Eyedropper**, canvas selector from **XS** to **L**, **HQ** mode, left sidebar with **8 adjustment layers**, and right sidebar with 5 application modes: **Dodge**, **Burn**, **Mask**, **Channel**, and **Select**.

20.5 When to Use It

- To isolate shadows and intervene exclusively on their perceived brightness or color.
- To select midtones and apply corrections that do not involve extreme tonal areas.
- To create progressive and controlled perceived-brightness masks, more precise than a simple tonal range selection.

20.6 Common Mask Architecture

Hue Mask, Sat Mask and Lum Mask share the same base architecture. All three use HSP as their operational reference, reading hue, the saturation of the HSP representation, and perceived brightness P respectively.

The spline curve, panel controls, sidebars, persistence system, and HQ mode are common to the three tools. What changes is only the coordinate analyzed by the curve.

20.7 Version Notes

New in v3: single-click point insertion, resizable canvas, HQ button, real-time update

21. Color Wheels

21.1 Tool Function

Color Wheels are one of the fundamental tools of color grading. They allow separate color adjustments to be applied along the tonal range of the image and can be used both for primary correction, when the aim is to remove an unwanted color cast and achieve a more credible balance, and for the creative development of a look.

In version 3, the tool operates in real time and offers two modes, **Color** and **Log**.

The main difference concerns the width of the tonal range affected by each control.

21.2 The Two Modes

21.2.1 Color: Lift, Gamma, Gain

In Color mode, the three main wheels are Lift, Gamma, and Gain.

- **Lift** mainly affects the shadows and the black level.
- **Gamma** mainly affects the midtones.
- **Gain** mainly affects the highlights and the white level.

The influence of the three controls is broad and partially overlapping. Lift has its strongest effect in the shadows and gradually decreases toward the highlights. Gain behaves in the opposite way, while Gamma concentrates its effect on the midtones and fades toward both ends of the tonal range.

This overlap produces smooth transitions between the different tonal regions. For this reason, Color mode is particularly suitable when you want to define the overall balance and general character of the image.

21.2.2 Log: Shadow, Midtone, Highlight

In **Log** mode, the three main wheels are **Shadow**, **Midtone**, and **Highlight**. Compared with Color mode, each control affects a more limited tonal range.

Shadow mainly affects the shadows, Midtone the midtones, and Highlight the highlights. The ranges are not separated by sharp boundaries, but blend through smooth transitions to avoid visible discontinuities. The available adjustment range is also intentionally more limited, making local adjustments more precise.

Log mode is suitable when the image has already been established and you want to correct a specific tonal region while limiting its influence on the others as much as possible. For example, it allows you to warm the shadows while producing a much more limited effect on the midtones.

The term Log identifies this type of wheel, following terminology derived from professional color grading environments. It does not mean that you need to work with Log footage: this mode can be used with any image.

In summary, Color offers broader, overlapping adjustments that are suitable for establishing the overall balance of the image. Log concentrates each adjustment more strongly within its corresponding tonal range and is therefore more suitable for selective corrections.

21.2.3 Offset

Both modes include a fourth control, **Offset**, which affects the entire image without distinguishing between shadows, midtones, and highlights.

Offset allows you to modify the overall color and tonal balance. It can be used before the other wheels to establish a general base, or afterward to refine the overall result.

21.3 Panel Structure

The panel displays four wheels arranged in a row. Their names change according to the selected mode:

- **Color: Lift, Gamma, Gain, and Offset.**
- **Log: Shadow, Midtone, Highlight, and Offset.**

If you cannot find the controls you used previously, check which of the two modes is currently active.

The numerical values of the R, G, and B channels are displayed below each wheel. These values can be adjusted by dragging them horizontally or entered directly.

In Color mode, Lift, Gamma, and Gain also include a **Master** control dedicated to neutral tonal adjustment within the corresponding region. For Offset, the Master remains on the small wheel located below the main wheel. In Log mode, the Master for each control is adjusted through the small wheel below its corresponding main wheel and modifies all three channels together.

Dragging inside a wheel adjusts the color balance of the corresponding tonal region.

The numerical fields allow precise adjustment. They can be dragged horizontally or selected to enter a value directly.

Each wheel has its own reset command in the header, allowing it to be reset without modifying the others.

The **Reset button** in the top bar returns the entire panel to its neutral state.

The **Color** / **Log** switch changes the operating mode.

The **Wheels** / **Bars** switch changes the representation of the controls.

21.3.1 The Two Views: Wheels and Bars

The tool can be used through two representations, which can be selected with the Wheels / Bars switch. The adjustment behavior does not change. Only the way in which it is controlled changes.

Wheels uses the traditional disc representation. Dragging the control from the center in a specific direction selects both the hue and the intensity of the adjustment. It is the most immediate view when you want to explore color visually and directly evaluate the response of the image.

Bars replaces the wheels with vertical sliders dedicated to the individual channels. In this view, the red, green, and blue values are adjusted directly.

In Color mode, Lift, Gamma, and Gain display four sliders: Master, Red, Green, and Blue. Offset displays the three Red, Green, and Blue sliders, while its Master remains available on the small wheel.

In Log mode, all four controls display the three Red, Green, and Blue sliders, while the Master for each control remains on the small wheel below.

The Bars view is particularly useful:

When you already know which channel needs to be modified. For example, “removing blue from the shadows” is a direct adjustment of the Blue channel. With the wheel, you would need to move toward the opposite hue and carefully control the movement. With the bars, you only need to reduce the Blue value.

When values need to be replicated or recorded. Each slider corresponds directly to its numerical value, making it easier to reconstruct or transfer an adjustment.

When you want to clearly separate color adjustment from neutral adjustment. The Master control modifies the tonal component without changing the balance between the channels. In Color mode, for Lift, Gamma, and Gain, this control is available as a separate slider in the Bars view.

The Wheels and Bars views share the same values. You can therefore begin an adjustment visually using the wheels and then switch to the bars to refine the individual channels without losing any changes already made.
The selected view is saved in the working layer and restored when the tool is reopened on the same layer.

21.3.2 How to Read the Channel Values

Each wheel controls two independent quantities: the Master, which affects the tonal component of the region, and the balance, which affects the color. The number displayed below each channel is the sum of the two.
The neutral value is not the same for every wheel. On Lift, Gamma, and Offset, the Master starts at 0 and moves in both directions. On Gain, it starts at 1 because this control operates multiplicatively. **Therefore, reading 1.00 on Gain and 0.00 on Lift represents the correct neutral state and is not a misalignment**.

As a result, if you move the Master toward its limit and then push the control on the disc, the values of the individual channels may exceed the nominal range. This is not an error: you are adding a color shift to a tonal shift, and each remains within its own limits. This is the same behavior found in the color correction consoles from which these wheels originate.

What changes under these conditions is the visual response. The channel has already reached the limit of what the image can contain, so the remaining movement of the control produces an increasingly less visible change.

This indicates that the wheel has provided all the adjustment it can. If you need to push the effect further, it is better to reduce the Master and start again from the disc, or add a second layer above the first, instead of forcing the same control.

Finally, in the Bars view, the slider is drawn only as far as the end of its own travel. It may therefore appear to be stationary at the top while the number continues to increase. In these cases, the number is the value that should be read, not the position of the slider.

21.4 Additional Controls

+ button, enclosed in a square: creates a new neutral working layer whose name includes "**Mtc color wheels".** It is not necessary to use it before starting. When the first adjustment is made, if no valid layer is active, the panel creates one automatically. The + button remains useful when you want to begin a new separate adjustment, for example by placing it above an existing one.

Int, (Intensity): adjusts the intensity of the effect from 0 to 1. At 1, the correction is applied fully, while at 0 it produces no effect. Intermediate values progressively blend the original image with the result. Intensity does not correspond to the opacity of the Photoshop layer. It operates within the tool before the result is applied to the layer. The layer opacity therefore remains available as an additional control.

Slow: reduces the sensitivity of dragging on the wheels, allowing finer adjustments. It is a numerical field that can be modified by dragging it horizontally or by entering a value directly.

Roll-off: enabled by default and effective in Color mode. It reduces the application of the color cast to highlights close to white, progressively guiding them toward a neutral result. When it is disabled, the color correction can also affect white.

S / M / L selector: changes the size of the wheels and the window by selecting one of the three predefined sizes.

HQ: recalculates the layer using a LUT of the size specified under HQ LUT Size in the Settings panel.

21.5 Quality and Real-Time Updating

While dragging, the tool updates the result in real time using a reduced-resolution preview in order to maintain an immediate interface response.

When the adjustment is complete, the layer is rebuilt using the standard working quality with a 32^3 LUT. The HQ button performs an additional recalculation using the LUT size specified in the Settings panel and is intended for final refinement.

Any subsequent change cancels the HQ state and returns the layer to the 32^3 LUT. This behavior is necessary because the high-resolution LUT describes the specific wheel configuration with which it was calculated. For this reason, HQ should be used at the end of the adjustment.

21.6 Working Layer

The working layer is a Color Lookup adjustment layer whose name includes "**Mtc color wheels**". When an existing layer with this name is selected, the panel restores all the settings stored within it:

- **wheel positions;**
- **Color or Log mode;**
- **Wheels or Bars view;**
- **Intensity;**
- **Slow;**
- **Roll-off;**
- **window size;**
- **quality state.**

If a different type of layer is selected, the Color Wheels window closes. This ensures that the tool always remains associated with its own layer and does not accidentally apply adjustments to a different layer.

21.7 Conditions of Use

- The tool requires an RGB document.
- Color mode is suitable when broad, natural transitions between tonal regions are desired or when defining the overall look of the image.
- Log mode is suitable when you want to concentrate the adjustment on a more limited tonal region.

- The final result can be further controlled using the layer opacity and mask, independently of the Intensity control.

21.8 Version Notes

New in v3: two operating modes are available, Color with Lift, Gamma, and Gain, and Log with Shadow, Midtone, and Highlight. Both include the Offset control.

New in v3: the result is updated in real time while dragging.

New in v3: the Intensity control has been introduced to adjust the strength of the effect, the Slow control for fine adjustments, and Roll-off to protect the highlights from the color cast.

New in v3: the tool offers two views, Wheels with wheel controls and Bars with separate sliders for each channel.

New in v3: the window is resizable and offers the predefined S, M, and L sizes.

22. CurveG

22.1 Tool Function

CurveG is a color grading tool that builds Photoshop curves through filmic parameters. The tool generates a native Photoshop Curves layer whose shape is controlled by parameters inspired by film tonal response: **contrast**, **toe**, **shoulder**, **latitude** and **tilt**. This way a precise and refined curve is built quickly, without having to manually position points.

The advantage is twofold. On one hand, you reason like a colorist, with more compressed shadows, softer highlights, and a wider linear zone, and the curve shapes itself. On the other, the curve remains a Photoshop Curves curve: every parameter modification updates it in real time, and the result is always controllable and editable afterward. An

additional advantage is speed: moving one slider modifies the entire curve shape in real time, while with a manual curve the same modification would require repositioning several points one by one.

When the **RGB Curves checkbox** is active, The composite curve is translated into three separate curves for the red, green and blue channels, incorporating the chromatic casts defined in the **Color Zones** (**Highlights**, **Midtones**, **Shadows**). The Color Zones remain tied to the chosen contrast type: modifying the filmic shape, the chromatic distribution adapts accordingly. And vice versa, intervening on the zones, the RGB curves update maintaining consistency with the tonal curve. This bidirectional relationship makes the tool particularly effective for building a complete look in a single operation.

The **HSP Balance** section adds a further level of control: a checkbox alternates between two coloring modes:

HSP Balance, which preserves perceived brightness during grading;

Film Print, which simulates the subtractive behavior of film printing, with a denser and more cinematic result.

22.2 Filmic Curve Parameters

The upper panel section controls the tonal curve shape through nine parameters:

Contrast: overall contrast intensity. At 0 the curve is linear.

Tilt: tilts the curve shifting the tonal balance toward shadows or highlights.

Latitude: defines the width of the central zone (midtones) that remains less compressed. Higher values produce a wider linear zone.

Black: black point offset. Raises the image's minimum level.

Toe: controls the curvature in the shadow zone. Higher values produce more gradual compression.

White: white point offset. Lowers the image's maximum level.

Shoulder: controls the curvature in the highlight zone. Higher values produce a softer transition toward white.

Mid Push: shifts the curve in the midtone zone, lightening or darkening the image without altering the black and white points.

Blend: controls how much the filmic curve is blended with the original linear curve. At 1, the filmic curve is fully applied; at 0, the image remains unchanged.

22.3 From Composite to RGB: the RGB Curves Checkbox

When the RGB Curves checkbox is off, the filmic parameters generate a single curve applied to the composite channel. When activated, the same filmic shape is transformed into three separate curves for the red, green and blue channels.

This transformation is not a simple copy: the **three RGB curves** incorporate the chromatic casts defined in the Color Zones (**Highlights**, **Midtones**, **Shadows**) and the balancing method defined by the HSP Balance section. The result is an integrated intervention where tonal shape and coloring are built together. The **R, G, B checkboxes** at the bottom of the panel allow enabling or disabling individual channels, making each one's contribution visible.

22.4 Color Zones: Highlights, Midtones, Shadows

Below the curve parameters, the panel offers three independent color grading sections for highlights, midtones and shadows. Each zone can be enabled or disabled with its own checkbox and contains three controls:

Sat: adjusts the intensity of the chromatic cast in the tonal zone.

Hue: selects the cast's hue via a slider with a chromatic gradient.

Pb: adjusts the perceived brightness of the zone.

These casts are integrated into the RGB curves when the RGB Curves checkbox is active. In composite mode, Color Zones are not applicable, because a single curve cannot introduce chromatic differences between channels.

22.5 HSP Balance and Film Print

The section at the bottom of the panel controls the coloring method and zone grading distribution. The checkbox alternates between two different behaviors:

HSP Balance (active): chromatic casts are applied while preserving perceived brightness. For each selected hue, the tool calculates RGB offsets to keep overall perceived brightness more stable. The result is clean grading, introducing color while limiting changes to the image's tonal weight.

Film Print, when HSP Balance is inactive: casts are applied subtractively, in a logic similar to film printing. To introduce a blue cast, for example, the tool reduces the contribution of red and green. The result is denser and more cinematic, with a different visual character.

Below the checkbox, three sliders adjust the effect distribution:

Sigma: defines the width of tonal zones. Lower values narrow zones, making separation sharper; higher values widen them, producing greater overlap and smoother transitions.

Intensity: controls the overall intensity of the chromatic casts applied to the different zones. At **0**, Color Zones produce no effect; at **1**, the effect is fully applied.

