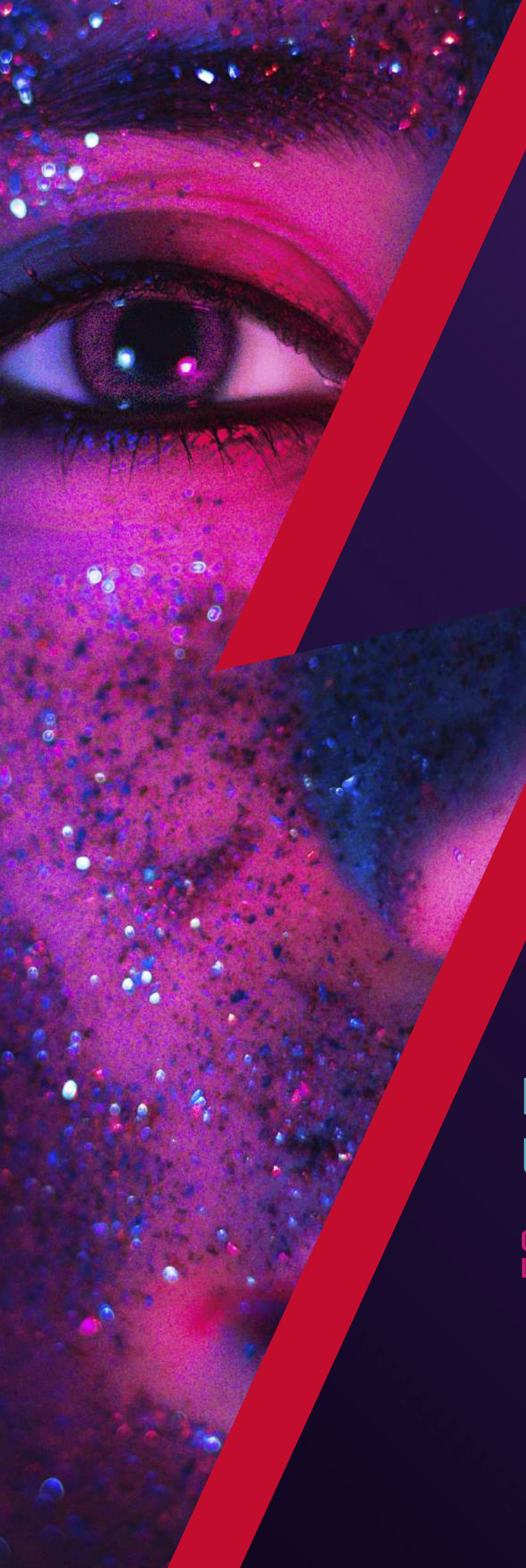

LumiMakr VIDEO

Adobe After Effects

LumiMakr Video: User Guide

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LumiMakr.com

WE ENGINEER, YOU CREATE.

SAY HELLO TO THE NEW GENERATION OF HDR TECHNOLOGY!

Welcome to the LumiMakr Video user guide!

The interface is designed to be simple to use. All you have to do is select the number of images to be stacked and other optional parameters.

LumiMakr technology uses a high-end image stacking technique to increase dynamic range, improve image quality and reduce noise.

Follow this guide through all the camera's functions, from A to Z, and get the most out of LumiMakr Video.

FIRST STEP - SUMMARY :

Introduction to LumiMakr

LUMIMAKR'S APPROACH AND CORE ALGORITHM

LumiMakr's HDR conversion algorithm has been designed to strike a balance between creative flexibility and ease of use.

The chosen approach enables easy control over tone style parameters, while generating HDR-compatible results that align with current practices and standards.

At the core of the solution lies a robust processing pipeline that is artifact-aware. One of the main design goals was to eliminate visual noise and compression artifacts commonly found in SDR footage. Through an intelligent filtering and stacking approach, the solution isolates noise and other artifacts, creating a cleaner image where only real scene information remains. This can then be safely expanded to HDR to increase the dynamic range and contrast.

Leveraging expertise from the development of Photomatix, one of the pioneering tools in HDR photography, adaptive tone mapping tools were developed to provide creative control over the final stylistic output.

Alternatively, videos can be exported in the main HDR video formats. Specifically, the solution fully supports HDR PQ and HLG formats, with an accurate color management pipeline, following the BT.2100 specification.

Technical Brief

MAIN FUNCTIONALITY

Our technology enhances the dynamic range of videos, for every frame of the video, we use a series of intelligently designed filters to isolate noise and other artifacts. This approach allows us to:

- Increase detail in both dark and bright areas (expanded dynamic range),
- Significantly reduce noise,
- While preserving sharpness and real image contours.

Output Formats

- HDR: Compatible with both major standards ---> HLG(Hybrid Log-Gamma) and PQ (Perceptual Quantizer), as described in the BT.2100 recommendation.
- Tone-mapped SDR: 5 tone mapping presets are available, tailored to different rendering styles and use cases.

