

## What is new in CoPrA 11?

### **DeviceLink Linearization**

- More **Linearization Options** and new channel-specific **Custom** ink limitations

### **Profile Manager**

- Redesigned **Profile Filter** and improved **Profile List**
  - Sort columns by column title
  - New **Date** column
- Major improvements to the **Gamut** tab
  - Redesigned user interface
  - Show up to three profiles in 2D view and change color space outline color
  - Change **Lightness**
  - Change zoom factor via the mouse wheel
  - Save last used options of **Gamut** view context menu

### **DeviceLink Profiling**

- New 3D conversion **Gamut** view in **DeviceLink Profiling**

### **DeviceLink/Printer Profiling**

- Show **Measurements** of underlying data in **Gamut** view
- Save last used options of **Gamut** view context menu
- Colorants Information included in the profile reports for CMY and CMYK color spaces

### **Printer Profiling**

- **Black Start** option for the **Multicolor Mode "Generate Separations with sparse inks"**
- Save ink with the new setting **Sparse Ink**
- Minor user interface adjustments to the **Viewing Conditions** section

### **DeviceLink Editing**

- Improved patch selection and analysis

## Image Conversion

- New **Toggle Preview** for color management workflow comparison
- New image preview scaling options

## Batch Overview

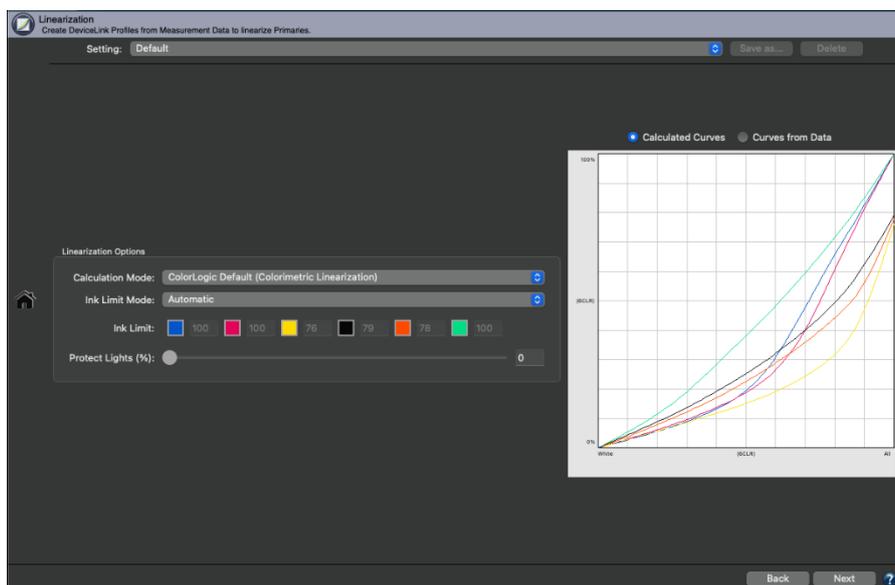
- The optimized **Batch Overview** simplifies the further processing of profiling jobs

## Improvements and Bug Fixes

## DeviceLink Linearization

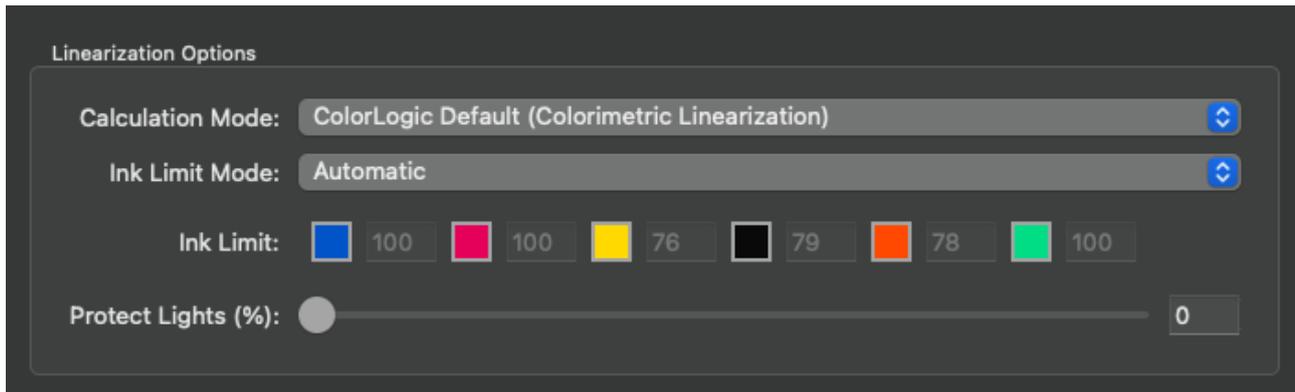
### More *Linearization Options* and new channel-specific *Custom ink limitations*

With CoPrA 11, the flexibility in creating a DeviceLink Linearization has been greatly improved. Adding a dedicated **Ink Limit Mode** with the option to set **Custom** ink limits allows for user-defined, channel-specific ink limiting. The previous options with fixed ink limits have now been replaced by a more flexible alternative.



In order to provide flexible assignments of the available ink limit modes to the various calculation modes, these previously fixed settings have now been separated and extended.

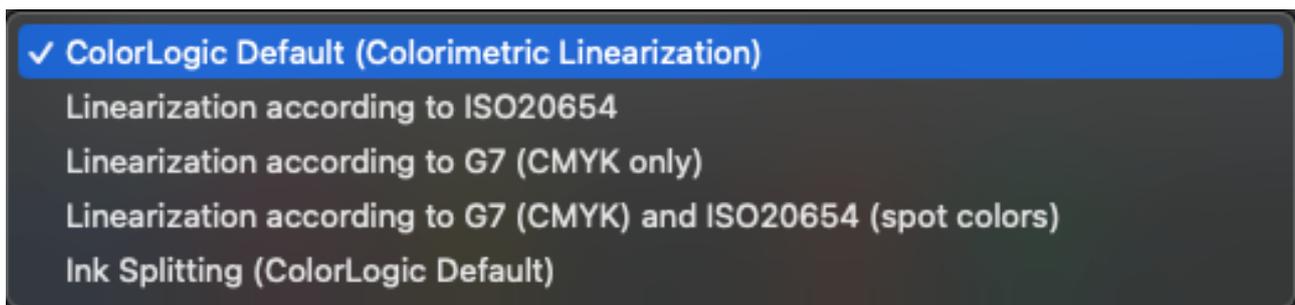
## Linearization Options



Now, there are four **Linearization Options**. The **Ink Limit Mode** and the **Ink Limit** options are new.