Luma Mix: controls how much chromatic modifications affect the tonal value of the result At **1**, color variations also modify tonal value, following the standard behavior. At **0**, the original tonal value is preserved: color changes, while tonal contrast tends to remain more stable. This control echoes the Luma Mix parameter found in leading color grading software.

22.6 Presets

The dropdown menu allows recalling saved configurations. The floppy disk icon button saves the current configuration as a preset. The trash icon button deletes the selected preset. Selecting a preset it will be automaticly applied.

22.7 Layer and Update

The + button (inside a square) creates a Photoshop Curves layer with a name that includes Mtc CurveG. The tool updates the result in real time during slider adjustment: curve points are recalculated and written to the Curves layer on every change.

22.8 Version Notes

New tool: CurveG is a tool introduced in version 3.

23. B&W Mixer

23.1 Tool Function

The B&W Mixer is a black-and-white conversion tool based on lightness curves for each color zone. Unlike Photoshop's Black & White adjustment layer, which provides six linear sliders to define how light or dark each color zone becomes, the B&W Mixer uses true curves: for each color zone, you can build a full curve that controls lightness across the entire tonal scale.

The tool divides the spectrum into **seven color zones**: **R, O, Y, G, C, B, M**, plus a neutral zone, **N**, for colors with low chromatic intensity. Each zone has its own curve and a **Range**

control that defines its width: narrowing the range makes the curve affect only the central hue, while widening it includes adjacent hues. A global curve, L, acts as a master control over the entire result.

Black-and-white conversion is enabled with the **B&W checkbox** in the upper-right corner. When enabled, the image is fully desaturated and the result depends exclusively on the lightness curves of the color zones. When disabled, the curves modify lightness while preserving color, which is useful for selective lightness adjustments by hue without losing the chromatic component.

23.2 Working Domain: OKLCh

The B&W Mixer works in the **OKLCh** domain, where each pixel is analyzed through its **lightness** (**L**), **chroma** (**C**), and **hue** (**h**) components. The zone curves affect lightness according to the hue of each pixel.

OKLCh was chosen because it provides a degree of perceptual uniformity that makes lightness adjustments more consistent with visual perception compared to RGB-derived representations, such as HSL or HSV.

23.3 Color Zones and Range

The zones are selected using the colored buttons in the panel:

R (Red), O (Orange), Y (Yellow), G (Green), C (Cyan), B (Blue), M (Magenta): each with its own lightness curve.

N (Neutral): affects low-chroma pixels, meaning nearly neutral or achromatic areas

L (Global): master curve applied after all color zones, as a final control over the overall tonal distribution.

Below the zone buttons, the **Range** slider, **from ±10° to ±60°,** defines the width of the color zone affected by the curve.

With a narrow range, the curve affects only the central hue. With a wider range, it also includes adjacent hues, producing more gradual transitions.

A colored indicator next to each button shows whether the curve has been modified from its neutral state.

23.4 Toning

The Toning module adds color to the black-and-white result. Uniform presets and split-toning presets are available, allowing different hues to be applied to the shadows and highlights. The toning is applied after the zone curves and the global curve.

23.5 Color Profiles

The B&W Mixer supports all five RGB color spaces managed by the software: **sRGB**, **Display P3, Adobe RGB, ProPhoto RGB, and Rec.2020**. The document profile is detected automatically, and the conversions to OKLCh are adapted accordingly.

For ProPhoto RGB documents, the tool uses an intermediate linear Rec.2020 step to keep calculations more stable in very wide gamuts.

23.6 Panel Controls

+ button inside a square: creates the dedicated working layer.

B&**W**: checkbox that enables full black-and-white conversion.

HQ: recalculates the result at higher quality.

Eyedropper: samples a color from the image and selects the corresponding zone.

Canvas selector (XS,S, M, L):: changes the panel window size.

Reset: restores all zones and parameters to their initial state. Holding Ctrl, or Cmd on Mac, while clicking Reset resets only the current curve. The button turns blue when the modifier key is pressed.

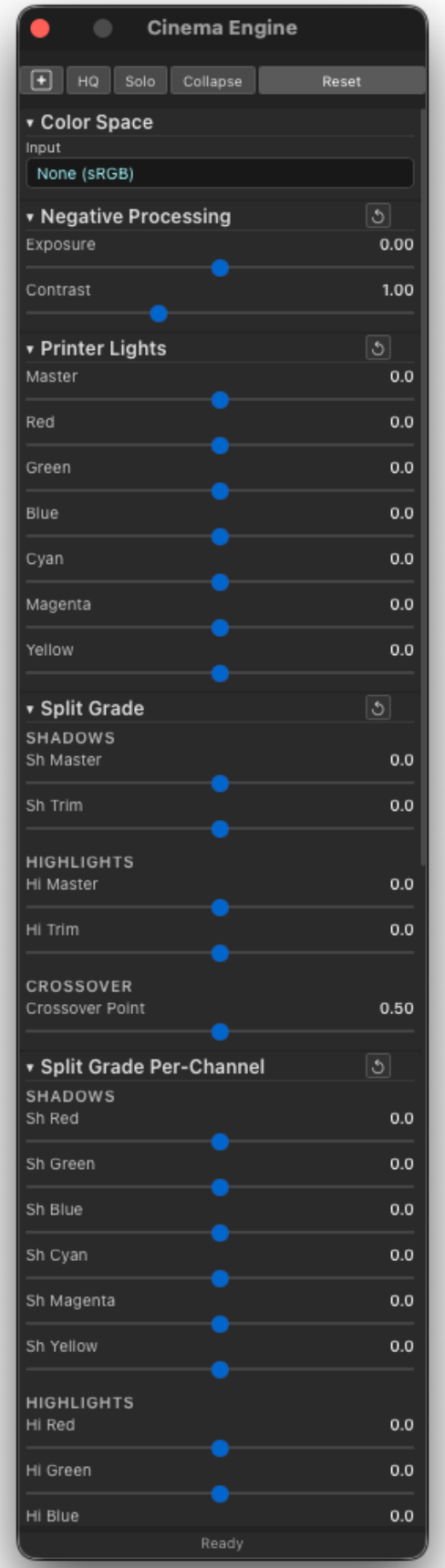
In and Out: numeric fields for precise adjustment of curve points.

The tool updates the result in real time while curve points are being dragged. On point release, the update is applied at standard working quality.

23.7 Version Notes

New tool: the B&W Mixer is a tool introduced in version 3, based on the OKLCh domain.

24. Cinema Engine



24.1 Tool Function

Cinema Engine is a film emulation engine that reconstructs a color processing pipeline inspired by analog cinema. The tool does not simply apply a preset look: it simulates the main physical phases of the process — negative development, printing with laboratory lights, tone mapping, print stock characterization — and makes them individually controllable.

Each panel section corresponds to a phase inspired by the photochemical chain and acts sequentially, following the logic of a print laboratory. The tool manages approximately 70 parameters, all updated in real time during slider adjustment. The result is written to a dedicated Color Lookup layer and all parameters are saved in the layer's metadata, allowing work to be resumed at any time.

The panel is organized in collapsible sections: **Color Space, Negative Processing, Printer Lights, Split Grade, Selective Color, Tone Mapping, Print Stock, Perceptual Matrix Mixer**. Some of these sections are advanced and can be enabled or disabled from the Settings panel: **Selective Color, Split Grade, Split Grade Per-Channel, Film Dye Impurities and Per Layer Density.**

24.2 Color Space

The **Input** menu in the Color Space section shows the working RGB color space. It's automaticly loaded from the panel. The tool supports **sRGB, Adobe RGB, Display P3, ProPhoto RGB, and Rec.2020**. The profile is automatically detected from the document. For ProPhoto RGB documents, the pipeline internally transits through Rec.2020 linear to keep the calculation more stable in very wide gamuts.

24.3 Negative Processing

Simulates a stage inspired by cinematographic negative development. Processing occurs in logarithmic space, which is suitable for describing a film-like tonal response.

• Exposure: exposure adjustment in logarithmic space (±2 stops).

• Contrast: logarithmic contrast around mid-gray (18%). Values above 1 increase contrast, below decrease it. Operating in log space, contrast produces a more progressive response than an S-curve applied in linear space

24.4 Printer Lights

Simulates the cinematographic laboratory printer lights system. In the analog process, positive printing from a negative occurs by exposing print stock through red, green and blue filters with adjustable intensities. Each light point modifies the corresponding channel's density.

• Master: adjusts the overall intensity of all three lights.

• Red, Green, Blue: adjust individual printer lights.

• Cyan, Magenta, Yellow: act subtractively: (**Cyan absorbs red, Magenta absorbs green, Yellow absorbs blue)**. This recalls the behavior of dyes in positive film.

24.5 Split Grade

Simulates a technique inspired by split-grade printing: two separate exposures, one for shadows (**Shadows**) and one for highlights (**Highlights**), each with its own printer lights. Each zone has its own **Master** and **Trim** (warm/cool subtractively). The crossover point between the two zones is adjustable with the **Crossover** control.

This section can be activated from the Settings panel.

24.6 Split Grade Per-Channel

Available as a separate section from the Settings panel, Split Grade Per-Channel extends Split Grade by adding individual control for each of the six channels: Red, Green, Blue, Cyan, Magenta and Yellow. Controls are divided into two subsections, **Shadows** and **Highlights**, each with its own **six sliders**. In practice it is like having separate printer-light control for shadows and highlights, with full control over each channel.

24.7 Tone Mapping

Controls the tonal curve applied to the image. The **Curve Type** menu offers two modes:

Reinhard: tone mapping curve with **Final Contrast**, **Final Shoulder**, **Final Toe**, and **Blend** controls.

Film Curve (H&D): sigmoid curve inspired by the **Hurter-Driffield** characteristic curve, built in logarithmic space.

- **Film Gamma** controls the curve contrast.
- **Dmin lifts** the tonal base and opens the dark areas
- **Dmax** defines the upper limit of the response.

In both modes, Blend controls the amount of effect applied. With Blend set to 0, the selected curve produces no visible change.

24.8 Print Stock

Simulates selected characteristics of positive print stock:

Subtractive Saturation: saturation based on an optical-density logic. Operates subtractively, recalling the behavior of film dyes, producing a more natural and consistent desaturation than a linear reduction.

Optical Density: controls the overall optical density of the print stock.

24.9 Film Dye Impurities

A separate section, available from the Settings panel, that simulates typical impurities in film dyes. In real film, each dye layer (Cyan, Magenta, Yellow) is not perfectly pure and can introduce slight contamination into the other channels:

Dye Purity: controls the overall purity of the dyes. At 1, the dyes are treated as pure; lowering the value progressively introduces cross-talk between channels.

Cyan Impurity, Magenta Impurity, Yellow Impurity: adjust the contamination level of each dye on the others.

Temperature: shifts the overall color temperature, simulating the film's chromatic adaptation.

24.10 Perceptual Matrix Mixer

The **Color Matrix** allows rotating the hue (±50°) and adjusting the saturation (**0-3x**) of each RGB primary (red, green, blue) independently. The particularity of this matrix is that the neutral axis is not modified: grays remain grays, regardless of how much the hues are rotated or the primaries' saturation is adjusted. The **Model** menu alternates between two modes:

Normal: equal weights (**1/3 per channel**).

Perceptive: perceptual weights calculated from the current working space. The result is a response closer to visual perception.

24.11 Panel Controls

+ button inside a square: creates the dedicated working layer.

HQ: recalculates with higher quality. During calculation the button shows a flashing hourglass.

Solo: disables the visibility of all other layers and leaves visible only the Cinema Engine layer, to evaluate its effect in isolation. Pressing again restores previous visibility.

Collapse: collapses all panel sections for an overview.

Global reset: returns all parameters to the starting condition.

Per-section reset: each section has its own reset button (↻) that returns only that section to default values.

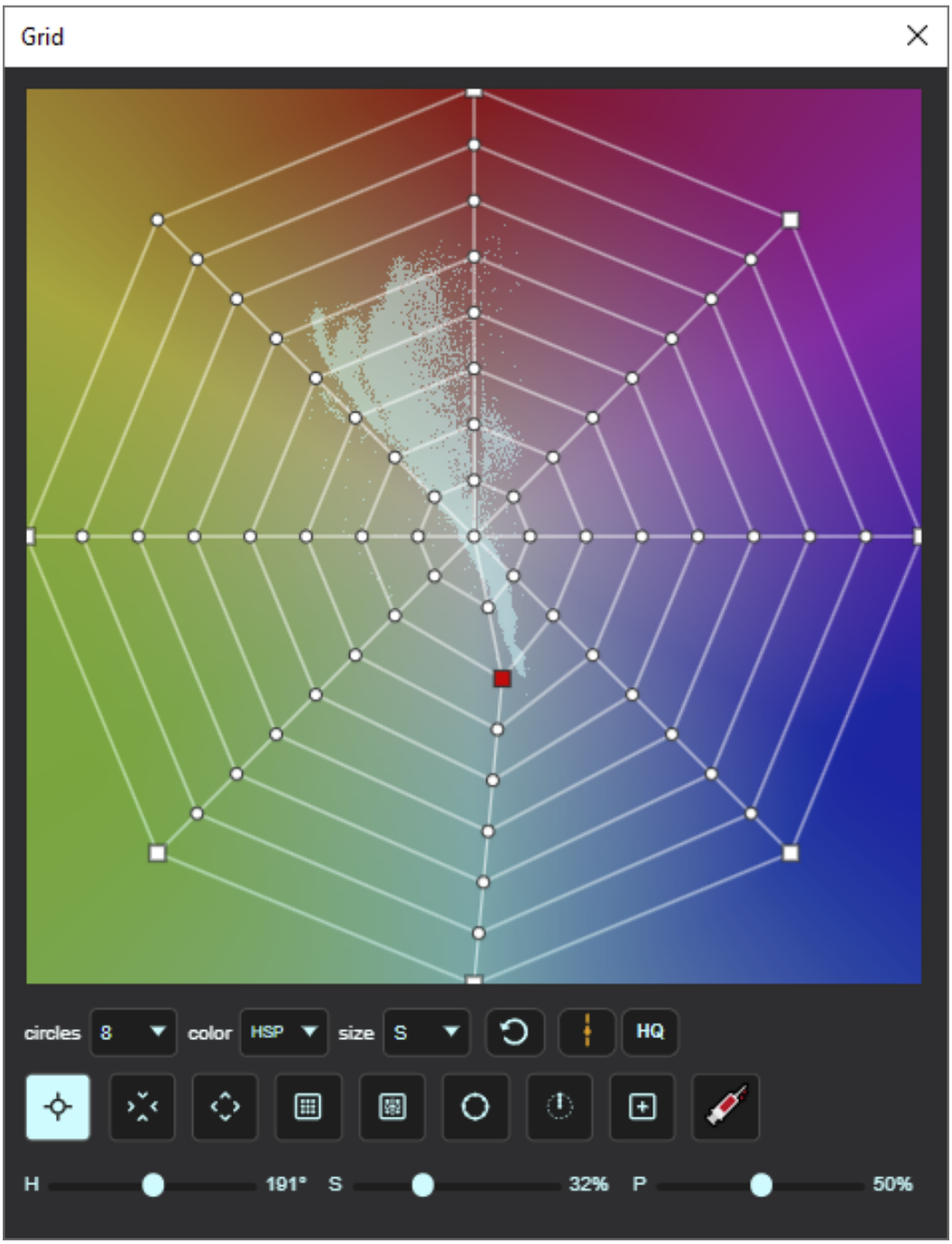
Right-click on a slider: returns that single slider to the default value.