Proprietary Technology

We use a proprietary image filtering and fusion algorithm designed to:

- Handle complex scenes, offering a natural, temporally stable HDR conversion.
- Dynamically separate noise, compression artifacts or other unwanted details from real image content for optimal rendering.

Key Benefits

- Improved HDR rendering for viewing and post-production.
- An ideal image base for HDR color grading and mastering.
- Professional-grade quality even from videos with limited original dynamic range.

Project settings for HDR workflow

Project settings

As the LumiMakr plugin will be responsible for converting the sequences to HDR, it is important that the SDR sources are not modified by Resolve and its internal color management process. For this, the following project settings are recommended, which can be found within the Project Settings window.

Setting	Value
Color Management > Color Science	DaVinci YRGB (non-managed)
Color Management > Timeline Color Space	Rec.2020
Color Management > Timeline Gamma	ST2084 (PQ) or HLG
Video Monitoring > Video bit depth	10 bit
Video Monitoring > Enable HDR Metadata	On (available only if HDR compatible monitoring device is detected)
Scopes	Set to HDR mode
Export Codec	10-bit ProRes / DNxHR / H.265 Main10
Export Tags (Color/Gamma)	Rec.2020 / ST2084 (or HLG)
Plugin Node	LumiMakr early in node tree

Formats/Codecs

To help you, this image presents the recommended **rendering parameters for different HDR use cases**, focusing on **codecs supporting** 10-bit encoding or higher. It compares formats, bit depth and HDR compatibility for webcasting, post-production, broadcast workflows, archiving and delivery to Netflix.

Rendering parameters

Codec: For HDR, ideally codecs supporting 10-bit encodings should be used

Use Case	Recommended Format	Bit Depth	HDR Capable
Professional mastering	ProRes 4444 / DNxHR HQX	10–12 bit	✅ Yes
Web delivery	H.265 Main10 (in MP4 container)	10 bit	✅ Yes (HDR10)
Broadcast workflows	MXF OP1a with DNxHR or XAVC	10 bit	✅ Yes
VFX / archival	OpenEXR sequence	16-bit float	✅ Yes (float)
Netflix delivery	IMF (JPEG2000, Dolby Vision optional)	10-bit	✅ Yes

HLG & PQ

UNDERSTANDING HLG AND PQ

OUTPUT RENDERING AND METADATA

HLG (Hybrid Log-Gamma) was developed by the BBC and NHK to meet the demands of live television broadcasting. Its main advantage is **compatibility with SDR displays**, thanks to its use of **relative values for encoding**. HLG employs a **hybrid curve**, combining a traditional gamma curve for low luminance levels with a logarithmic curve for highlights, allowing for **balanced rendering across a wide range of devices**. With minimal metadata requirements, it is especially well-suited for real-time content delivery.

PQ (Perceptual Quantizer), developed by Dolby, forms the basis of **HDR10 and Dolby Vision formats**. It requires the inclusion of **HDR metadata** (e.g., Mastering Display Color Volume, MaxCLL, MaxFALL) to ensure display devices accurately reproduce creative intent.
It encodes **luminance in absolute values**, up to 10,000 nits, **enabling highly accurate rendering aligned with human visual perception**. Thanks to its **fixed transfer curve**, PQ offers a very wide dynamic range, ideal for depicting high-contrast scenes with great precision in both highlights and shadows. This standard is geared toward maximum image quality, making it a **perfect fit for cinema and video-on-demand (VOD) content.**

LumiMakr Video offers settings to define output metadata when working in HLG or PQ. These parameters can be configured in the advanced export tab to ensure a faithful reproduction of your creative work.

To better understand HDR delivery workflows, it's essential to grasp the role of metadata:

Static metadata (HDR10): Luminance information (e.g., peak and average brightness levels) is fixed for the entire program. This approach is simple to implement and ensures broad compatibility, but it limits scene-by-scene adaptability.

Dynamic metadata (HDR10+, Dolby Vision): Each scene—or even each frame—can carry its own display instructions. This allows for **optimal adaptation to the capabilities of the target display,** enhancing the reproduction of highlights, shadows, and specific color details.

Set your project color management

USAGE TIPS FOR THE PLUGIN & AFTER EFFECTS:

STEP 1: USE OF HDR (HLG) IN LUMIMAKR VIDEO

To use the plugin in HLG mode, follow these steps:
Note: Tone Mapping will not be enabled if you choose to work in the HLG color space.

1. In Project Settings -> Color, pick a working HDR color space (e.g. Rec.2100 PQ or HLG)

2. Import HDR footage. If AE misdetects the color space, override via Interpret Footage

3. Build your comps, color grade, etc.

4. Send your comp to Adobe Media Encoder (rather than relying on AE's Render Queue) for final HDR export (HLG or PQ)

After Effects doesn't natively export HDR through its old Render Queue, so you must use Adobe Media Encoder (AME) for HLG output.

