

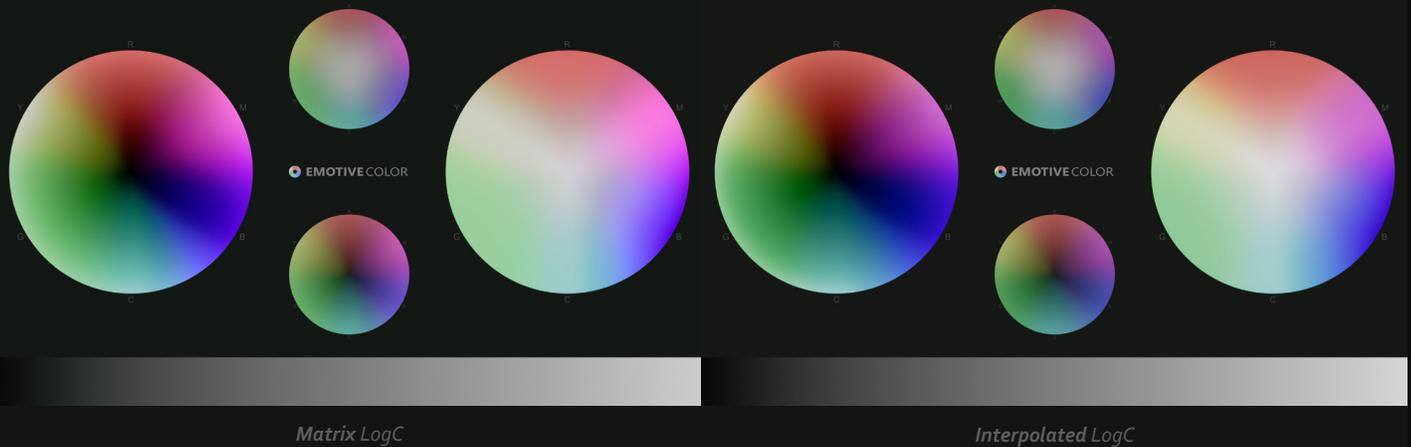


EMOTIVE COLOR

LOGC REVISITED

Emotive Color Matrix is a computed powergrade for DaVinci Resolve that simulates LogC using Resolve's native color tools. It is comprised of a gamma function, two compound matrices and two correctives that are computed and printed directly into a powergrade .drx file from the Emotive Color Engine.

Matrix is distinct from the main computed .cubes in the Color Conversion folder, which are interpolated directly between the sample data of each camera. Both Matrix powergrade and computed cubes are fully non-destructive, even into theoretical gamut beyond LogC (gamut performance of both shown below). However, the two diverge in fundamental ways.



THE DIFFERENCES

The Matrix powergrade is a dedicated LogC simulation that features the official Arri Rec.709 display table (included in Resolve) as the concluding step. The Emotive Color 709 variations (Theatrical and High Scale) of the computed cubes integrate an interpolated recreation of Arri's Rec.709 that preserves far gamut extremes (i.e. color leds) that are otherwise lost in the official Arri display tables. It also features a film derived saturation model and luminance scaling.

Second, the maximum accuracy of Matrix LogC is constrained to the limits of Resolve's color tools. For simpler 1:1 conversions with less internal contortion (i.e. P6K Daylight) Matrix is sufficient to closely simulate an accurate LogC. For more internally complex conversions (i.e. Ursa Tungsten) Matrix falls short of rigorous simulation. Interpolated LogC is unlimited in this regard, able to fluidly reconstruct intricate internal contours without restriction.

Matrix components are inherently smooth, while 'Tetrahedral Interpolation' may be enabled in Resolve's settings for 33x resolution cubes to achieve the same level of absolute internal smoothness (65x resolution cubes are smooth under either interpolation method). Last, while Matrix aims for efficiency, using the fewest number of nodes to achieve LogC simulation, interpolated cubes are inherently efficient, requiring less GPU overhead.

The Emotive Color 709 interpolated cubes are recommended for reference color conversion in a production environment. Matrix may be used as a springboard for experimentation and divergence from standard LogC, with the ability to adjust individual components as necessary.

HOW TO INSTALL MATRIX

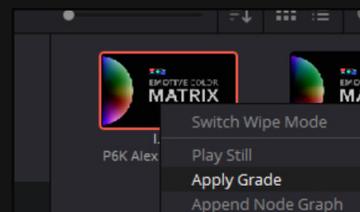
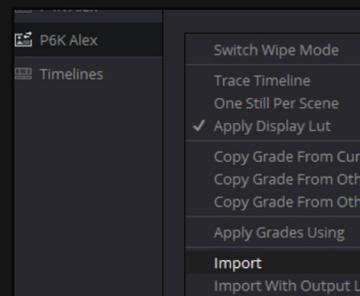
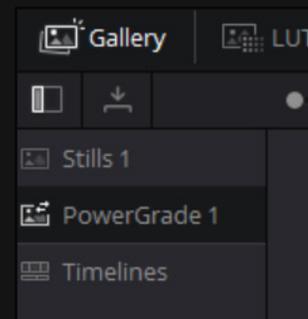
To install Emotive Color Matrix, click the Gallery tab in the upper left corner of the DaVinci Resolve Color screen.

For convenience, you may select the side panel button underneath Gallery to enable the album side panel, and add and name a new powergrade album for the Matrix powergrades.

Inside of the empty Gallery viewer, right click and select 'Import' from the drop-down. In the window that emerges, navigate to where you have placed the Matrix powergrade files on your computer, and load the .dpx file for the Matrix powergrade that you intend to load.

(Note: the .dpx file is a still that accompanies the powergrade, while the actual powergrade information is contained in the .drx next to the .dpx still)

When loaded, the powergrade will be installed in the Gallery album. Right click the powergrade and select 'Apply Grade' from the drop-down. This will apply the powergrade to the currently selected clip on your timeline. In the node viewer on the upper right corner of Resolve's color screen, you will see the node layout update to show a **LogC** compound node, and a **Rec.709** node following it.



UPDATE REC.709

By default, the final node in Matrix applies the native DaVinci Resolve Arri Rec.709 display table following the LogC simulation. **However, this is an outdated variation of Arri's Rec.709.** The reason for its use in Matrix is that it is the Rec.709 variant integrated with DaVinci Resolve, which will work by default on all Resolve installs without further interaction from the end user.



It is recommended after applying the powergrade to **replace this Rec.709 instance with the most recent (non-Classic) Rec.709 issued by Arri.** This updated Rec.709 (2018 LF era) features subtle, tasteful adjustments to the original 709 recipe, including a lower black level and deeper reds, among others.

This updated Rec.709 may be downloaded directly from Arri here:

Arri Rec.709 Download

And the Lut Generator from which it was issued is located here:

Arri Lut Generator Link

The downloaded file will be stored in a .gz archive format. Extract the file using your preferred archive utility (7zip is recommended for Windows), and then place the .cube file into the DaVinci Resolve Lut folder (ideally in the 'Arri' sub-folder).

(Note: the Resolve Lut folder may be accessed **and refreshed in Resolve** by either right clicking in the LUTs tab side panel in the upper left corner of Resolve's Color screen, or going to Project Settings > Color Management > Lookup Tables)

Right click the Rec.709 node and select **LUTs > 3D LUT > (new file location)** from the drop-down. Or, while the Rec.709 node is selected, double click the new file in the LUTs panel in the upper left of Resolve. The new Rec.709 will now be loaded.