The tool updates the result in real time during slider adjustment. All parameters are saved in the layer's metadata: when the tool is reopened on the same layer, the entire configuration is restored.

24.12 Version Notes

New tool: Cinema Engine is a tool introduced in version 3.

25. Grid



25.1 Tool Function

Grid is MindTheColor's central tool for direct color manipulation. It is presented as a polar grid, a circular representation of the selected color domain, where each vertex corresponds to a color. Moving the vertices redefines the image's color mapping, with precise control over hue, chromatic intensity, and tonal component.The grid functions as a section of the color cylinder: the center represents the neutral axis (grays), moving

outward increases chromatic intensity, while rotating changes the hue. Each vertex can be freely moved and the result is applied in real time.

The tool supports seven color domains: **HSP**, **HSL**, **HSB**, **LCh**, **OKLCh**, **JzCzHz**, and **CAM16-UCS**. Each color domain produces different behavior in chromatic response, and the choice of domain is an integral part of creative control.

25.2 Grid and Divisions

The **Circles** menu selects the number of grid divisions: **6**, **8**, **12**, **16**, **24**, **28** or **32**. More divisions mean more vertices and finer control, but also a denser grid to manage. For most interventions, 8-12 divisions offer a good balance.

25.3 Vertices and Interaction

Each grid vertex is a control point. A click on a vertex selects it (becomes a square), indicating its position has been fixed: moving nearby vertices, the fixed one stays in place. A right-click on a fixed vertex restores it to its original position.

Three sliders at the bottom allow precisely adjusting the selected vertex's values:

- **H**: shifts the vertex's hue (±180°).
- **S**: adjusts saturation (0-100%).
- **P**: adjusts perceived brightness (0-100%). The label changes based on the selected color model.

25.4 Selection Modes

Multiple vertices can be selected simultaneously by dragging a rectangle over the desired area, or by clicking multiple vertices while holding Ctrl (or Cmd on Mac). The bottom button bar offers additional modes:

- **Default**: standard mode.
- **Contract**: selected vertices converge toward the click point.
- **Expand**: selected vertices expand from the click point.
- **Select All**: selects all grid vertices.
- **Invert Selection:** inverts the current selection.
- **Select Circle**: selects all vertices of a ring.
- **Select Radius:** selects all vertices along a radius.

25.5 Integrated Vectorscope

The Grid includes an integrated vectorscope that displays the image's color distribution overlaid on the grid. This makes it possible to identify the areas where colors are concentrated and make more precise, targeted adjustments.

The vectorscope can be updated in two ways:

By default, it updates when the mouse button is released, at the end of each adjustment.

By enabling the "**Grid Vectorscope update during drag**" option in Settings, it can be updated in real time while making adjustments.

In supported perceptual domains and color appearance models, such as CIELCh, OKLCh, JzCzHz, and CAM16-UCS, the vectorscope representation also adapts to the selected domain.

It is important to remember that the vectorscope integrated into the Grid is dedicated exclusively to work performed within the tool. It does not update following adjustments made with other tools or directly in Photoshop. To monitor the image during other stages of the workflow, it is recommended to use the **Scopes**.

25.6 Skin Tone Line

The skin tone line icon button activates a reference line indicating the skin tone direction in the color wheel. It is a useful visual reference when working on portraits to keep skin tones consistent during corrections. The line position adapts to the color option selected in the menu and to the document color profile.

25.7 Panel Controls

+ button inside a square: creates the dedicated working layer.

Reset: returns the grid to the starting condition.

HQ: recalculates with higher quality.

Eyedropper: samples a color from the image and identifies the corresponding vertex.

Color menu: selects the color domain (HSP, HSL, HSB, LCh, OKLCh, JzCzHz, CAM16).

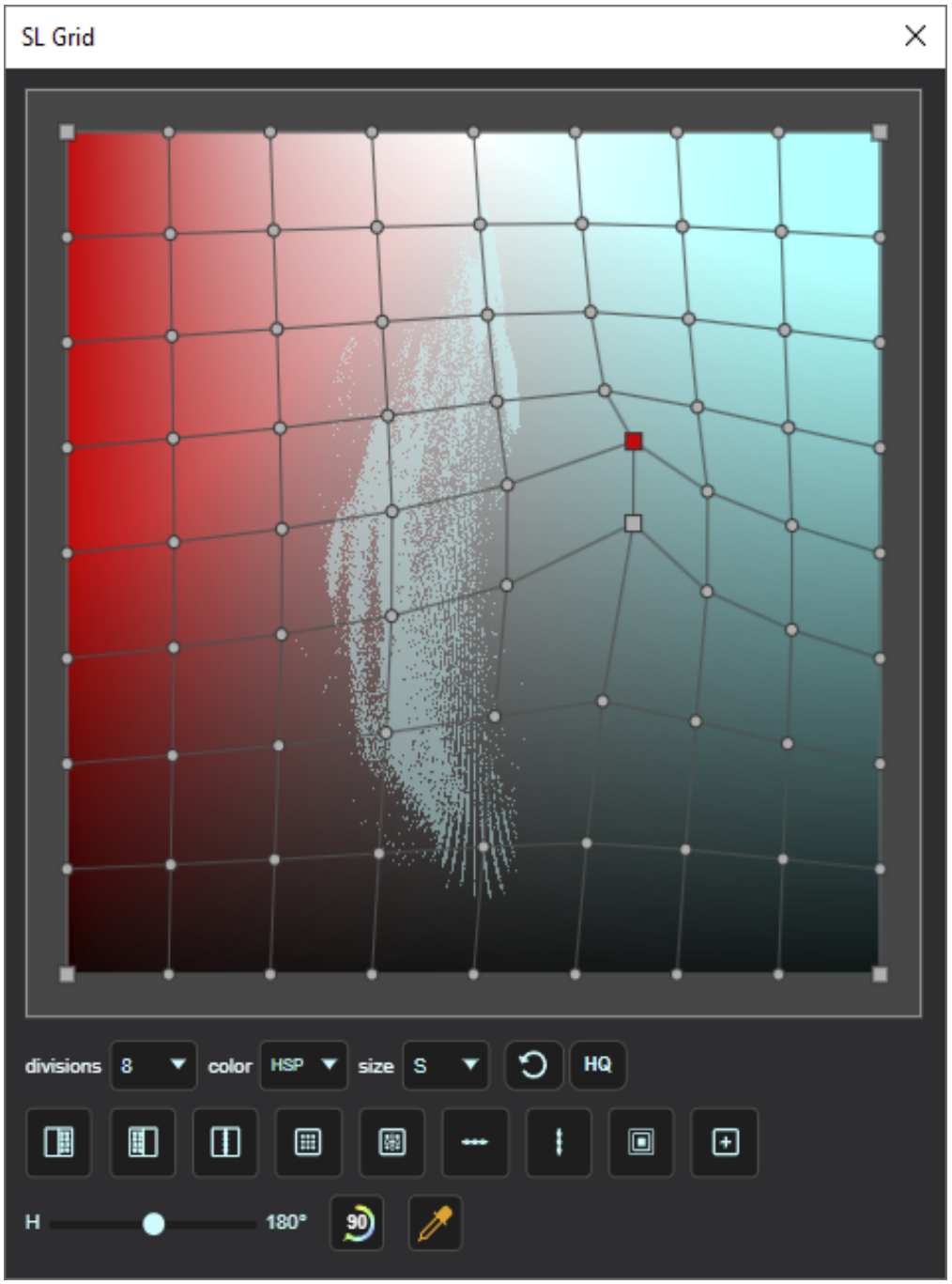
Size menu: changes the window size (XS, S, M, L).

The tool updates the result in real time during vertex movement. On mouse release, the standard working-quality update is applied.

25.8 Version Notes

New in v3: Grid adds LCh, OKLCh, JzCzHz, and CAM16 alongside HSP, HSL, and HSB. The Vectorscope is integrated in the grid. The window is resizable, with canvas sizes from XS to L. The number of divisions goes up to 32. Multiple vertices can be selected simultaneously with a selection rectangle or Ctrl+click. The tool updates the result in real time.

26. SL Grid



26.1 Tool Function

SL Grid is a tool that allows manipulating color by controlling the relationship between chromatic intensity and tonal component for a single hue. The principle is to section the color cylinder along an axis and view it head-on: on the **left** is the **complementary hue**, in **the center the neutral** axis, on **the right** the **reference hue**. The vertical axis represents the tonal or lightness component of the selected color domain, from black at the bottom to white at the top.

The grid is square and each vertex is a control point that can be freely moved. This allows intervening on a color with a specific combination of chromatic intensity and tonal component, a level of control no global slider can offer. For example, you can desaturate only the dark tones of a hue without touching midtones, or darken only very saturated areas leaving more neutral ones intact.

The tool updates the result in real time during vertex movement.

26.2 Reference Hue

The **H** slider at the bottom of the panel selects the reference hue, from **0° to 360°.** The grid gradient updates in real time: on the right the selected hue, on the left its complementary, in the center the neutral axis. The label next to the slider shows the current value in degrees.

The **rotation symbol** button shifts the hue by **90°** with each click, allowing rapid exploration of different chromatic zones.

The grid does not act only on the exact selected hue: the effect extends to a range of nearby hues both around the reference hue and around its complementary, with progressive falloff. Hues closer to the selection center receive the full effect, those farther away receive it attenuated, and beyond a certain distance the effect cancels. This makes transitions natural and free of hard edges.

The grid shows simultaneously the chosen hue and its opposite, with the neutral axis in the center. Each intervention therefore involves both sides of the section, allowing controlling the relationship between hue and complementary in a single panel.

26.3 Color Domains

SL Grid supports four color domains selectable from the **Color menu**: HSP, HSV/HSB, HSL, and OKLCh. The selected domain determines how chromatic intensity, meaning saturation or chroma, and tonal component, meaning perceived brightness, brightness, or lightness, are calculated for each grid vertex:

- **HSP**: saturation and perceived brightness.
- **HSV/HSB**: saturation and brightness.
- **HSL**: saturation and lightness.
- **OKLCh**: chroma and lightness in OKLab.

Changing color domain is not a cosmetic variation: it modifies the meaning of the axes and therefore the intervention's result. In HSP, saturation and perceived brightness are coordinates of the HSP representation; in HSV/HSB and HSL, saturation, brightness, and lightness are RGB-derived coordinates; in OKLCh, chroma and lightness follow a more perceptual and colorimetrically controlled logic.

26.4 Divisions and Size

The **Divisions** menu selects the number of grid divisions: **6**, **8**, **12**, **16**, **24** or **32**. More divisions offer finer control but make individual vertex movement more delicate. The Size menu sets the window and canvas size.

26.5 Selection Modes

Vertex selection works as in the circular Grid:

- Single click on a vertex: selects it.
- Ctrl + click: adds or removes vertices from the multiple selection.
- Drag: moves the vertex or group of selected vertices.
- Selection rectangle: dragging on an empty grid area selects all vertices contained in the rectangle.

From the bottom toolbar, a series of buttons allows quickly selecting vertex groups:

Buttons are arranged left to right in the bottom toolbar:

- Select from center column to reference hue (right half).
- Select from complementary hue to center column (left half).
- Select only the neutral axis column.
- Select all grid vertices.
- Invert current selection.
- Expand selection to adjacent vertices.
- Select the column of the active vertex.
- Select the row of the active vertex.
- + button inside a square: creates the working layer.

26.6 Eyedropper and Ctrl Mode

The **Eyedropper** button samples a color from the image and sets the grid's reference hue to the sampled value. This way the grid automatically centers on the hue actually present in the image.

Holding Ctrl (or Cmd on Mac) while clicking the Eyedropper, the button changes color becoming cyan: in this mode sampling keeps the current hue and selects only the vertex corresponding to the sampled color's chromatic intensity and tonal component in the selected color domain. This mode is useful because often, sampling a color close to the already selected hue, there is no need to redefine the axis: you only need to locate the color's position on the current grid.

26.7 Integrated Vectorscope

Like the circular Grid, SL Grid also includes a vectorscope that displays the image's color distribution overlaid on the grid. The vectorscope representation automatically adapts to the selected color domain. Real-time updating can be enabled in **Settings**; otherwise, the vectorscope updates only when the mouse button is released.

26.8 Panel Controls

+ button inside a square: creates the dedicated working layer.

Reset: returns the grid to the starting condition.

HQ: recalculates with higher quality.

Divisions: number of grid divisions (6-32).

Color: color domain.

Size: window and canvas size.

26.9 When to Use It

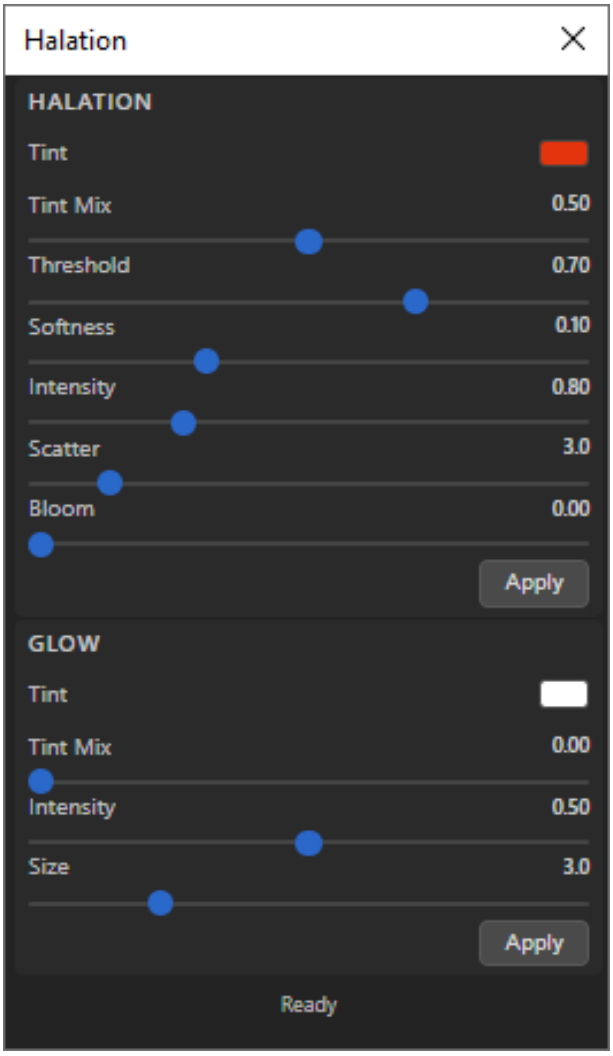
- When you want to control the chromatic intensity and tonal component of a single hue with a precision no global slider can offer.
- For working on skin tones by isolating the skin hue and controlling how different chromatic intensity and tonal component combinations react.
- To selectively desaturate only the shadows or only the highlights of a specific hue.