In AME export settings, ensure you choose:

1. 10-bit
2. Right transfer (PQ or HLG)
3. Rec.2100 metadata, CICP metadata (if supported)

Verify with tools like MediaInfo to ensure the exported file is truly PQ or HLG

AFTER EFFECTS HDR WORKFLOW CHEAT SHEET

⚙️ Category	🟩 HLG Workflow (Rec.2100 HLG)	🟦 PQ Workflow (Rec.2100 PQ / HDR10)
Goal / Use case	Broadcast / YouTube HDR with backward SDR compatibility	HDR10 / Dolby-style mastering for streaming & grading accuracy
Project Settings ▸ Color	Working Space → Rec.2100 HLG	Working Space → Rec.2100 PQ
Linearize Working Space	Optional	Recommended for compositing realism
Footage Color Space	AE usually detects; else: *Interpret Footage → Override to Rec.2100 HLG*	*Interpret Footage → Override to Rec.2100 PQ*
Display Color Management	✅ Enabled	✅ Enabled
Preview Requirements	HDR monitor or OS HDR mode (Windows HDR ON, macOS HDR display)	Same as HLG
Scopes / Reference Levels	HDR white = 203 nits	HDR white = 100 nits, mastering up to 1000 nits
Render Queue	⚠️ Limited metadata support — avoid	⚠️ Same — avoid
Best Export Path	Composition ▸ Add to Adobe Media Encoder Queue	Composition ▸ Add to Adobe Media Encoder Queue
AME Settings (Video tab)	Format: HEVC (H.265) or ProRes 422 HQ/4444 XQ Depth: 10-bit Color Space: Rec.2100 HLG	Format: HEVC (H.265) or ProRes 422 HQ/4444 XQ Depth: 10-bit Color Space: Rec.2100 PQ / HDR10
HDR Metadata Fields (AME ▸ More)	HDR Graphics White = 203 nits Max = 1000 nits (typical)	Master Display = 1000 nits / Min = 0.005 nits (auto-filled if PQ preset)
Verify Export	Use *MediaInfo* → Transfer = ARIB STD-B67	*MediaInfo* → Transfer = SMPTE ST 2084 (PQ)
Typical Delivery	YouTube HDR, broadcast TV	HDR10 mastering, streaming platforms

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Tone Mapping

UNDERSTANDING TONE MAPPING:

Tone Mapping is an essential technique in HDR (High Dynamic Range) image processing. When working with HDR videos in LumiMakr Video, Tone Mapping is used to adjust the wide dynamic range of images, ensuring faithful and pleasing reproduction on standard screens, while preserving visual detail.

TIPS ON USING THE PLUGIN:

Modify your processed HDR image using tone mapping settings or presets.

Check the box and choose your preferred preset.

We offer 5 Tone Mapping presets and 3 additional sliders to adjust the intensity or contrast of the selected preset.

Preset 1 is designed to maintain the most faithful and neutral HDR appearance, ideal for a realistic rendering.The following presets offer more creative freedom to stylize your image by playing with contrasts and visual moods.

HDR Note - Important Information:

The Tone Mapping in LumiMakr has been designed to faithfully reproduce the full light dynamics of HDR images, especially in photography.

When applied to video sequences, it may sometimes introduce rendering variations that don't always match every creative intent.

For now, we recommend using it primarily within a creative workflow and/or following the workflow below for video projects.

Recommended Workflow: HDR Video with LumiMakr
- Apply LumiMakr to your footage.
- In the HDR Output panel, select HLG or PQ.
- Then, add a color grading plugin (e.g., Lumetri Color) or your usual grading technique after LumiMakr to refine the look.

We are actively developing a new Tone Mapping engine specifically optimized for video, which will be available soon.

Tone Mapping

BENEFITS OF OUR PLUGIN WITH TONE MAPPING:

1. Detail preservation

The main benefit of Tone Mapping is the preservation of **detail in highlights and shadows**. HDR videos capture a wide range of luminosities, but standard screens cannot display this full dynamic range. Tone Mapping **intervenes to compress** this range, **allowing details to be visible on traditional screens without significant loss.**

2. Improved legibility

By intelligently adjusting brightness, contrast and saturation, Tone Mapping contributes to the improved legibility of HDR videos. This ensures that even in difficult lighting conditions, important details remain visible and colors remain balanced, enhancing the overall viewing experience.

3. Creating artistic atmospheres

Using Tone Mapping in LumiMakr Video also lets you explore unique, artistic visual styles. By adjusting the Tone Mapping parameters, you can influence the overall mood of the video, creating natural, romantic, dramatic or other artistic atmospheres to suit your creative needs.

4. Adaptation to a variety of screens

HDR videos, after the Tone Mapping process, can be viewed on a variety of screens, both HDR and non-HDR. This ensures that content remains accessible and visually appealing, whatever the playback device.

5. Precise settings control

LumiMakr Video generally offers precise control over Tone Mapping parameters, allowing you to fine-tune results according to your preferences and the specific requirements of your video projects.

In conclusion, using Tone Mapping in the LumiMakr Video plugin offers significant advantages in terms of preserving detail, improving legibility, creating artistic atmospheres and adapting to different screen types. This is a crucial step in ensuring that your HDR videos look as impressive on a standard screen as they do on an HD display.

Any question?
Please contact us!

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