### Calculation Mode

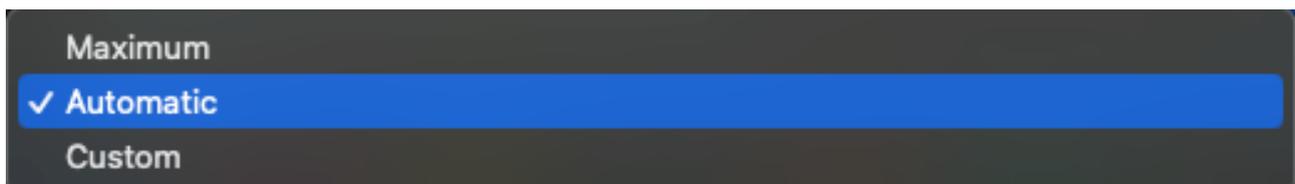
The **Calculation Mode** defines the method for calculating the colorimetric linearity. The available standard methods can be customized and saved.



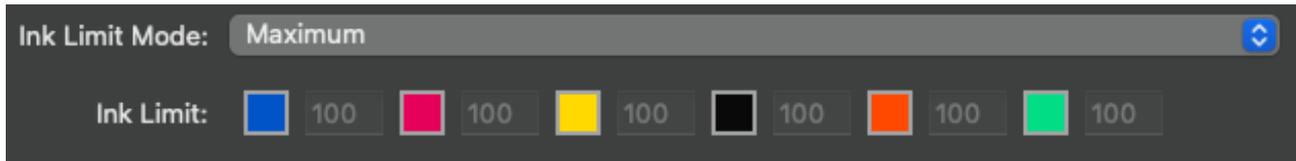
When selecting a **Calculation Mode**, a suitable **Ink Limit Mode** is automatically set. However, the preselected **Ink Limit Mode** can be set to **Custom** which then allows user-defined ink limits to be set. The previous calculation modes with fixed predefined ink limits have been removed.

### Ink Limitation Mode

There are three different ink limitation modes to choose from:

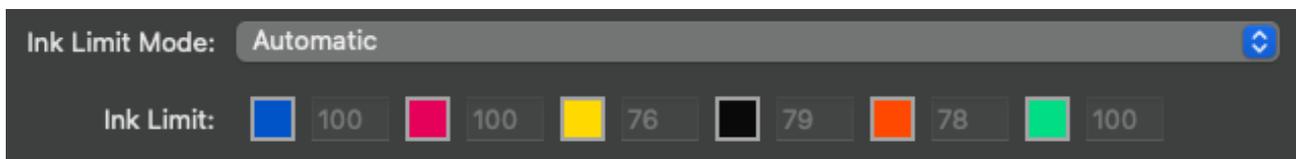


**Maximum:** No limit is applied, the output per channel is 100%.



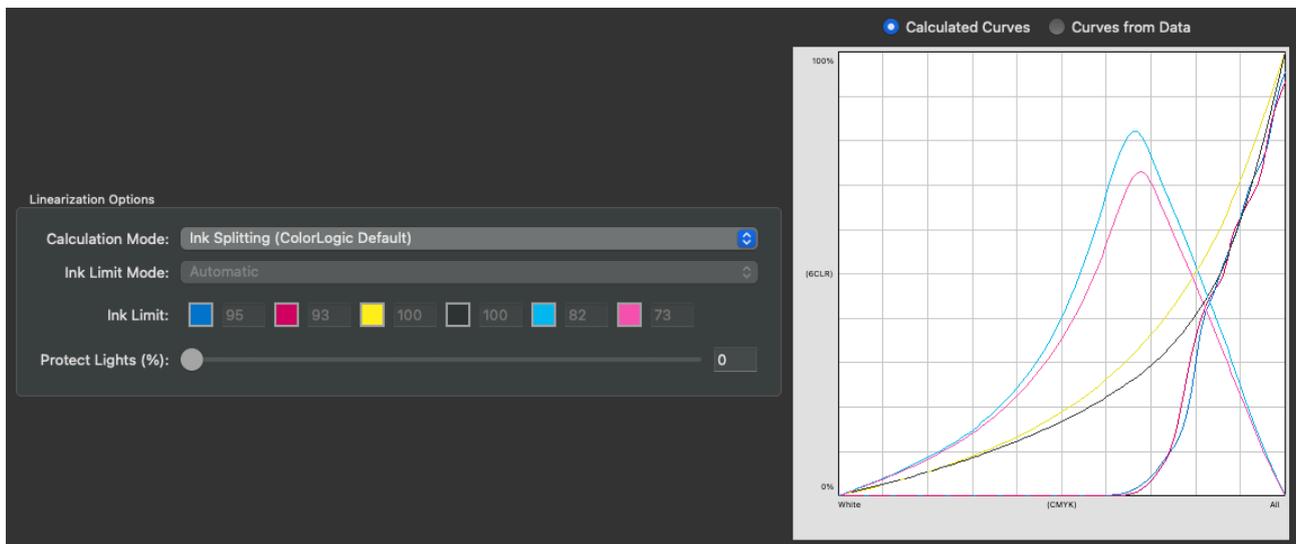
This is the preselected default **Ink Limitation Mode** for the calculation modes **Linearization according to G7 (CMYK only)** and **Linearization according to G7 (CMYK) and ISO 20654 (spot colors)**.

**Automatic:** The applied ink limit is calculated based on the measurement data and is displayed grayed out in the **Ink Limit** section for each color.

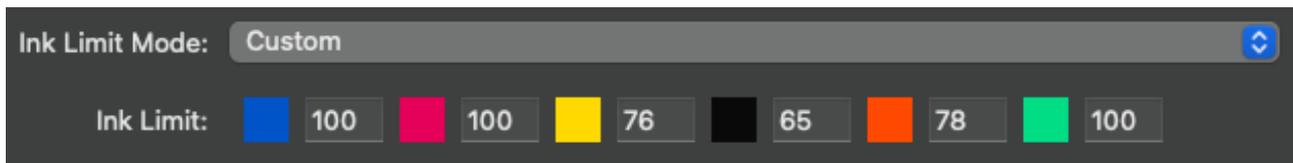


This is the preselected default for the calculation modes **ColorLogic Default (Colorimetric Linearization)**, **Linearization according to ISO 20654** and **Ink Splitting (ColorLogic Default)**.

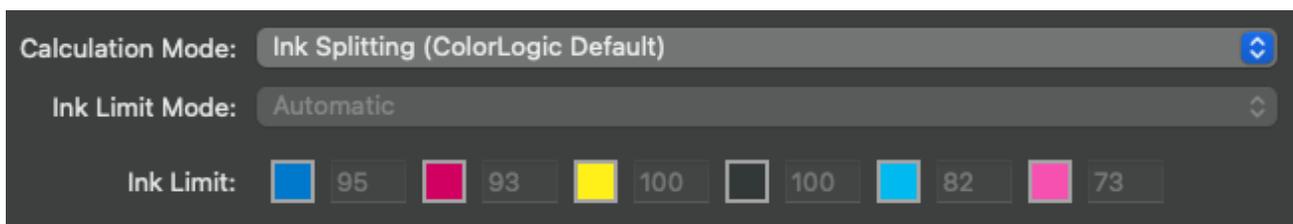
**Note: Automatic** is the default ink limit mode for the **Ink Splitting (ColorLogic Default)** calculation mode and cannot be changed.



**Custom:** Based on the automatically calculated values for the ink limits, these values can be edited in the corresponding input fields of the **Ink Limit** section.