- To build controlled chromatic transitions between the reference hue, its complementary and the neutral axis.

26.10 Version Notes

New tool: SL Grid is a tool introduced in version 3.

27. Halation



27.1 Tool Function

Halation simulates two distinct phenomena that contribute to the character of analog and optical images: **halation**, typical of cinematographic film, and **glow**, or **optical bloom**, caused by diffusion and internal reflections in the optical system.

In film, intense light can pass through the emulsion, reflect near the film support and re-enter the sensitive layers, generating a halo around highlights. In color film this halo often appears warm, and is one of the elements that contribute to the visual character of film capture.

Glow, or optical bloom, is a different phenomenon: it arises from light diffusion and internal reflections on optical surfaces. Compared to halation, it tends to appear as a softer and generally more neutral veil, wrapping light sources without recalling the typical warm halo of film.

The tool brings both phenomena into Photoshop through two independent pipelines, each with its own controls. The result is applied as a separate layer in Screen mode, integrating with the image without overwriting it.

27.2 Halation Section

The Halation section controls the colored halo around highlights. The parameters are:

Tint: halo color. Default is a warm orange recalling the typical halation appearance observable in color film. Clicking the swatch opens the color picker.

Tint Mix: controls the blend between the pixel's original color and the Tint color. At 0, the halo preserves more of the image colors; at 1, it fully converges toward the chosen Tint, producing a more stylized and uniform result.

Threshold: brightness threshold. Only pixels above this threshold generate halation. Low values include midtones; high values limit the effect to extreme highlights.

Softness: width of the transition zone around the threshold. Low values produce a hard cut; high values produce a soft falloff.

Intensity: effect intensity. Values above 1 produce a deliberately overexposed effect.

Scatter: dispersion radius relative to document size. Controls how far the halo spreads from light sources.

Bloom: adds an additional glow to the halation itse When active, it produces a secondary, softer, and wider halo emanating from the halation.

The **Apply** button generates the **Halation** layer in the document. The halo appears around highlights, not directly on top of them: the bright center stays clean. Shadows are automatically protected during blending.

If the selected layer is already an existing Halation layer, the tool replaces it automatically, recalculating the effect from the underlying layer. It is not necessary to delete the previous layer. If the source layer is not a pixel layer, for example an adjustment layer, the tool automatically generates a temporary visible copy for calculation.

27.3 Glow Section

The Glow section controls optical bloom, a wider and generally more neutral dispersion compared to halation. The parameters are:

- **Tint**: bloom color. The default is white, for a generally neutral glow
- **Tint Mix:** balances between neutral brightness (0) and Tint color (1). At 0, the bloom is neutral and based on pixel brightness.
- **Intensity**: Glow layer opacity. Supports real-time update: when the slider is moved, the layer opacity updates without recalculation.
- **Size**: radius multiplier. Low values produce a concentrated bloom, high values a wide and cinematic bloom.
- The **Apply** button generates the "**Glow"** layer in the document.

27.4 Common Controls

Double-click on any numeric value opens an input field for entering the exact value.

Threshold and Softness are shared: the Glow section uses values from the Halation section for the brightness threshold.

Scatter is shared: Glow uses Halation's Scatter as a base, multiplied by the Glow Size value.

·he tool supports 8, 16, and 32-bit documents.

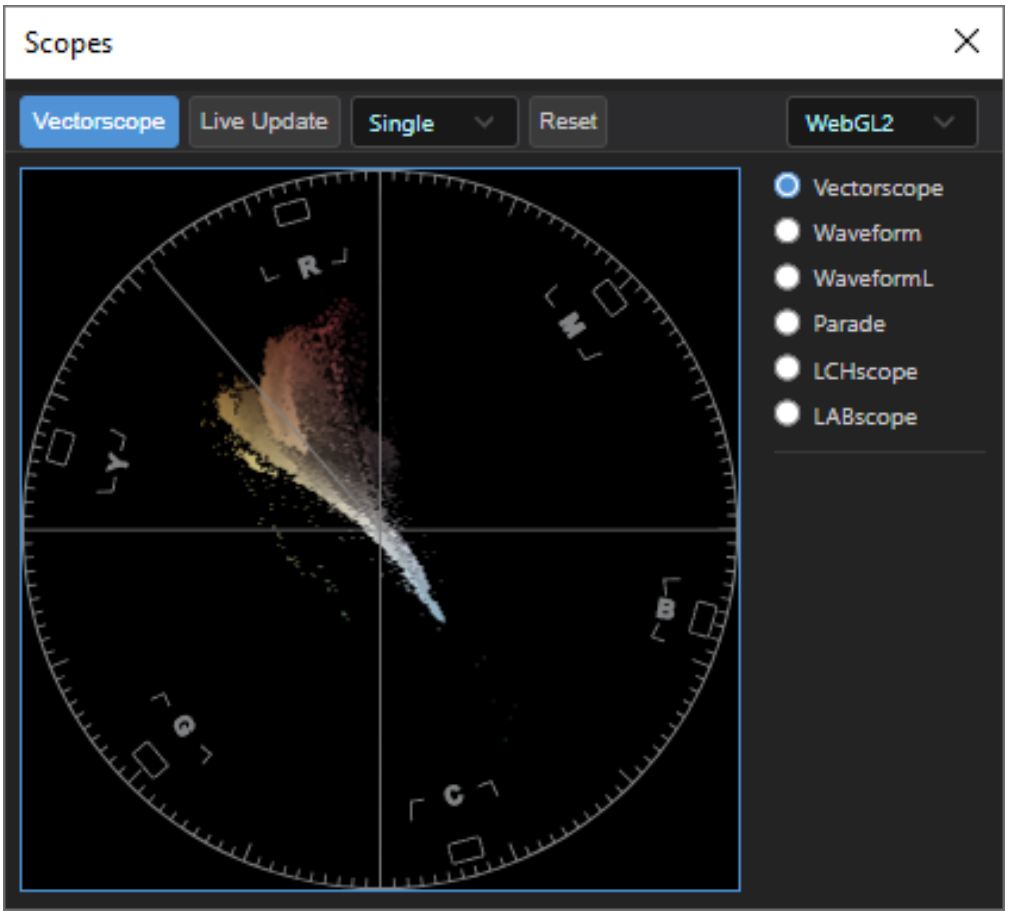
27.5 When to Use It

- To add cinematic character to highlights, simulating film behavior.
- ·o soften backlit areas, overexposed windows, or specular reflections with a warm and controlled halo.
- To add an optical bloom that wraps light sources in a natural and non-destructive way.

27.6 Version Notes

New tool: Halation was introduced in version 3 as a standalone tool.

28. Scopes



28.1 Tool Function

Scopes is MindTheColor's color analysis panel. It provides **six image-reading tools** that allow you to objectively observe the distribution of color, brightness, and color balance, supporting visual evaluation with measurable data.

The scopes update in real time while working and can be displayed in four different layouts: **Single**, **Dual H**, **Dual V**, and **Wall**, with four tools displayed side by side. In each multi-scope layout, it is possible to choose which tool to display in each cell and to disable individual cells using the Live buttons for each cell. The ability to pause a cell is useful, for example, to freeze the current frame and compare it with another document.

28.2 The Six Analysis Tools

Vectorscope: displays the image's color distribution within a circular representation. Hues are arranged around the circumference, while the distance from the center indicates the intensity of the color component. In the **HSV vectorscope**, it represents

saturation, while in the **Y'CbCr vectorscope**, it represents the magnitude of the chrominance components. The center therefore corresponds to neutral colors, while more intense colors extend progressively outward.

The R, Y, G, C, B, and M references indicate the positions of the six main hues. The **Skin Line** shows the direction along which skin tones are generally distributed and provides a useful reference during color correction.

The vectorscope is one of the most immediate tools for identifying color casts, evaluating palette balance, and examining the distribution of saturation or chrominance. In **Single** mode, it can also display the percentages of the different hues present in the image, as described in **section 28.3.**

Two types of vectorscope are available: one based on the **HSV** model and a more traditional one based on the **Y'CbCr** representation. Each vectorscope can be enabled or disabled from the Settings menu.

In the same menu, the Skin Line option provides three modes:

Off: hides the skin-tone reference line (visible by default).

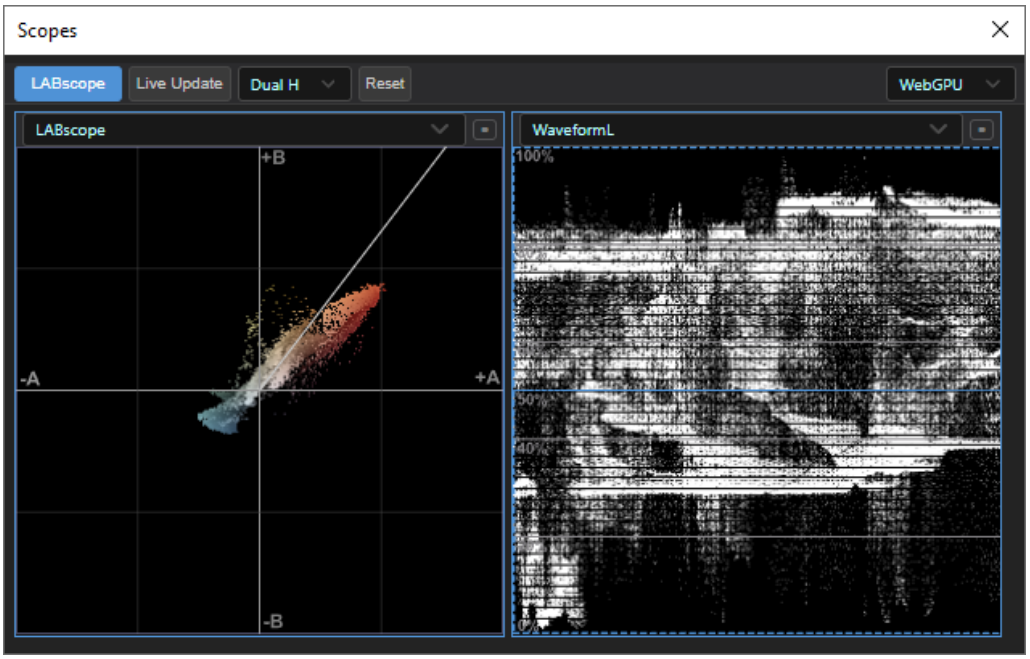
Profile: adjusts the position of the line according to the document's color profile. This is the recommended mode.

Standard: uses a fixed reference. In the HSV vectorscope, the line is calculated using Adobe RGB as the reference color space. In the Y'CbCr vectorscope, it is positioned at the conventional angle of 123°, measured counterclockwise from the positive Cb axis.

Waveform RGB: displays the distribution of brightness and color along the horizontal axis of the image. The X axis corresponds to the horizontal position of the pixels, while the Y axis represents their intensity. The three red, green, and blue channels are overlaid, making it possible to identify color casts and exposure issues.

Parade: similar to the Waveform, but it displays the three RGB channels side by side instead of overlaid. This makes it possible to analyze each individual channel more precisely and identify color imbalances.

WaveformL: displays the distribution of CIELAB L* lightness along the horizontal axis of the image. Unlike Waveform RGB, it operates on a single perceptual channel, providing a reading of lightness that is more closely aligned with visual perception.



LCHscope: displays the image's color distribution in the CIELCh space through a three-dimensional representation with Chroma and Hue axes. The colored references indicate the positions of the document profile primaries. The skin tone line indicates the skin tone area. The scope adapts to the document profile and supports Dynamic and Wide modes for gamut comparison. When selected, a submenu appears with additional controls: Chroma, a 1x-5x slider that amplifies chroma to make color differences more readable; Wide, which switches between Dynamic mode, where the scale adapts to the document profile, and Wide mode, where the scale is fixed and allows comparison between different profiles; and Sync refs, available only in Wide mode, which synchronizes the reference squares with the Chroma zoom. If the zoom exceeds the proportional representation limit, the Chroma label turns red.

LABscope: displays the color distribution on the CIE Lab ab plane in a three-dimensional representation. The -A/+A and -B/+B axes respectively indicate the green-magenta axis and the blue-yellow axis. When LABscope is selected, a submenu appears with the Zoom slider, from 1x to 4x, to enlarge the view, and the Range label, which shows the current axis interval.

28.3 Vectorscope Color Percentages, Single View

In the Single layout, when the active tool is the Vectorscope, a side panel is ava ilable that displays the percentage distribution of the image pixels in real time, divided into

eight color categories.

How to enable it: from the **Settings** panel, enable the **Vectorscope Color %** option, (**see section 37.2**).

When it appears: the percentage panel appears only when three conditions are met at the same time: the option is enabled in Settings, the current layout is Single, and the displayed scope is the Vectorscope. In all other cases, the panel remains hidden.

What it shows: eight rows, each with a colored reference swatch, the category label, and the corresponding percentage, in X.X% format.

The categories are:

- **Neutral**: pixels with negligible saturation, grays.
- **Red**: pixels in the red range.
- **Orange**: pixels in the orange range.
- **Yellow**: pixels in the yellow range.
- **Green**: pixels in the green range.
- **Cyan**: pixels in the cyan range.
- **Blue**: pixels in the blue range
- **Magenta**: pixels in the magenta range, labeled Mag... due to space limitations.

The percentages are calculated on the total number of sampled pixels and rounded to one decimal place. The sum is always 100.0%, with any rounding differences compensated on the most represented category.

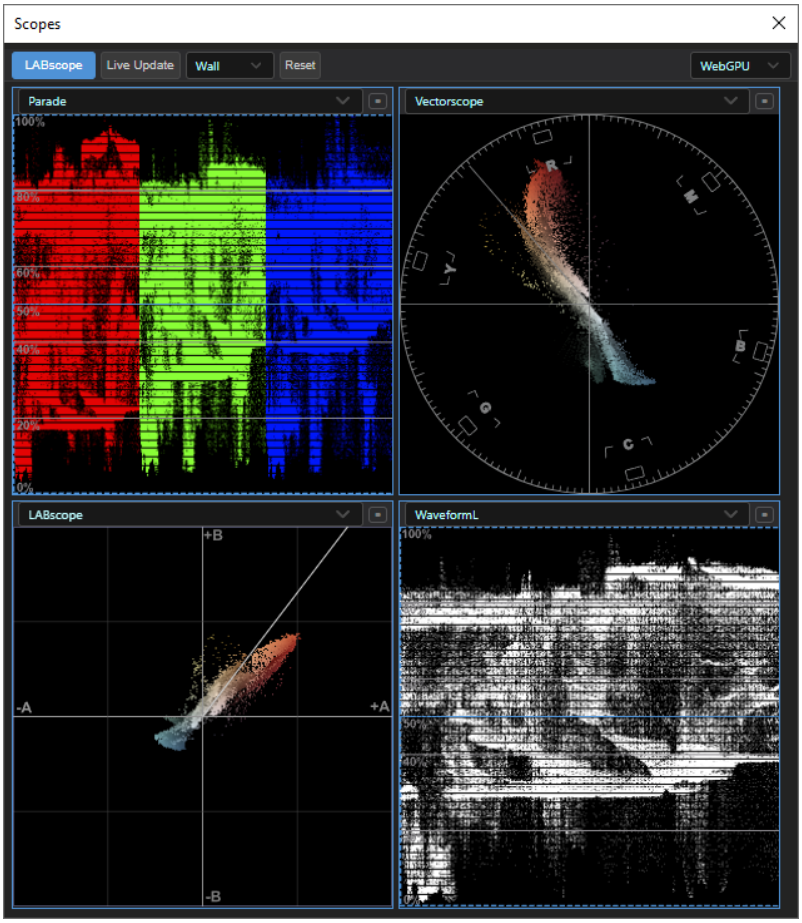
Purpose: useful for objectively quantifying the overall color balance of the image, checking the weight of a color cast or declared palette, or comparing two images numerically as well as visually.

28.4 Layout

The drop-down menu in the toolbar allows you to choose between four layouts:

- **Single**: one scope displayed full screen.
- **Dual H**: two scopes placed side by side horizontally.
- **Dual V:** two scopes stacked vertically.
- **Wall**: four scopes arranged in a 2×2 grid.

In each multi-scope layout, every cell has a drop-down menu to choose which tool to display and a Live button to enable or disable updating for that individual cell..



28.5 Live Update

The **Live Update button** enables continuous updating: every change to the document, moving a point, adjusting a slider, or changing the active layer, updates the scopes in real time. When Live is enabled, the button lights up in cyan.

In multi-scope layouts, each cell has its own Live button. If all cell Live buttons are disabled, the general Live mode turns off automatically. When the general Live mode is enabled again, all cell Live buttons are turned back on.In Single mode, the button in the toolbar toggles between single capture, one update, and continuous updating.

28.6 GPU Rendering

The scopes use a four-level rendering system: **WebGL2**, **WebGPU**, **WorkerPool**, and **CPU**. The system automatically selects the most performant available level. The toolbar menu allows a specific renderer to be forced. GPU rendering significantly speeds up updating, especially in the Wall layout, where four scopes are rendered in parallel.

28.7 Color Profiles

Scopes that operate in perceptual or colorimetric spaces, such as **LCHscope**, **LABscope**, and **WaveformL**, automatically adapt to the document color profile. When the profile changes, conversions and references update accordingly. The panel supports **sRGB, Adobe RGB, Display P3, ProPhoto RGB, and Rec.2020**.

28.8 Persistence

The scope settings, selected scope type, layout, configuration of each cell, and LCH and Lab parameters, are preserved between panel closings within the same Photoshop session. The Vectorscope Color % option, however, is a global preference managed from the Settings panel and persists across different sessions.

28.9 When to Use Them

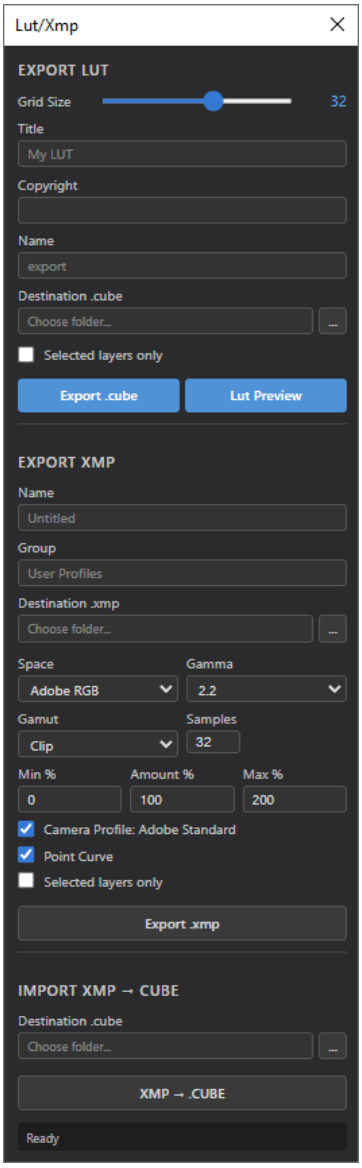
- To check the color balance of the image during grading.
- To identify color casts that are not visible to the naked eye.
- To check that highlights and shadows are not clipping.
- To compare the color distribution before and after an adjustment.
- To monitor in real time the effect of MindTheColor tools on the tonal and color balance of the image.
- To numerically quantify the color composition of the image through the color percentages in the Vectorscope, Single view.

28.10 Version Notes

New in v3: complete migration to WebView with GPU rendering, WebGL2/WebGPU. Four layouts: Single, Dual H, Dual V, Wall. Cell Live buttons in multi-scope layouts. Persistence of settings between subsequent panel openings. LCHscope and LABscope with skin tone line.

Added the Vectorscope Color % panel for the Vectorscope Single view: real-time display of pixel percentages divided into eight color categories, Neutral, Red, Orange, Yellow, Green, Cyan, Blue, Magenta. It can be enabled from the Settings panel..

29. Lut/Xmp



29.1 Tool Function

Lut/Xmp allows exporting the chromatic adjustments applied to the document as **.cube files** or as **.xmp profiles** compatible with Adobe Camera Raw and Lightroom, and performs the reverse conversion from .xmp to .cube to recover LUTs from existing profiles.

29.2 The Principle: the HALD CLUT

The export of a 3D LUT is based on a principle known as **HALD CLUT**. A HALD CLUT is an image containing an ordered grid of all possible RGB combinations at a given resolution. A grid at 32 divisions per axis, for example, produces 32x32x32 = 32768 colors, each represented by a pixel.

This grid is inserted into the document and subjected to the adjustment layers present. By reading the pixels after the adjustments are applied, the tool obtains the complete correspondence between every input color and the output color. The set of these correspondences is the 3D LUT.

29.3 What Changes Compared to Photoshop

Photoshop offers a similar command in **File > Export > Color Lookup Tables**, but it requires the user to manually prepare the document: verify that there is a Background layer at the base, disable all pixel layers, smart objects, text layers, and fill layers one by one, and also check inside groups and subgroups. If a single unrelated layer remains visible, the resulting LUT is compromised.

MindTheColor automates the entire process. The tool analyzes the document stack, recognizes the layer types supported by Photoshop and temporarily disables all those that are not adjustment layers. The scan is recursive: groups and subgroups are examined in depth, and groups containing at least one visible adjustment layer remain active.

It is not even necessary for the document to have a Background layer: the tool autonomously creates a new layer at the bottom of the stack with the identity grid, without replacing any existing pixels. The operation is performed on a temporary copy of the document: the original file is never modified.

29.4 Why Masks Are Not Compatible with LUT Export

A 3D LUT is a purely chromatic transformation: it maps each input color to an output color, regardless of the pixel's position in the image. Masks, on the other hand, are spatial operations: they determine where an effect is applied and where it is not, based on image geometry.

When the tool replaces the document content with the HALD grid, the masks no longer correspond to any meaningful area of the original image: they may end up masking arbitrary portions of the identity grid, producing an inconsistent and unusable LUT.

This is not a tool limitation, but a limitation of the 3D LUT format itself. The exact same problem occurs with Photoshop's native command. To export a correct LUT, all adjustments must be global, with no masks applied to the adjustment layers.

29.5 Selected Layers Only

By default, the export considers all visible adjustment layers in the document. When the **Selected layers only** option is active, the tool exports only the adjustment layers selected in the Photoshop Layers panel, ignoring all others — even if they are visible.

This option is present in both the **Export LUT** and **Export XMP** sections, and acts independently for each. It is useful when the document contains many adjustment layers but you want to export only the effect of some of them.

29.6 Export .cube

The **Export .cube button** generates a 3D LUT file in the standard .**cube** format at the resolution indicated by the **Grid Size** slider.

- **Grid Size**: adjusts the LUT resolution from **8** to **96** divisions per axis. The value is adjustable with the slider.
- **Description**: descriptive text included in the .cube file header.
- **Copyright**: optional field for attribution.
- **Destination .cube**: save folder. If not set, the tool asks each time.

29.7 Lut Preview

The Lut Preview button generates the LUT and sends it directly to the Lut Vw panel for 3D visualization and neutral axis curve, without saving to disk. If the Lut Vw panel is not open, it is opened automatically.

29.8 Export .xmp

The **Export .xmp button** generates a profile compatible with Adobe Camera Raw and Lightroom. The produced file can be copied to the Camera Raw profiles folder and immediately becomes available as a selectable profile.

The path for PC (Windows):

C:\Users\[YourUsername]\AppData\Roaming\Adobe\CameraRaw\Settings

Mac (macOS):

~/Library/Application Support/Adobe/CameraRaw/Settings

(Where ~ corresponds to Macintosh HD/Users/[YourUsername]/).

The LUT is generated at the resolution indicated in the Samples field of the XMP section. The .xmp format supports LUTs with a maximum resolution of 32x32x32.

29.9 XMP Parameters

Name: profile name as it will appear in Camera Raw.

Group: group in which the profile is organized.

Destination .xmp: save folder for .xmp files.

Space: color space in which Camera Raw interprets the LUT. Available: sRGB, Adobe RGB, ProPhoto RGB, Display P3, Rec.2020.

Gamma: gamma encoding of the LUT. Updates automatically based on the selected Space.

Gamut: Clip, which limits values to the gamut, or Extend, which allows out-of-gamut values.

Samples: LUT resolution in the XMP profile (from 8 to 32).

Min / Amount / Max: profile blending parameters in Camera Raw.

Camera Profile: if active, the profile includes the Adobe Standard reference.

Point Curve: if active, includes the Camera Raw Medium Contrast tone curve.

29.10 Import XMP → .CUBE

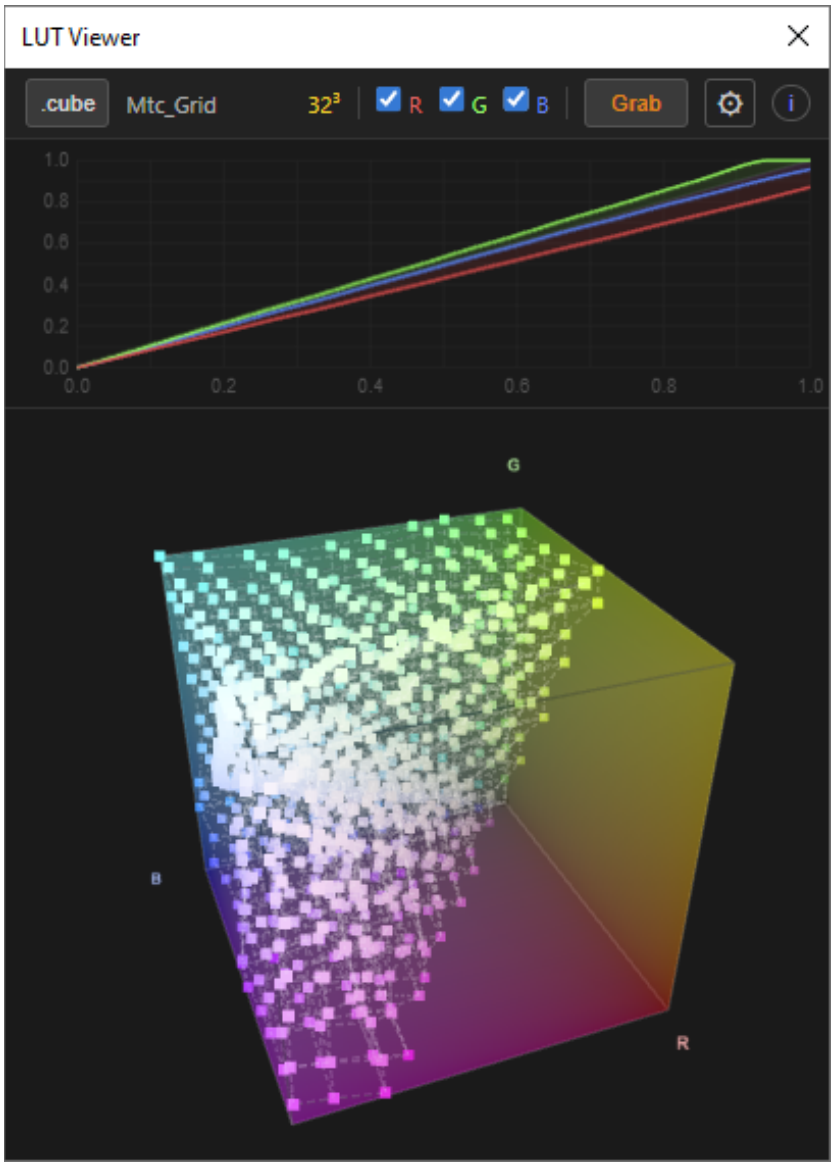
The **XMP → .CUBE** button opens a .xmp file, decodes the contained LUT, and saves it as a standard .cube file.

This allows recovering the 3D LUT from any Camera Raw or Lightroom profile that contains a Color Lookup Table.

29.11 Version Notes

New tool: Lut/Xmp is introduced in version 3 as a standalone tool for exporting and importing 3D LUTs and XMP profiles.

30. Lut Viewer



30.1 Tool Function

Lut Vw is the visual LUT analysis tool. It allows loading a .cube file and immediately seeing two things: how the LUT transforms colors in three-dimensional space and how it behaves on the neutral axis, i.e. along the gray scale from black to white.

The tool allows you to analyze any .cube file, whether generated by MindTheColor or from other sources. Loading the LUT in the panel provides an immediate view of the chromatic transformation, useful for understanding what a LUT really does before applying it or for verifying the behavior of a LUT already in use.