**Ink Limit:** Displays the maximum values of the individual channels and if activated, allows these values to be changed. Please note that the maximum used values of the light (ink splitting) channels are also displayed.



All changes and limits are immediately calculated and applied to the **Calculated Curves** view, which means that the curves are based on the currently selected settings that will be applied in the resulting **Linearization DeviceLink** profile.

The linearization settings of CoPrA10 and older (up to CoPrA8) are compatible with CoPrA11. This does not apply vice versa.

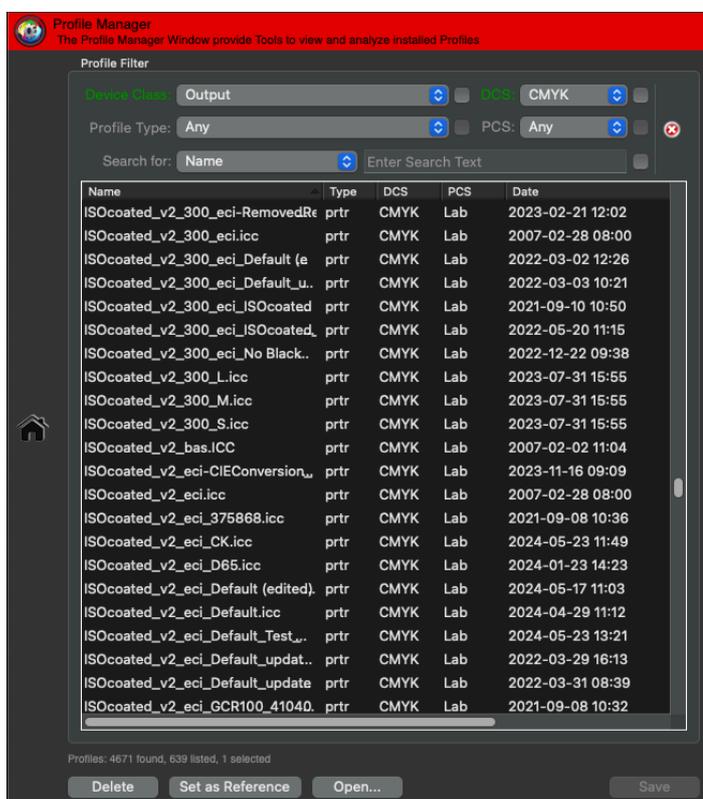
# Profile Manager

## Redesigned Profile Filter and improved Profile List

The **Profile Filter** section has been redesigned to be more compact, leaving more space for the **Profile List**.

### New column sort function and new **Date** column in the **Profile List**

All columns can now be sorted by clicking on the column title. A new addition to the **Profile List** is the **Date** column, which displays the creation date of the respective profile.



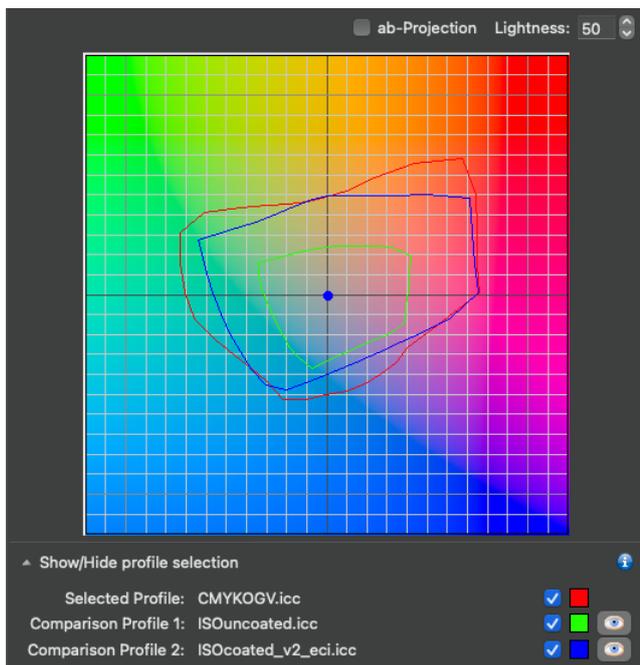
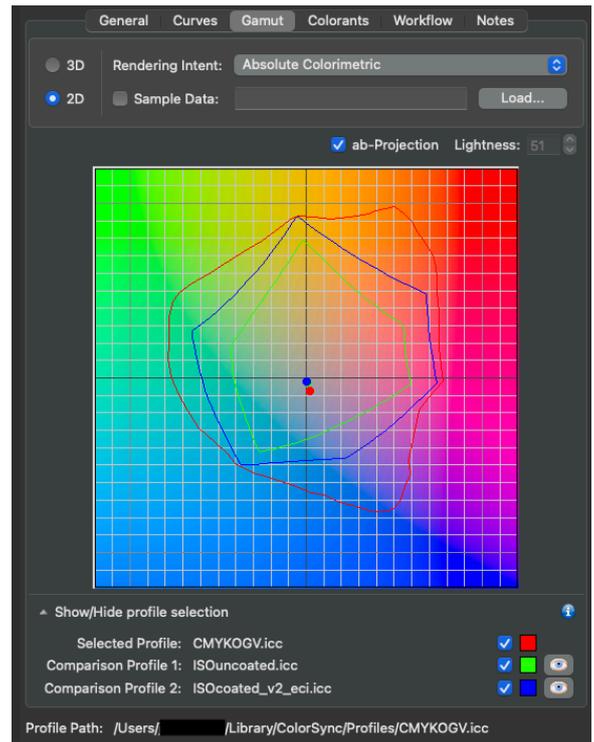
## Major improvements to the *Gamut* tab

The **Gamut** view has been revised and enhanced allowing the comparison of two profiles in the **3D** view and up to three profiles in the **2D** view. The gamut view has also been enlarged.

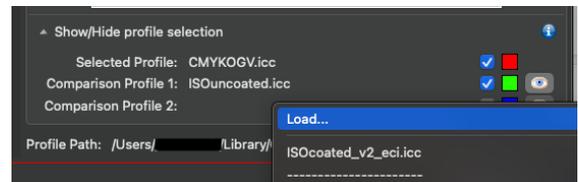
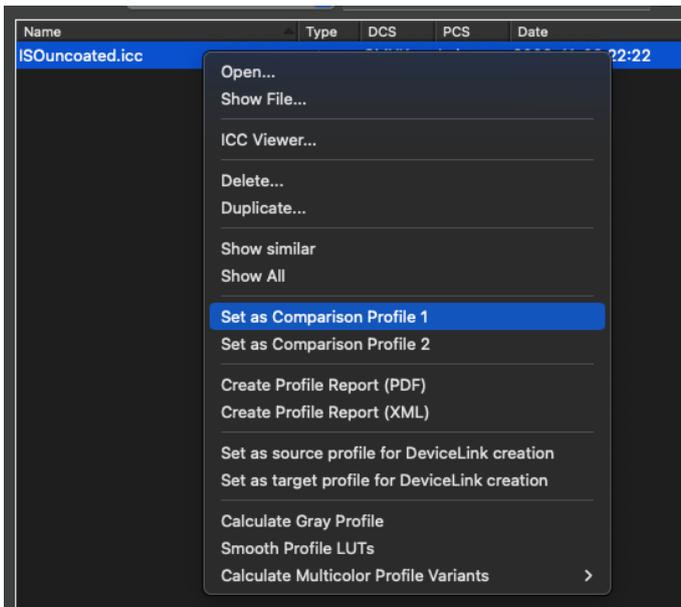
### 2D View

**Lightness:** The **Lightness** slider has been removed; it is now possible to change the lightness with the mouse wheel or by entering the value directly in the input field.