30.2 Neutral Axis Curve

The upper part of the panel shows **three RGB curves** representing the LUT output along the neutral axis: input values are those where R = G = B, the gray scale, and the three curves show how the LUT transforms them channel by channel.

The diagonal represents the starting condition: no change applied. When curves deviate from the diagonal, the type of intervention is immediately visible: if red rises above the diagonal while blue drops, the LUT is warming the neutrals. If all three curves rise in the shadows, the LUT is lightening the dark zones.

· The **R, G, B checkboxes** in the toolbar control individual channel visibility.

30.3 3D View

The lower part shows the LUT in three-dimensional RGB space. The semi-transparent colored cube represents the identity LUT, with no transformation. The colored points show where each input color is moved after the LUT is applied.

When points coincide with the cube faces, the LUT is close to identity. When they move, they indicate the direction and magnitude of the chromatic transformation. Dashed lines connect nearby points, making the grid deformation visible.

3D navigation is free: you can rotate, zoom, and pan the view with the mouse.

30.4 Controls

- **File input**: loads a .cube file for visualization.
- **R, G, B checkboxes**: show or hide channels in the neutral axis curve.
- **Grab**: by selecting a layer containing a LUT in the document, you can view it directly.
- ⚙ **button**: opens the settings panel with two controls:
- **Density**: adjusts the number of divisions per axis in the 3D view (from 6 to 24).
- **Point Size**: adjusts the 3D point size.
- ⓘ **button**: opens an overlay with global statistics about the loaded LUT.

30.5 Statistics

The informational overlay, accessible from the ⓘ button, shows a global LUT analysis calculated on all grid points:

Mean and maximum ΔE: indicate how much the LUT deviates from identity.

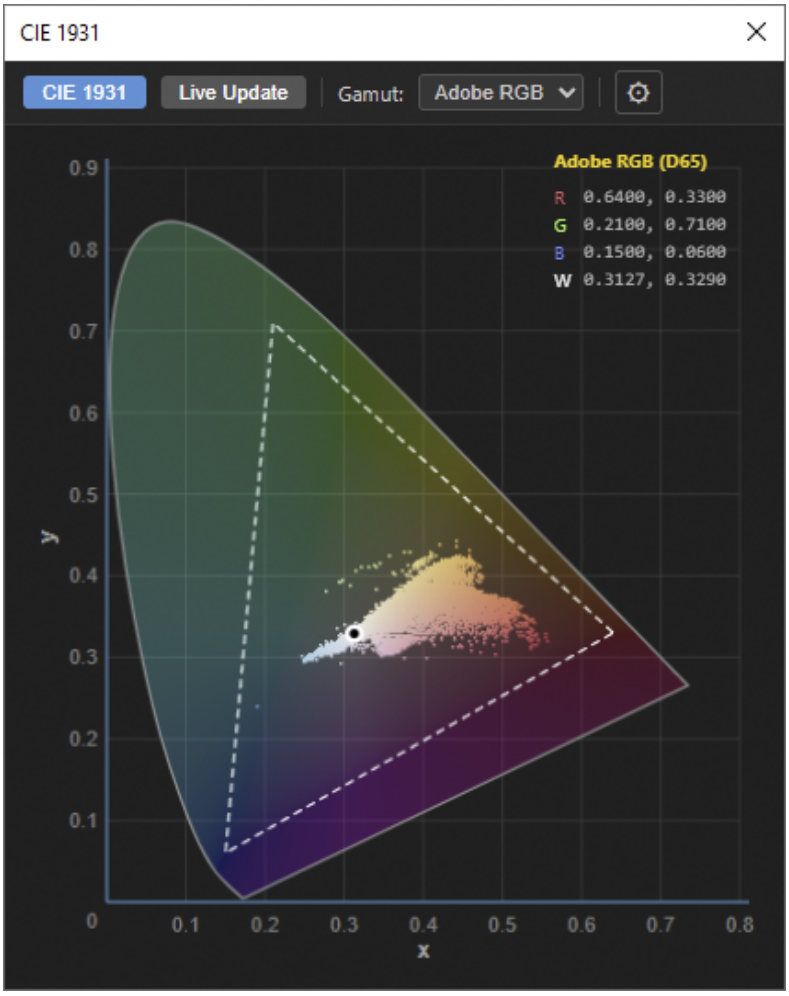
Channel bias: shows the LUT's average tendency toward red, green, or blue.

Max shift: the maximum alteration recorded for each channel.

30.6 Version Notes

New tool: Lut Vw is introduced in version 3 as a standalone LUT analysis tool.

31. Diagramma CIE 1931



31.1 Tool Function

CIE 1931 displays the chromatic distribution of the active image on the **CIE 1931 xy** chromaticity diagram. The diagram shows where the image colors are located relative to the limits of human vision and relative to the gamut of the document color profile.

This type of representation is the international standard for describing color independently of the device. Unlike scopes that work in RGB, HSV, or CIELAB coordinates, the CIE xy diagram shows pure chromaticity, separated from luminance. It allows you to verify whether the image colors stay within the gamut of the profile in use and to observe the overall chromatic distribution objectively.

31.2 The Diagram

The horseshoe shape represents the entire range of colors perceivable by the human eye, as defined by the CIE 1931 standard. The curved outline is the spectral locus: each point along the edge corresponds to a pure wavelength of visible light, approximately from **380 nm (violet)** to **780 nm (red).** The straight line closing the base connects the two ends of the spectrum through the line of purples, which do not correspond to any single wavelength.

Inside the horseshoe, colors are represented with their approximate chromaticity. The dashed triangle overlaid indicates the gamut of the selected profile: only colors within that triangle can be reproduced by the device or profile in use. The triangle vertices correspond to the R, G, and B primaries of the profile.

31.3 Pixel Scatter

By pressing the CIE 1931 button, the software captures a sample of the active image converts each pixel to CIE xy coordinates through the document color profile and represents them as colored points on the diagram. The points preserve the pixel's hue but are displayed with uniform brightness, so they always remain readable on the horseshoe background.

The scatter distribution immediately reveals several pieces of information: how much of the available gamut the image uses, whether chromatic casts exist, whether colors tend to concentrate in a specific area of the diagram and whether some pixels approach the gamut limits.

31.4 Live Update

The **Live Update** button activates continuous updating: every image modification automatically updates the scatter on the diagram. When Live Update is active, the CIE 1931 button (single capture) is disabled. When the panel is closed, live update deactivates automatically.

31.5 Gamut and Profiles

The **Gamut** menu allows overlaying the triangle of one of the five supported profiles on the diagram: **sRGB, Adobe RGB, Display P3, ProPhoto RGB, and Rec.2020**. When an image is captured, the document profile is automatically selected.

The side legend shows the CIE xy coordinates of the three primaries and the white point of the selected profile. These values update when the profile is changed from the menu.

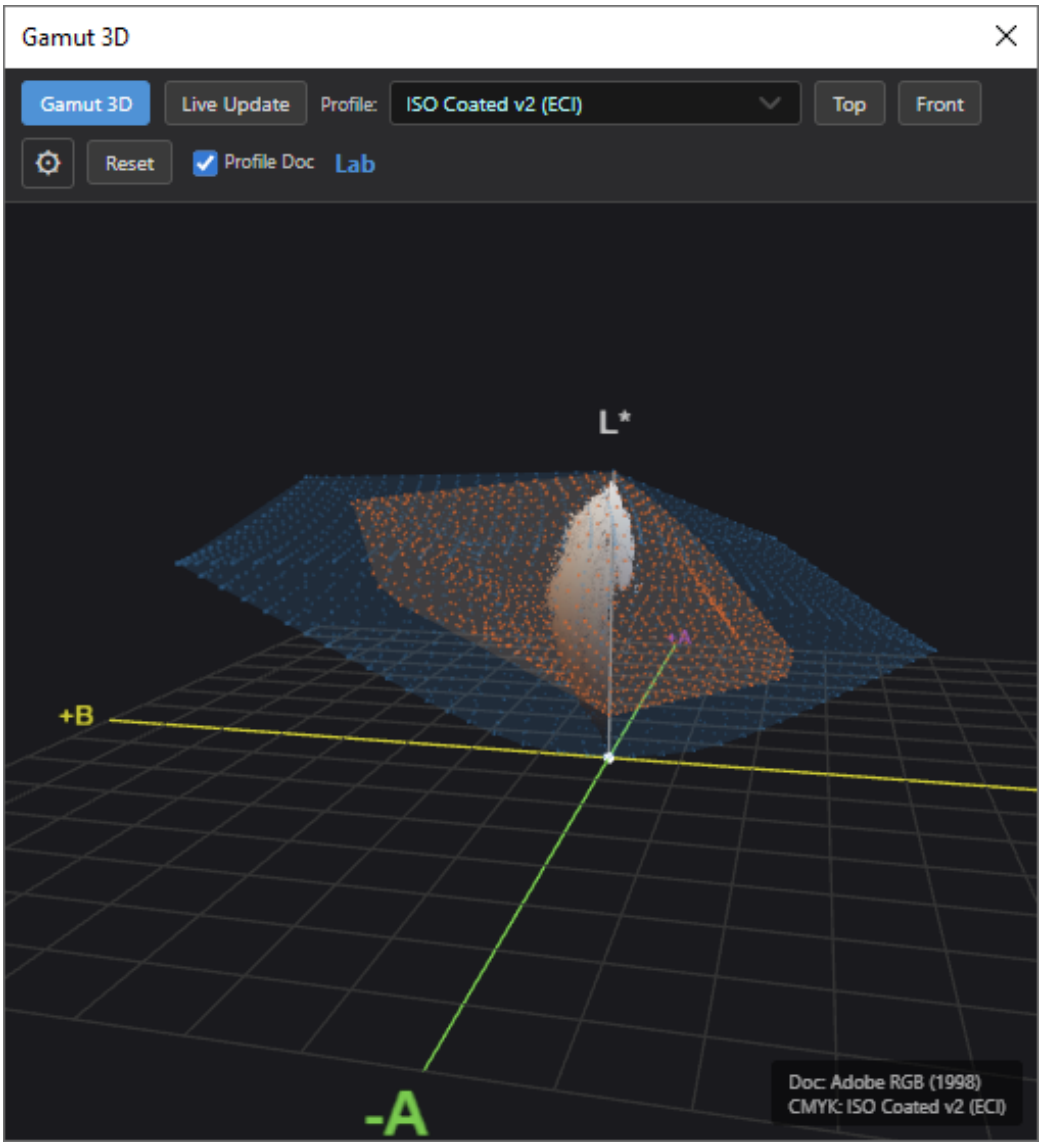
31.6 RGB → CIE xy Conversion

For each captured pixel, the software performs the **RGB → XYZ** conversion using the matrix of the document color profile, with the correct gamma decoding for each profile. Chromaticity coordinates are then calculated as **x = X/(X+Y+Z)** and **y = Y/(X+Y+Z)**. This ensures that every point's position on the diagram is consistent with the profile actually in use.

31.7 Version Notes

New tool: CIE 1931 diagram is introduced in version 3 as a standalone chromatic analysis tool.

32. Gamut 3D



32.1 Tool Function

Gamut 3D is a three-dimensional color analysis tool. It displays, in CIELAB space, the chromatic volume of the active document profile and compares it with the volume of an ICC or ICM profile installed on the system.

The reference system is CIELAB:

- **L* indicates lightness;**
- **a* indicates the green-magenta axis;**
- **b* indicates the blue-yellow axis.**

Scene navigation is controlled with the mouse: the **left button** rotates the view, the **right button** pans it, and the **mouse wheel** lets you zoom in or out. Document pixels

can be displayed as colored points in the same 3D space, making it possible to see where the image colors are concentrated in relation to the document profile and the destination profile.

The tool is designed for **photography**, **prepress**, **printing**, and **color control**. When an ICC profile contains readable data, Gamut 3D uses the data from the actual profile rather than a generic shape. If the profile is not supported or contains a structure that cannot be interpreted, a warning is shown instead of presenting an approximate visualization.

32.2 What It Is For

Gamut 3D helps you understand whether the image colors are compatible with a destination profile and how much of the available gamut is actually being used.

Print Preparation

By comparing the document with a print profile, for example **FOGRA**, **PSO**, **GRACoL**, **SWOP**, or **CRPC**, you can identify the chromatic areas that may fall outside the print gamut.

This allows you to intervene before the final conversion, choosing in a targeted way how to handle saturations, shadows, highlights, or critical colors. The tool does not replace proofing or soft proofing, but provides an immediate geometric reading of chromatic limits.

Evaluation of the Gamut Used by the Image

The pixel cloud shows how much of the available gamut is actually occupied by the image. A document may be in a very wide color space but use only a small area of the volume. Conversely, if the points reach the edges of the volume, conversion to a profile with a narrower gamut will require attention.

Profile Comparison

Comparing the document volume with the volume of a selected profile allows you to read not only the overall gamut extension, but also where chromatic coverage changes as a function of lightness. This is particularly useful for evaluating differences between

coated papers, uncoated papers, newsprint, CMYK profiles from different generations, and monitor profiles.

32.3 3D View and Preset Views

Scene navigation is controlled with the mouse: the left button rotates the view, the right button pans it, and the mouse wheel lets you zoom in or out. The axes are labeled directly in the scene with +**A**, -**A**, **+**B, **-**B, and **L***, making it easier to orient yourself while rotating the view.

The main buttons are:

- **Gamut 3D**: captures the document pixels and displays them in the scene;
- **Live Update:** updates the points while working on the document;
- **Profile**: selects the ICC or ICM profile to compare;
- **Top**: shows the top view on the ab plane;
- **Front**: shows the front view on the aL plane;
- **Reset**: returns the camera to its initial position;
- **Profile Doc**: shows or hides the volume of the document profile.

The **Lab** label indicates that the visualization is built in CIELAB space. The information box at the bottom shows the document color profile and the selected ICC or ICM profile. When the selected profile is **CMYK** and the data is available, the calculated **TAC** value is also shown.

The gear icon opens the Settings panel, visible in the upper-right area of the scene. From there, you can adjust the pixel scatter visualization and some options related to the selected profile.

The Settings panel includes:

- **Density**: adjusts the scatter density, that is, the number of points sampled from the document pixels;
- **Point Size**: adjusts the size of the scatter points in the scene;
- **Total Ink Limit**: sets or corrects the total ink limit for CMYK profiles;
- **Volume**: shows or hides the surface of the selected gamut;
- **Points**: shows or hides the sampled points used to represent the selected profile.

32.4 Document Gamut

The **Profile Doc** control shows or hides the gamut of the color profile assigned to the active Photoshop document. When the document changes or is converted to another profile, Gamut 3D updates this visualization automatically.