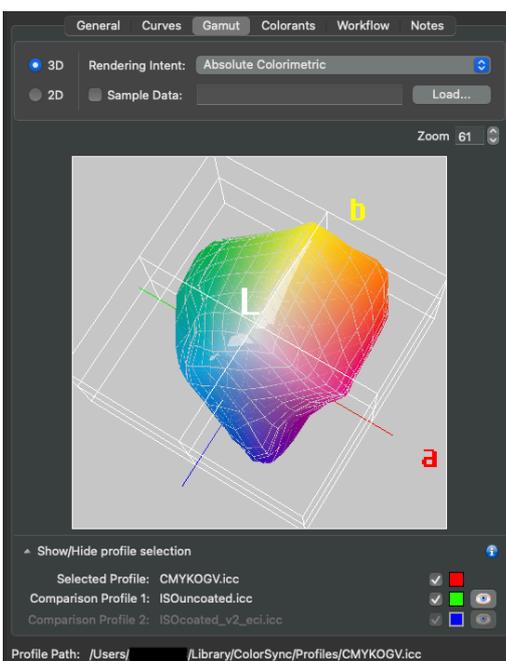
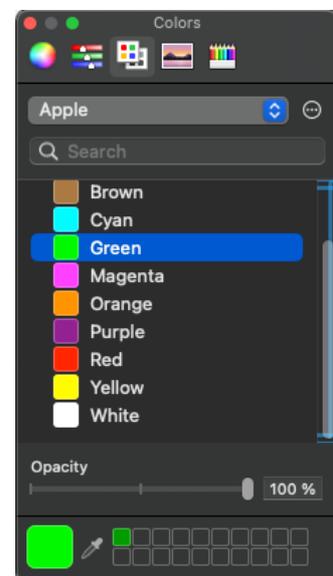
With the **ab-Projection** checkbox, the entire gamut can be shown as a flat projection on the ab plane.



**Profile Selection:** The gamut of the **Selected Profile** can be compared to the gamut of up to two **Comparison Profiles** selected in the **Profile Selection**. These comparison profiles can either be set via the context menu of the profile list or via the **Load** option of the context menu that can be accessed by right-clicking the area next to **Comparison Profile 1** and 2.



The color of the outlines of the individual profiles can be changed by clicking the color field and using the tools provided.



### 3D View:

**Gamut Zoom:** The **Zoom** slider has been removed; it is now possible to change the zoom factor with the mouse wheel, a shortcut (macOS: CMD+ / CMD-, Windows: STRG+ / STR-) or by entering the value directly in the input field.

**Profile Selection:** The comparison profile can either be set via the context menu of the profile list or via the **Load** option of the context menu of **Comparison Profile 1** (accessible by right-clicking in the area next to **Comparison Profile 1**).

Since only two profiles can be compared in the 3D gamut view, **Comparison Profile 2** is grayed out here.

In the **3D** view, **Comparison Profile 1** is displayed in a semi-transparent white color.

### **Context menu of the Gamut view**

A context menu that provides additional viewing options can be opened by right-clicking on the gamut view. The **Grid, Axes** and **Axes Labels** can be switched on and off here. When analyzing **Sample Data**, the sphere size can also be increased or decreased using a key combination (macOS: Option+ / Option-, Windows: ALT+ / ALT-). For a better display of the **Sample Data**, the gamut view can be switched between a **Gamut Surface** view and a polygonal gamut grid view.

The options last used in the **Gamut** view are saved and applied again when CoPrA is restarted.

## DeviceLink Profiling

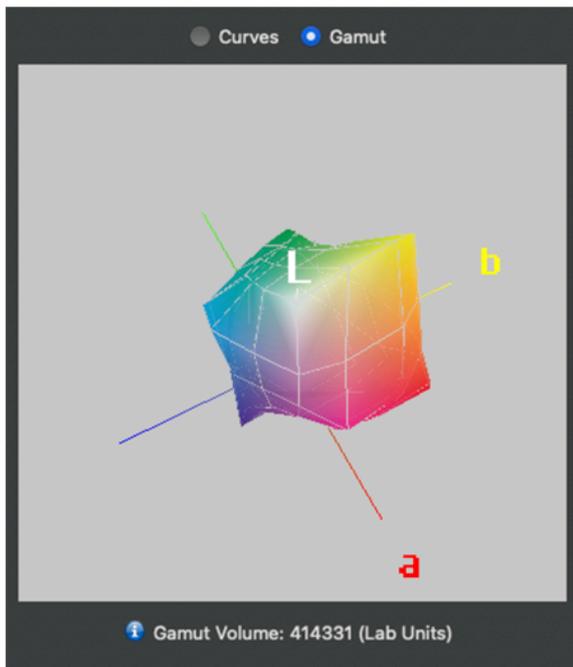
### New 3D conversion Gamut view in DeviceLink Profiling

A new function in the **DeviceLink** tool is the option to switch between **Curves** and **Gamut** view, as in the **Printer Profiling** tools. The gamut view reflects the conversion between the source and target profile.

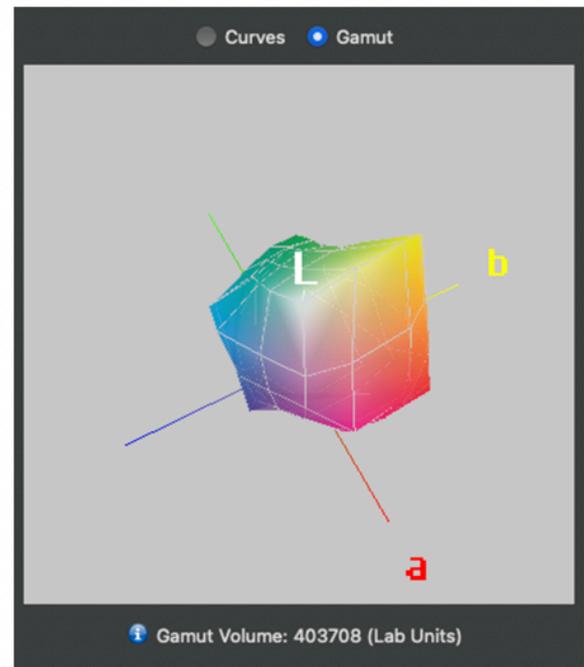
**Curves:** Visualizes the effects of the selected **Color Generation** and **Black Point and TAC** settings of the selected target profile.

**Gamut:** The **Gamut** view shows changes to the gamut shape immediately when settings are changed and provides a real-time preview of the expected conversion between source and target profile. All settings, e.g. rendering intents, exceptions, black point, etc., are considered and displayed in the gamut view.

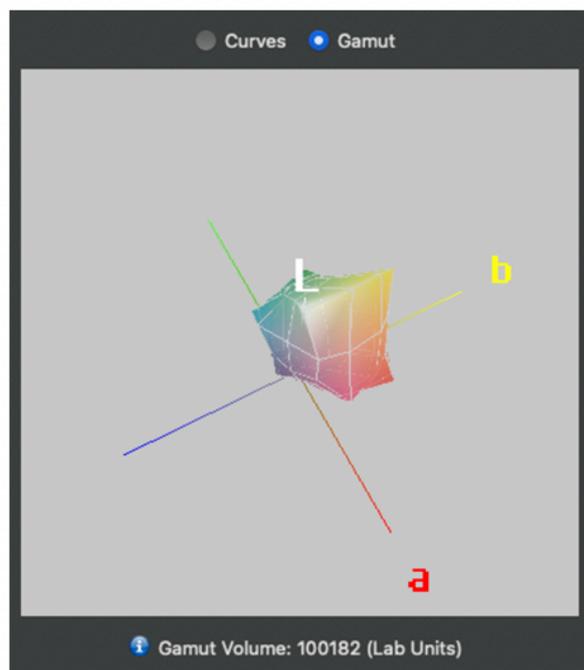
**Note:** Below are some examples of the **Gamut** preview for a DeviceLink creation with the profiles ISOnewspaper26v4.icc and CMYKOGV.icc with different settings. The gamut shows the conversion between these two profiles.



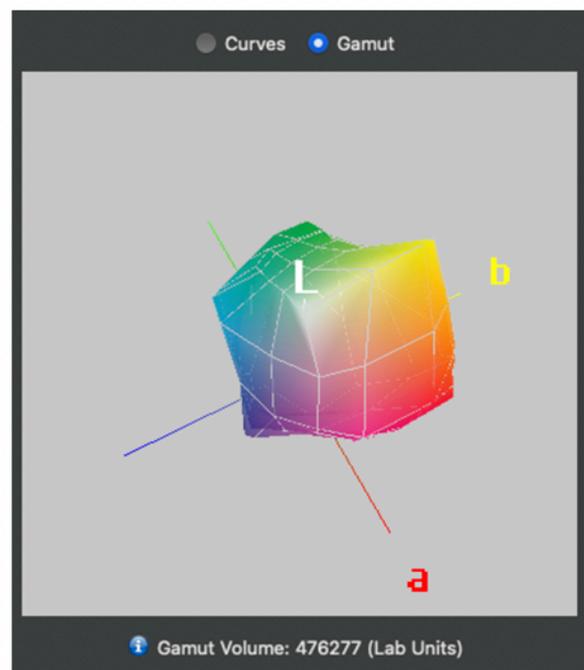
Setting: Default - Multicolor / Exceptions (Auto): ON



Setting: Default - Multicolor / Exceptions (Max. R,G,B): OFF



Setting: Digital Printing – Close Match



Setting: Print to Print - Paper absolute

Calculating the gamut preview can take some time due to the complexity of this process. While the gamut preview is being updated, the message "The gamut is calculated..." is displayed. However, further settings can be made during the calculation.

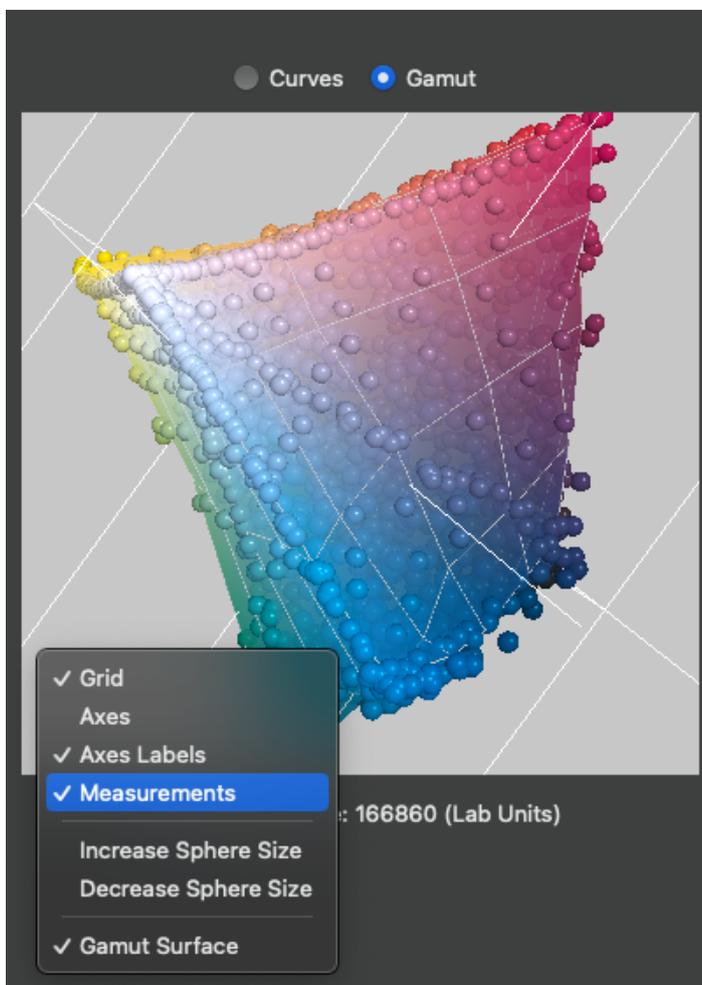
In addition, the **Gamut Volume** is calculated and expressed in Lab units using absolute colorimetric rendering intent which allows finding the settings that produce the largest gamut (highest number) easily.

## DeviceLink / Printer Profiling

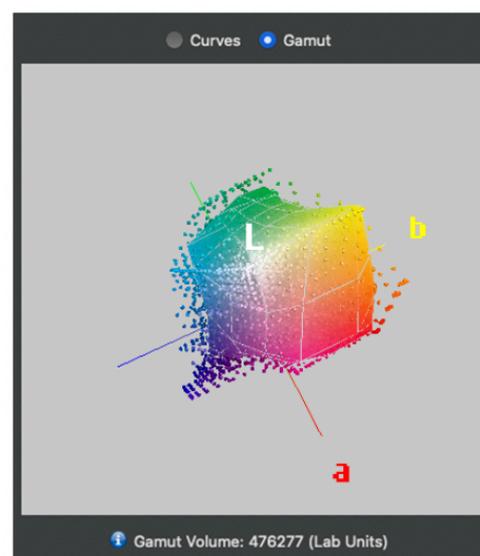
### Show *Measurements* of underlying data in *Gamut* view

Another new feature is the option to view the **Measurements** of the underlying data in the **Gamut** view.

When creating printer profiles, this allows analyzing the patch distribution within the profile gamut so that the measurement data can be optimized in ColorAnt beforehand if necessary.



When creating DeviceLink profiles, the measurement data of the target profile is displayed in comparison to the DeviceLink conversion. This allows a comparison to be made between the maximum color space of the target profile and the actual conversion in the DeviceLink profile depending on the selected settings.