For RGB documents, the tool reads the actual data of the document profile, including primaries, white point, and tonal curve, when available. This is important because sRGB, Adobe RGB, ProPhoto RGB, Display P3, and calibrated monitor profiles do not necessarily have the same tonal response.

The pixel scatter in RGB documents uses the conversion based on the actual document profile, including tonal curves when available. This keeps the image points and the gamut of the document profile consistent with the effective ICC or ICM profile.

For CMYK documents, the gamut of the document profile represents the gamut of the CMYK profile assigned to the document. In this case, it takes into account profile characteristics such as paper white and printable black. In print, paper white does not always correspond to L* = 100, and printable black does not necessarily reach L* = 0.

The pixel scatter in CMYK documents may be shown according to Photoshop's Lab preview and may display a dedicated warning. The warning clarifies that the points represent the document preview, while the gamut surface represents the technical limits of the CMYK profile assigned to the document.

32.5 ICC Profiles and Overlay

The **Profile** menu allows you to select an ICC or ICM profile installed on the system and display its gamut as a reference volume in Gamut 3D.

The **dropdown** includes a search bar, groups profiles by family, and disambiguates profiles with the same descriptive name. This reduces the risk of selecting the wrong profile when multiple similar variants are present on the system.

When readable and compatible, the following profiles are supported:

- **RGB**: working space profiles, calibrated monitor profiles, and RGB printer profiles;
- **Classic CMYK**: Coated FOGRA39, ISO Coated v2, SWOP, U.S. Web Coated, and equivalent profiles;
- **Modern CMYK:** PSO Coated v3, FOGRA51, FOGRA52, FOGRA53, GRACoL 2013, CRPC 1-7, eciCMYK v2, and equivalent profiles;

- **Gray**: grayscale profiles with an actual tonal curve, such as Dot Gain;
- **Lab and XYZ:** when the profile contains them in a readable and compatible form;
- **Other spaces:** when present on the system and reliably interpretable.

Comparing the document profile with the selected profile helps identify image areas that may become critical during conversion or printing.

Profile Paths

Gamut 3D searches for ICC and ICM profiles in the main system locations and in the color folders used by Adobe.

HDR, cinema, broadcast, and log profiles found in folders dedicated to video workflows, such as MPProfiles, are excluded to avoid results that are not suitable for a CIELAB visualization oriented toward prepress.

This way, the Profile menu shows the profiles most useful for color comparison: RGB, CMYK, Gray, Lab, XYZ, monitor profiles, and print profiles installed on the system.

32.6 Reading Real Profiles

When profile data is available, Gamut 3D builds the volume by reading the actual installed profile. The result is not based on generic shapes or standard assumptions, but on the data of the profile actually selected.

For **RGB profiles,** the primaries, white point, and actual tonal curve are read when available. This avoids treating Adobe RGB or ProPhoto RGB as if they necessarily had the sRGB curve, making comparisons with documents, monitor profiles, and similar profiles more consistent.

For classic and modern **CMYK profiles,** the volume is calculated from the print profile. This includes prepress profiles such as FOGRA, PSO, GRACoL, SWOP, CRPC, and equivalent profiles installed on the system.

For **Gray profiles**, the actual tonal curve is used when present. The grayscale gamut representation is not distributed in an arbitrary uniform way, but follows the behavior of the profile.

For **Lab** and **XYZ profiles**, reading is performed when the profile is present, compatible, and reliably interpretable.

32.7 Total Ink Limit

For CMYK profiles, the total ink limit, or **TAC**, helps exclude unrealistic ink combinations and represents the profile volume in a way that is more consistent with real printing.

Gamut 3D attempts to derive the total ink limit automatically from the data available in the profile. When the value is available, the **Total Ink Limit** slider is updated accordingly. The slider still allows you to set the limit manually when you need to adapt it to your own workflow. The adjustment uses a fine step of 0.1%.

32.8 Pixel Capture and Live Update

The G**amut 3D** button samples the document pixels and projects them into CIELAB space. L**ive Update** refreshes the point cloud in real time while adjustments, curves, layers, layer changes, or other document operations are applied.

For RGB documents, the pixel scatter uses a conversion based on the actual document profile. For CMYK documents, the scatter may be shown according to Photoshop's Lab preview, while the profile volume is calculated directly from the selected ICC or ICM profile.

This distinction is important: the points describe how the document colors are displayed in Photoshop's Lab preview, while the volume describes the technical limits of the selected profile.

32.9 Warnings and Unsupported Profiles

When Gamut 3D cannot read a profile reliably, it shows a textual warning in the 3D scene legend, using a highlighted color, instead of drawing an incorrect shape. This behavior is intentional: it is better to warn the user than to present an approximate volume.

The warning may appear, for example, when:

- the profile does not contain readable tables or has a corrupted structure;
- the profile uses an unsupported transformation category, such as DeviceLink, Abstract, or multicolor profiles;
- the profile is a reference type, for example pure Lab or XYZ, and does not describe a device;
- the 3D volume construction fails because of degenerate data.

Some profiles designed for HDR, cinema, broadcast, or log workflows are not the main

target of Gamut 3D, and the folders that normally contain them are not included in the automatic scan. If one of these profiles is manually copied into a system folder that is regularly scanned, it may still appear in the menu. In that case, Gamut 3D may show a warning or may not produce a meaningful CIELAB representation, because the profile logic is designed for uses other than photographic prepress.

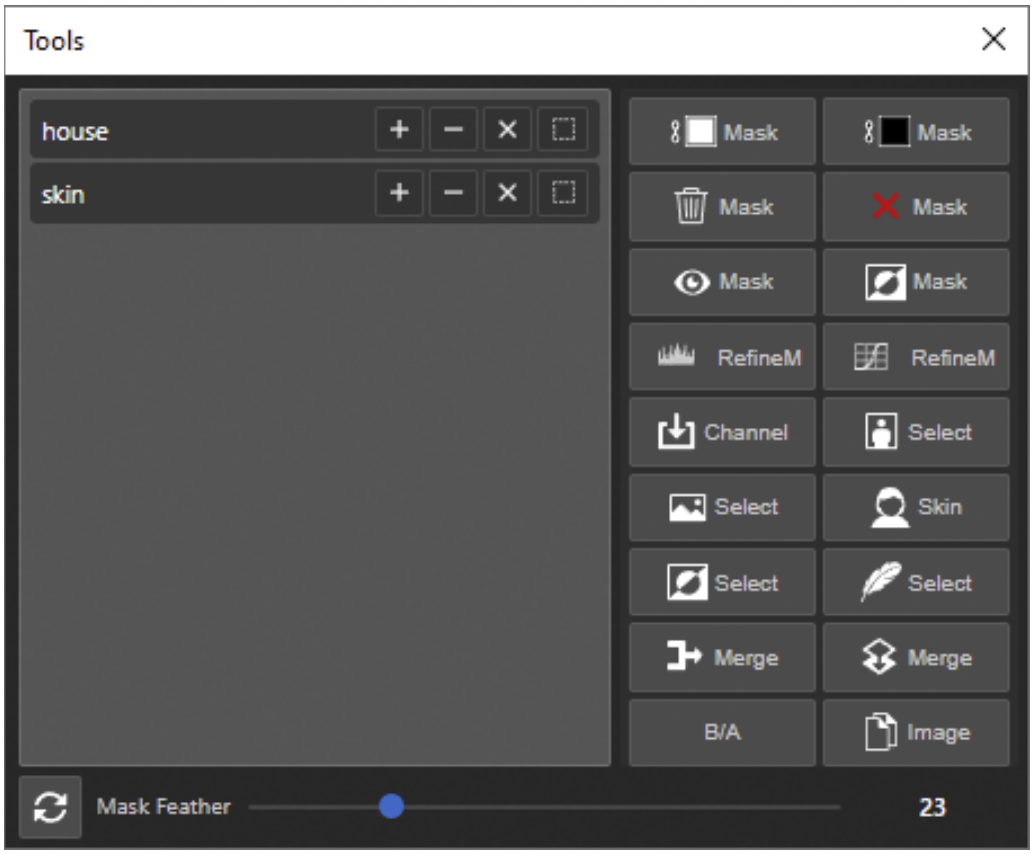
32.10 Version Notes

New tool: Gamut 3D is a tool introduced in version 3.

The tool includes reading of real ICC and ICM profiles, support for RGB profiles with tonal curves, support for modern CMYK profiles based on ICC v4 structures, handling of Gray profiles with real curves, the document profile volume, overlay comparison, real-time scatter tracking, Volume and Points controls, Density adjustment, Point Size adjustment, and Total Ink Limit management.

Validation was performed on real reference profiles. The numerical comparison with an explicit Photoshop conversion to Lab, using relative intent and black point compensation disabled, produced a maximum deviation within the expected threshold for the test.

33. Tools



33.1 Tool Function

Tools is a panel dedicated to mask management, selections, alpha channels, and service operations that speed up the workflow. In version 2.6 these commands were integrated within the masking panels; in v3 they have been gathered in an independent panel, accessible at any time without opening a specific tool.

33.2 Alpha Channels

The left side of the panel shows the list of alpha channels present in the document. The list updates with the **Refresh** button. Each channel in the list has **four action buttons** and two direct interactions:

- + **(Add)**: applies the channel to the active layer's mask in add mode.
- **- (Subtract)**: subtracts the channel from the active layer's mask.
- **× (Multiply)**: intersects the channel with the active layer's mask.
- ☐ **(Selection)**: loads the channel as an active selection.

- **Double-click on the channel name**: creates a mask on the active layer from the channel.
- **Right-click on the channel**: deletes the channel from the list and the document.

33.3 Mask Management

The first six panel buttons manage the active layer's mask.

Mask (white): adds a white mask to the active layer. If a selection is present, the mask is created from the selection. If the layer already has a mask, it is removed and replaced.

Mask (black): adds a black mask. If a selection is present, the mask is created from the inverted selection.

Delete Mask: removes the mask from the active layer.

Disable Mask: temporarily disables the mask without removing it. A second click re-enables it.

Solo Mask: shows the mask as a standalone image, useful for verifying its quality and cleanliness. A second click returns to normal view.

Invert Mask: inverts the content of the active layer's mask.

33.4 Mask Refinement

Two commands allow you to adjust the mask's tonal distribution to refine its transition and contrast.

Refine Levels: applies a Levels adjustment to the mask to adjust its contrast and tonal distribution.

Refine Curves: applies a Curves adjustment to the mask for more gradual refinement.

Save Channel: saves the active selection, that is, the marching ants visible on screen, as an alpha channel in the document. Clicking the button opens a field where you can enter the channel name. Once confirmed, the selection is stored and appears in the left list, ready to be recalled at any time. If the Ctrl key is held during the click, the selection is inverted before saving.

33.5 Selections

The panel includes commands for creating and managing selections.

Select Person: automatically selects the image's main subject.

Select Sky: selects the sky.

Select Skin: selects skin areas.

Invert Select: inverts the current selection.

Feather Select: applies Photoshop's feather to the current selection.

33.6 Mask Feather

The **slider** in the lower part of the panel controls the mask feather value, from **0** to **100** pixels. The feather is applied directly to the active layer's mask when the slider is moved. To enter a precise value, simply double-click the numeric label next to the slider: an editable input field opens, where you can type the desired value.

33.7 Service Operations

Merge Layers: merges visible layers into a single layer.

Merge Below: creates a copy layer from all layers positioned below the active layer.

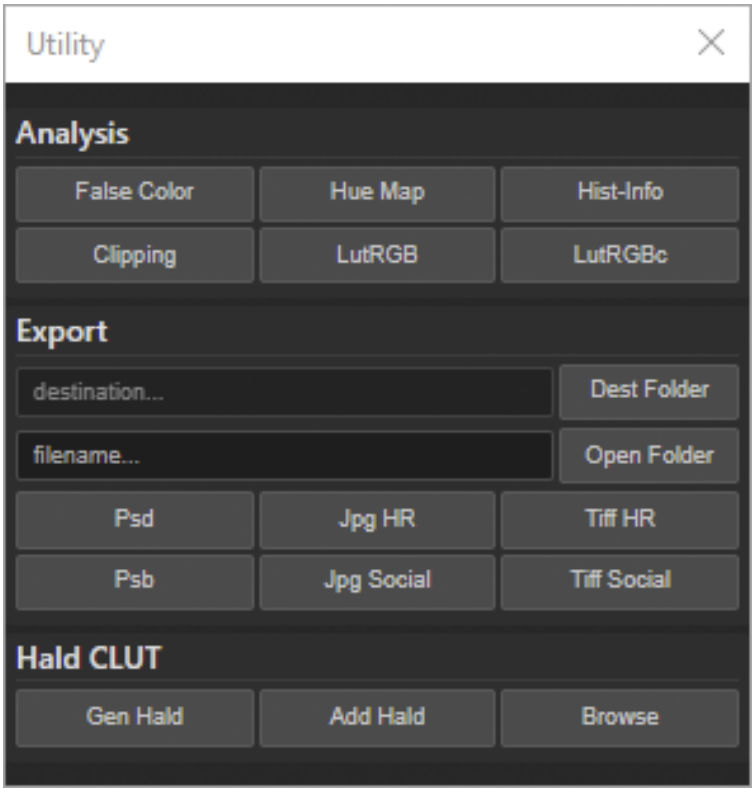
Before/After: creates a quick comparison between the current state and the state before the last change.

Duplicate: duplicates the current document.

33.8 Version Notes

Updated workflow: In v3 the Tools panel is a standalone tool accessible from the main panel. In version 2.6, these commands were integrated into the Grid panel; now they are gathered in an independent panel, accessible without opening other tools.

34. Utility



34.1 Tool Function

Utility gathers image analysis functions and quick export features. The panel is organized into **three sections: Analysis, Export, and Hald CLUT**.

34.2 Analysis Section

The Analysis section contains **six image-reading** and **verification tools**:

False Color: generates a mapping where CIELAB lightness L* is divided into **16 bands** of **6.25 L*** each, each represented by a specific color. The deepest shadows (**0-6.25 L*)** appear in **dark violet**, **shadows** in **blue**, **low midtones** in **dark gray**, **central midtones** in **green**, **highlights** in **yellow** and **orange**, and **overexposed zones** in **red**. Reference swatches overlaid on the image show the correspondence between false-color tint and tonal level. The tool is sensitive to the document profile.

Hue Map: displays the image's hue distribution at maximum saturation, making the chromatic scheme immediately readable.

Hist-Info: toggles the display of Photoshop's Histogram and Info panels.

Clipping: highlights clipped areas in **highlights** (**red**) and **shadows** (**blue**).

LutRGB: imports a LUT and converts it into an approximate RGB curve within Photoshop.

LutRGBc: similar to LutRGB, but uses a different algorithm for curve approximation.

34.3 Export Section

The Export section allows saving the image in various formats with a single click. The **Dest Folder** field sets the destination folder, which is remembered between sessions. The **filename** field allows assigning a name to the saved file.

Open Folder: opens the destination folder in the system file manager.

Psd: saves in PSD format with all layers and the document's color profile.

Jpg HR: saves in JPEG at original resolution with the Adobe RGB profile.

Tiff HR: saves in TIFF at original resolution with the Adobe RGB profile.

Psb: saves in PSB format (Photoshop Big). The PSB format is the extended version of **PSD** and supports documents up to 300,000 × 300,000 pixels and file sizes exceeding 2 **GB**, beyond the limits of the standard PSD format.

Jpg Social: saves in JPEG at 2048 pixels on the long side with the sRGB profile.

Tiff Social: saves in TIFF at 2048 pixels on the long side with the sRGB profile.

34.4 Hald CLUT Section

The Hald CLUT section contains functions for generating and loading identity grids in Hald format:

Gen Hald: generates a reference Hald CLUT image.

Add Hald: loads a Hald CLUT image into the document as a LUT.

Browse: opens the folder where generated LUTs and plugin settings are stored. Useful for backing up presets.

35. Metadata

35.1 Function

The metadata system is the mechanism that allows MindTheColor to save and restore the settings of supported tools directly in the Photoshop document layers. When you build a curve, modify a grid, or adjust the parameters of a supported tool, this information is stored in the layer's own **XMP** metadata.

This means that settings are preserved when saving the file, copying layers, and transferring the document between different sessions. When you reopen a tool on a layer containing its metadata, the panel automatically reloads curves, points, parameters and canvas size exactly as they were left.

35.2 How It Works

Each tool that generates an adjustment layer, such as Color Lookup, Curves, or another supported layer type, saves its settings when the layer is updated. Saving occurs transparently: the user does not need to do anything specific.

When you select a layer in the Photoshop Layers panel, MindTheColor automatically checks if that layer contains metadata from one of its tools. If found, the corresponding tool can reload the saved settings.

35.3 Tools That Support Metadata

The following tools save and restore their settings in the layer's metadata:

Secondary curves: Hue-Hue, Hue-Chroma, Hue-Lum, Hue-P, Lum-Sat, Sat-Lum, Sat-Sat

Curve Lab

Grid and SL Grid

Color Wheels

CurveM and CurveG

B&W Mixer

Cinema Engine

Volume

Masks: Hue Mask, Sat Mask, Lum Mask, , Mask Builder

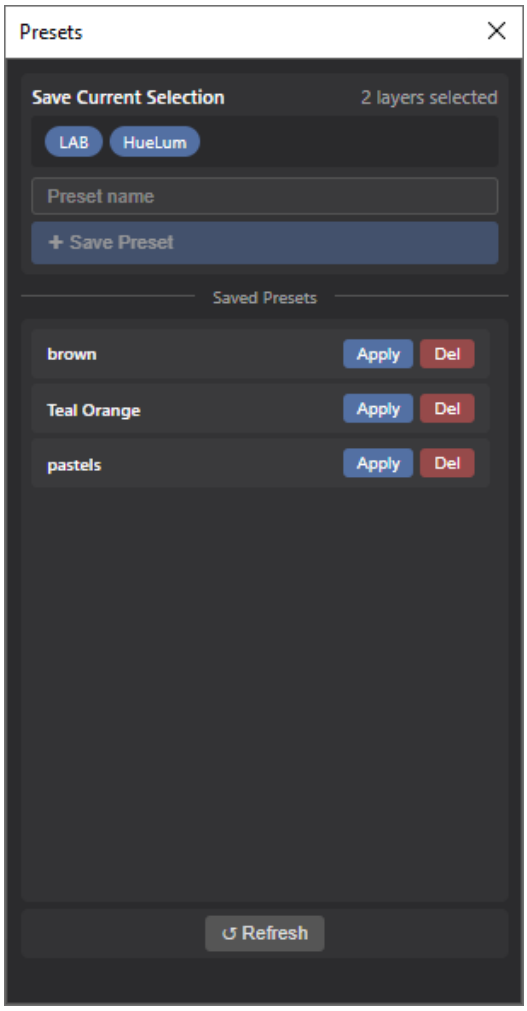
35.4 Settings Restoration

To restore a layer's settings, simply select it in the Layers panel and open the corresponding tool. The panel automatically reloads all saved settings: curves, control points, color domain, canvas size, and quality state.

Layer recognition occurs through the name: each tool creates layers with a specific prefix (for example Mtc_Grid, Mtc curve_HueHue, MTC Cinema). The layer name can be customized by the user, as long as it contains the original prefix.

If the tool corresponding to the selected layer is not open, it is opened automatically with restored settings.

36. Presets



36.1 Tool Function

The Presets panel allows saving and reapplying MindTheColor tool settings as reusable presets. A preset records curves, grids, and parameters from the selected layers, and can be applied to any image to reproduce the same chromatic treatment.

This is useful when working on a series of images from the same project and you want to apply the same look to all of them, or when you want to archive a combination of adjustments for future reuse.

36.2 Panel Structure

The panel is organized in **two main areas**:

Save Current Selection: the upper part shows the MindTheColor layers currently selected in the Photoshop Layers panel. Each recognized layer is shown as a tag with the

corresponding tool name (for example CinemaEngine, Grid, HueChroma). The counter at the top right indicates how many MindTheColor layers are selected.

Saved Presets: the lower part lists saved presets. Each preset shows the assigned name and two buttons: **Apply** to apply it to the current document and **Del** to delete it.

36.3 Saving a Preset

To save a preset, select one or more MindTheColor layers in the Photoshop Layers panel, enter a name in the text field and press **+ Save Preset**. The button activates only when at least one MindTheColor layer is selected and the name field is not empty. If the name already exists, confirmation is requested before overwriting.

36.4 Applying a Preset

Press the **Apply** button next to the desired preset. The tool creates the necessary layers in the document and applies the saved settings. Layers are created with the correct names and prefixes for each tool.

36.5 Deleting a Preset

Press the **Del** button next to the preset you want to remove. Confirmation is requested before deletion.

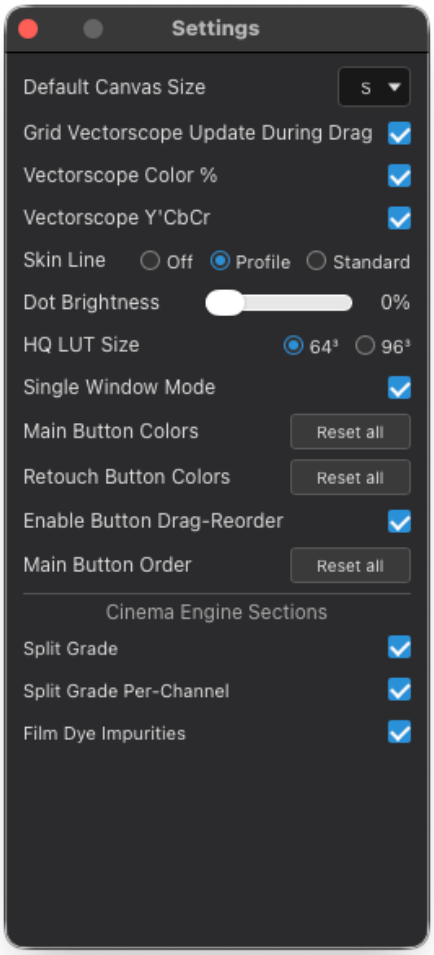
36.6 Refresh

The **Refresh** button at the bottom of the panel updates the list of selected layers. This is useful when you change the selected layers in Photoshop without the panel updating automatically.

36.7 Supported Tools

Presets can contain settings from the following tools, including multiple layers from the same tool: **Grid, SL Grid, Hue-Hue, Hue-Chroma, Hue-Lum, Hue-P, Lum-Sat, Sat-Lum, Sat-Sat, Curve Lab, CurveM, CurveG, B&W Mixer, Color Wheels, Volume, and Cinema Engine**. **Masks** (Hue Mask, Sat Mask, Lum Mask and Mask Builder) are not included in presets.

37. Settings



37.1 Function

The Settings panel contains the plugin's global preferences. Settings are saved automatically and retained between sessions.

The panel also includes controls for resetting interface customizations, including button colors and order, and for enabling or disabling the advanced sections of Cinema Engine.

37.2 Available Settings

The options are listed in the same order in which they appear in the panel.

Default Canvas Size: sets the default opening size for all panels that use a canvas. The available sizes are XS, S, M, and L. The corresponding pixel dimensions may vary from one tool to another, but this preference is shared globally. It applies only when opening

a new layer. If a tool is reopened on a previously edited layer, the size stored in that layer takes precedence.

Grid Vectorscope Update During Drag: when enabled, the vectorscope integrated into Grid updates in real time while points are being dragged. When disabled, it updates only when the mouse button is released, reducing the processing load on less powerful computers.

Vectorscope Color %: when enabled, displays real-time color percentages in the Single Vectorscope view.

Vectorscope Y'CbCr: changes the model used to plot image samples on the vectorscope. When disabled, the panel uses HSV, which is the default option.

When enabled, it uses Y'CbCr according to Rec.709, following the convention used by broadcast measurement tools. This is the preferred setting when comparing your work with references from video workflows.

Skin Line: controls the skin-tone reference line on the vectorscope and provides three options.

- **Off**: no skin-tone reference line is displayed.
- **Profile**: the line is calculated according to the document's color profile. This is the default and most accurate setting because the direction of skin tones is not identical in every color space.
- **Standard**: uses a fixed reference. In the HSV vectorscope, the line is calculated using Adobe RGB as the reference color space. In the Y'CbCr vectorscope, it is placed at the conventional 123° position, measured counterclockwise from the positive Cb axis.

Dot Brightness: ranges from 0 to 100 and controls the brightness used to draw points on the vectorscope without altering their hue or saturation.

At 0, points retain the actual color of the pixels, providing the most faithful reading but making dark colors more difficult to see. Increasing the value brightens the points and makes shadow regions easier to read. This setting assists visualization and does not modify the image.

HQ LUT Size: sets the size of the high-quality LUT to either 64^3 or 96^3. This setting applies to every tool equipped with an HQ button.

Single Window Mode: Activated by default. Opening one tool closes the others, and each panel follows its associated layer. Scope, Tools and Settings remain excluded from this rule.

37.3 Interface Customization

This section contains the controls used to customize the main panel and the Retouch panel.

Main Button Colors, Reset all: resets all custom button colors in the main panel. A confirmation dialog with **Yes** and **No** appears before the reset is performed. To customize a button, right-click it in the main panel.

Retouch Button Colors, Reset all: resets all custom button colors in the Retouch panel, again after displaying a confirmation dialog. To customize a button, right-click it in the Retouch panel. See Section 4.9 of the Retouch manual.

Enable Button Drag-Reorder: when enabled, buttons in the main panel can be dragged to change their order. A short click continues to open the tool as usual. Holding and dragging a button causes it to exchange positions with the button on which it is released. When this option is disabled, the buttons remain fixed in their current order.

Main Button Order, Reset all*:* restores the original order of all buttons in the main panel, removing any custom rearrangement.

Button colors and order are persistent. They are stored in localStorage and included in the automatic preference backup described in the following section.

37.4 Backing Up and Restoring User Files

All plugin customizations, including interface preferences, button colors and order, and tool presets, are stored as .json files in a single folder on disk. By preserving these files before uninstalling, reinstalling, or moving to another computer, the entire setup can be restored in a few seconds.

Quick Access to the Folder

The quickest method is to click the **Utility** button in the **main panel** and then click **Browse** in the Utility panel. This opens the plugin data folder directly, allowing its files to be copied to another location.

Manual Paths

Windows:

Replace <PhotoshopVersion> with the folder corresponding to your Photoshop version, for example 26 for Photoshop 2026 or 27 for Photoshop Beta:

C:\Users\<YourUserName>\AppData\Roaming\Adobe\UXP\PluginsStorage\PHSP\<PhotoshopVersion>\External\Mindthecolor 78\PluginData

File Explorer shortcut: paste the following path into the address bar

%APPDATA%\Adobe\UXP\PluginsStorage\PHSP

Then open the folder corresponding to your Photoshop version, for example 26, followed by External, Mindthecolor 78, and finally PluginData.

macOS:

~/Library/Application Support/Adobe/UXP/PluginsStorage/PHSP/<PhotoshopVersion>/External/Mindthecolor 78/PluginData

The user's Library folder is hidden by default in macOS. To access it, open Finder and select Go > Go to Folder, or press Shift + Command + G. Paste the following path and press Return: **~/Library/Application Support/Adobe/UXP/PluginsStorage/PHSP**

Files Stored in the Folder

preferences-backup.json: backup of interface preferences, including the order of buttons in the main panel, custom colors assigned to buttons in the main panel, and custom colors assigned to buttons in the Retouch panel. This file is generated automatically by the plugin.

MtcPresets.json: general MindTheColor presets containing complete tool configurations.

presetsCurveM.json: presets for the CurveM tool.

presetsCurveG.json: presets for the CurveG tool.

presets_contrast.json: presets for the ContrastD tool.

What to Do Before Uninstalling or Reinstalling

- Open the main panel and select Utility > Browse, or navigate manually to the path shown above.
- Copy the entire PluginData folder, or at least all the .json files it contains, to a safe location such as the Desktop, Documents folder, a cloud storage service, or a USB drive.
- Uninstall or reinstall the plugin.
- After the new installation, and before launching Photoshop, copy the backup .json files back into the same PluginData folder. The next time the plugin starts, it will find your preferences, button colors and order, and presets exactly as you left them.

If you have preserved only preferences-backup.json, the plugin will offer to restore the three saved categories separately the next time it starts: button order, main-panel button colors, and Retouch button colors.

Please note that the PluginData folder is deleted only when MindTheColor is uninstalled. If the plugin is reinstalled or updated by overwriting the existing installation, the folder is normally preserved, unless an error unrelated to the plugin occurs.

A complete backup is always recommended.

37.5 Cinema Engine

A dedicated section allows individual advanced sections of the Cinema Engine interface to be enabled or disabled. This makes it possible to simplify the panel when some features are not required.

Split Grade: enables the Split Grade section, with separate controls for shadows, midtones, and highlights.

Split Grade Per-Channel: enables the per-channel version of Split Grade, with separate controls for the R, G, and B channels.

Film Dye Impurities: enables the section dedicated to modeling film dye impurities.

All Cinema Engine sections are optional. Disabling them does not remove any data from existing Cinema layers. It only hides the corresponding controls in the interface. When a section is enabled again, all its previous values remain intact.