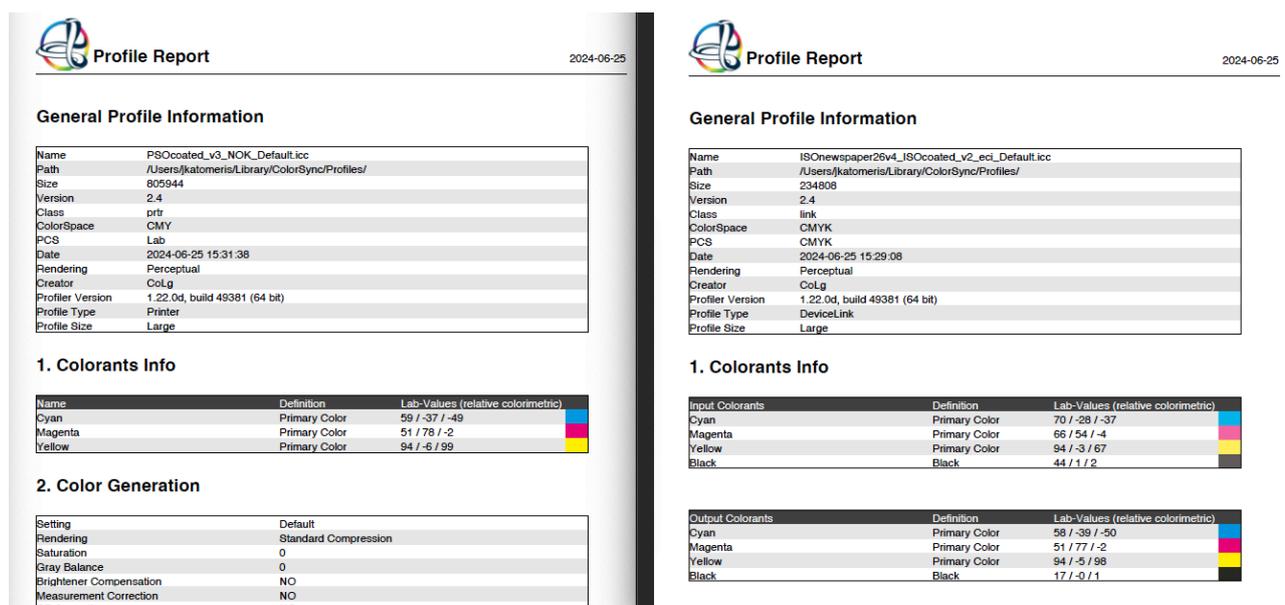
Setting: Print to Print - Paper absolute

## Context menu of the Gamut view

A context menu that provides additional viewing options can be opened by right-clicking on the gamut view. The **Grid**, **Axes** and **Axes Labels** and the **Measurements** of the underlying data can be switched on and off here. The sphere size can also be increased or decreased using a key combination (macOS: Option+ / Option-, Windows: ALT+ / ALT-). For a better display of the **Measurements**, the gamut view can be switched between a **Gamut Surface** view and a polygonal gamut grid view. The options last used in the **Gamut** view are saved and applied again when CoPrA is restarted.

## Colorants Information included in the profile reports for CMY and CMYK color spaces

The colorants information in the profile reports for printer and DeviceLink profiling is now also available for CMY and CMYK color spaces in addition to the still available information for xCLR color spaces.



**Profile Report** 2024-06-25

**General Profile Information**

Name	PSOcoated_v3_NOK_Default.icc
Path	/Users/katomeris/Library/ColorSync/Profiles/
Size	805944
Version	2.4
Class	url
ColorSpace	CMY
PCS	Lab
Date	2024-06-25 15:31:38
Rendering	Perceptual
Creator	CoLg
Profiler Version	1.22.0d, build 49381 (64 bit)
Profile Type	Printer
Profile Size	Large

**1. Colorants Info**

Name	Definition	Lab-Values (relative colorimetric)
Cyan	Primary Color	59 / -37 / -49
Magenta	Primary Color	51 / 78 / -2
Yellow	Primary Color	94 / -6 / 99

**2. Color Generation**

Setting	Default
Rendering	Standard Compression
Saturation	0
Gray Balance	0
Brightener Compensation	NO
Measurement Correction	NO
G7 Correction	NO

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**Profile Report** 2024-06-25

**General Profile Information**

Name	ISOnewspaper26v4_ISOcoated_v2_ecl_Default.icc
Path	/Users/katomeris/Library/ColorSync/Profiles/
Size	234808
Version	2.4
Class	link
ColorSpace	CMYK
PCS	CMYK
Date	2024-06-25 15:29:08
Rendering	Perceptual
Creator	CoLg
Profiler Version	1.22.0d, build 49381 (64 bit)
Profile Type	DeviceLink
Profile Size	Large

**1. Colorants Info**

Input Colorants	Definition	Lab-Values (relative colorimetric)
Cyan	Primary Color	70 / -39 / -37
Magenta	Primary Color	66 / 54 / -4
Yellow	Primary Color	94 / -3 / 67
Black	Black	44 / 1 / 2

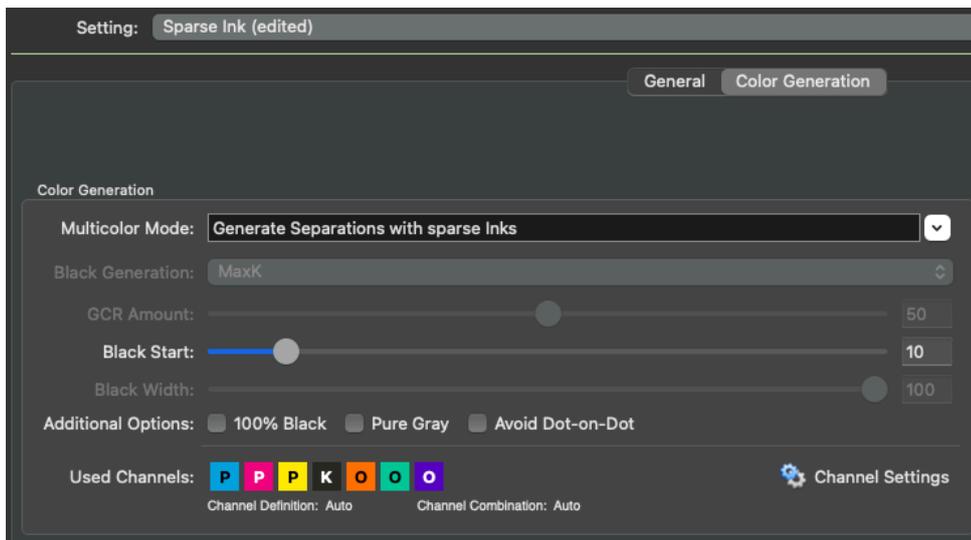
**Output Colorants**

Output Colorants	Definition	Lab-Values (relative colorimetric)
Cyan	Primary Color	58 / -39 / -50
Magenta	Primary Color	51 / 77 / 2
Yellow	Primary Color	94 / -5 / 98
Black	Black	17 / -0 / 1

## Printer Profiling

### Black Start option for the Multicolor Mode "Generate Separations with sparse inks"

For color spaces from 5CLR up to 15CLR it is now possible to define the **Black Start** when using the Multicolor mode **Generate Separations with sparse ink**. This allows the black channel to be controlled to avoid the use of black ink in the highlights if required.

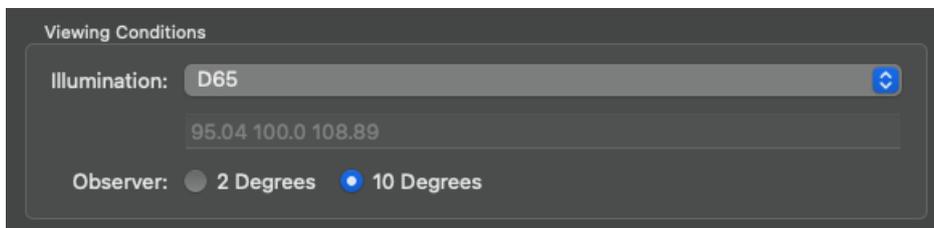


## Save ink with the new setting *Sparse Ink*

To simplify the use of the Multicolor mode ***Generate Separations with sparse ink***, there is a new setting ***Sparse Ink*** available.

## Minor adjustments to *Viewing Conditions*

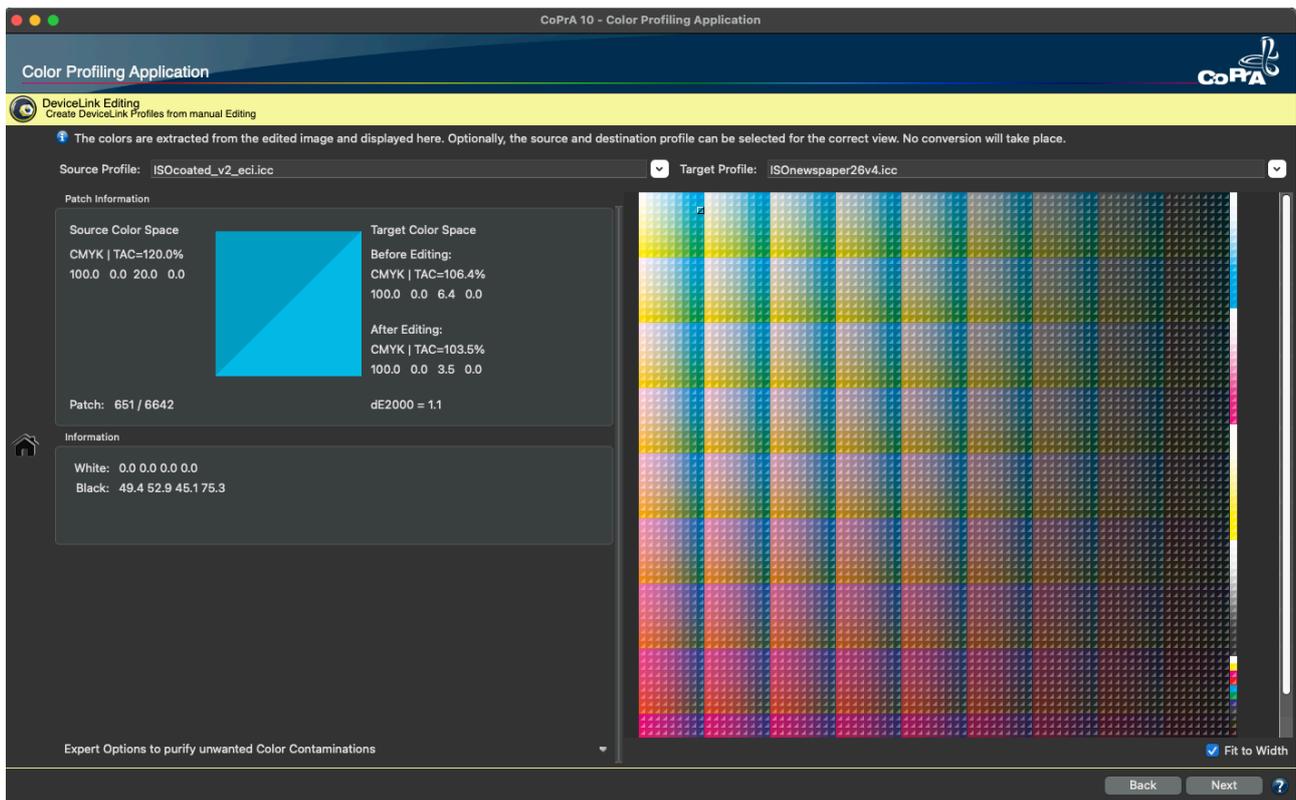
Minor user interface adjustments have been made here.



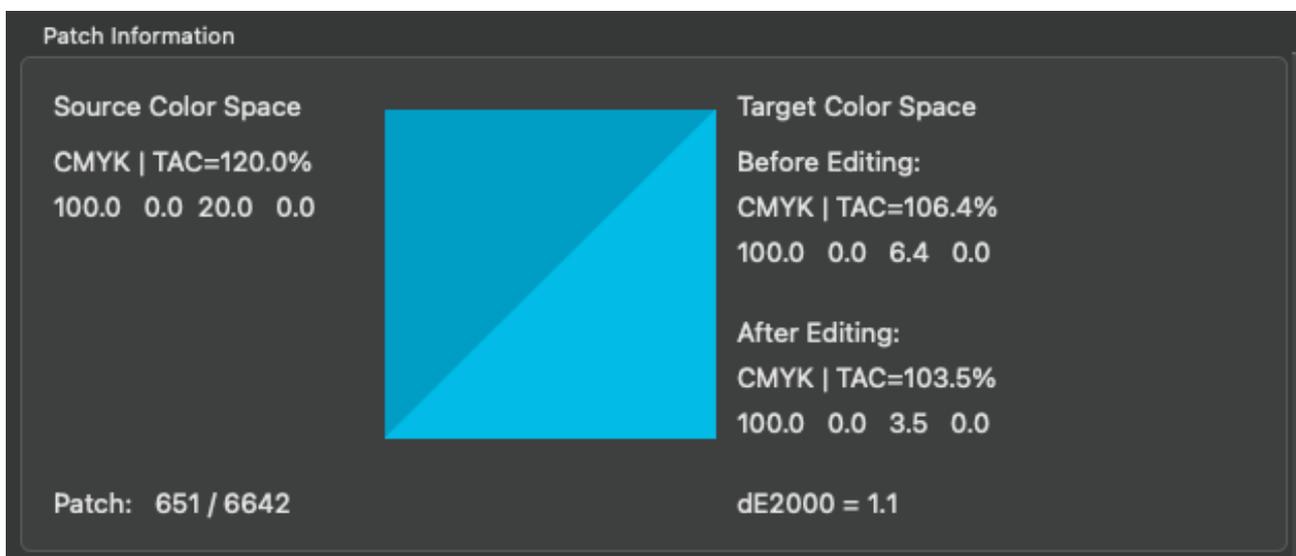
## DeviceLink Editing

### Improve patch selection and analysis

When moving the mouse pointer over a color patch, it is highlighted by a black or white frame and the source and target color space values are displayed. A left mouse click captures the color patch, making it easier to check whether and to what extent it is affected by an exception.

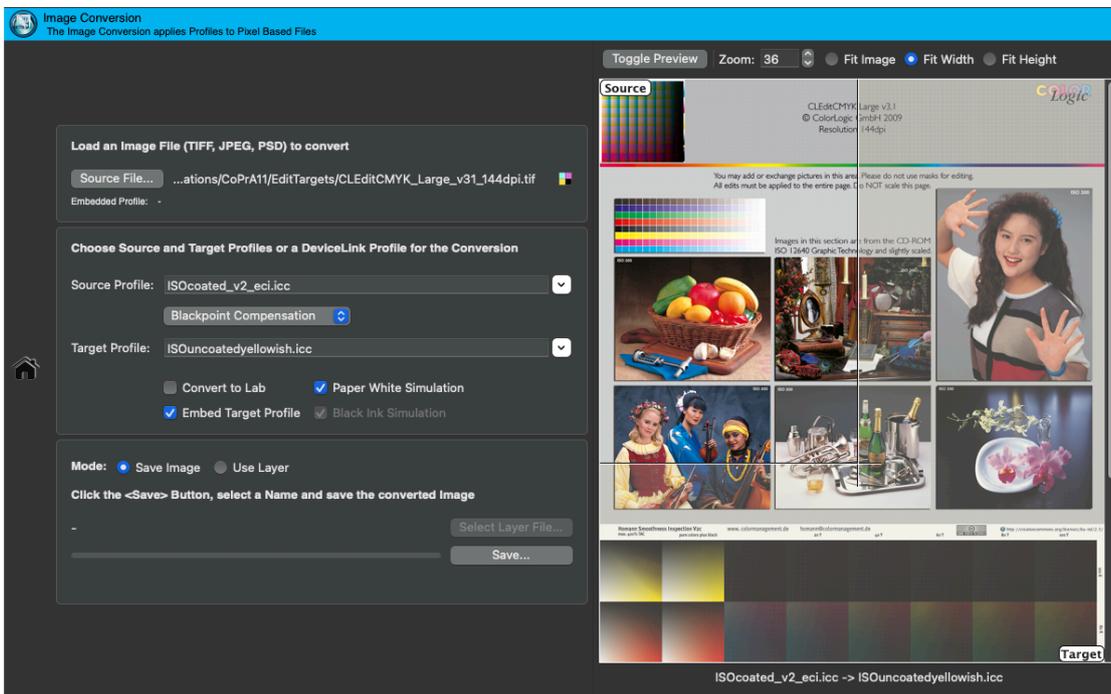


Exceptions which are unavailable are grayed out. This may be the case when a dependency between exceptions exists, or when exceptions are not relevant for a specific color space.

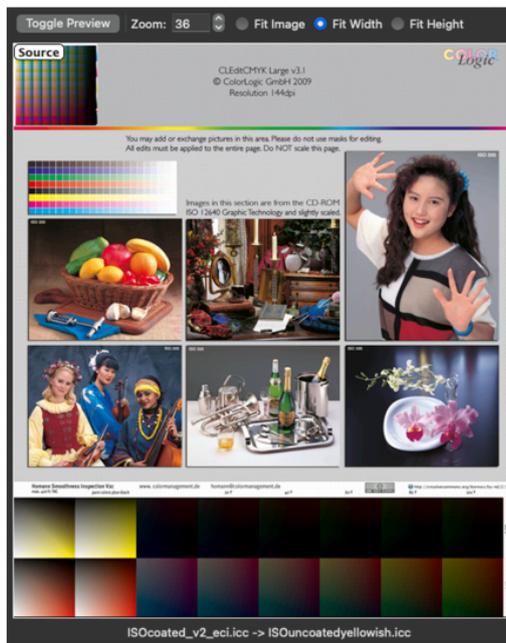


# Image Conversion

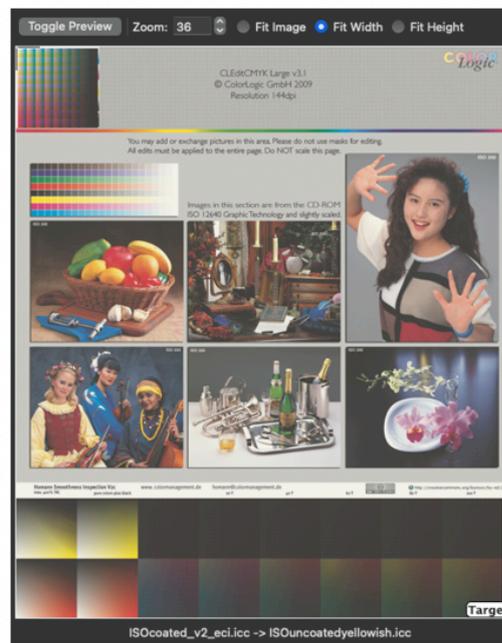
## New Toggle Preview for color management workflow comparison



With the adjustable overlay tool, you can define a resizable comparison area of the image preview in which you can compare the image with the target profile using the defined color management workflow from the source profile via the rendering intent.



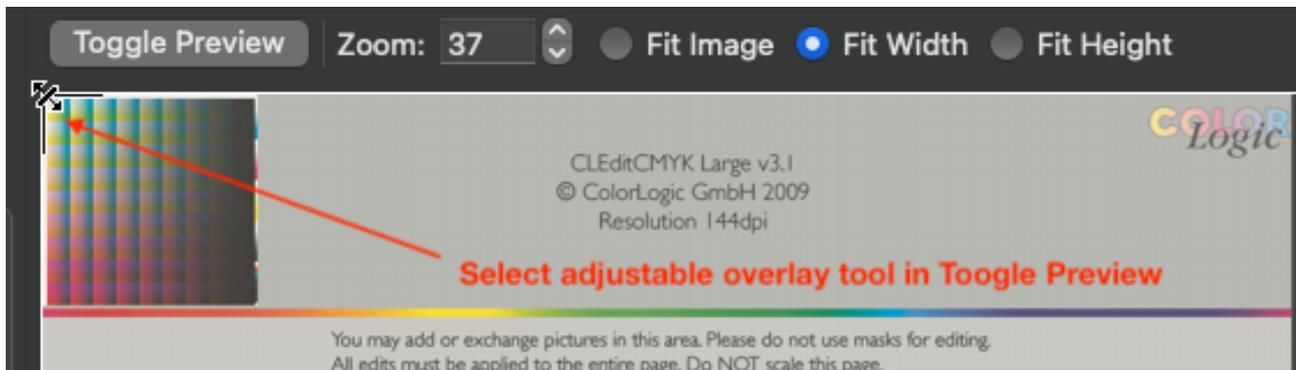
Toggle Preview: Source



Toggle Preview: Target

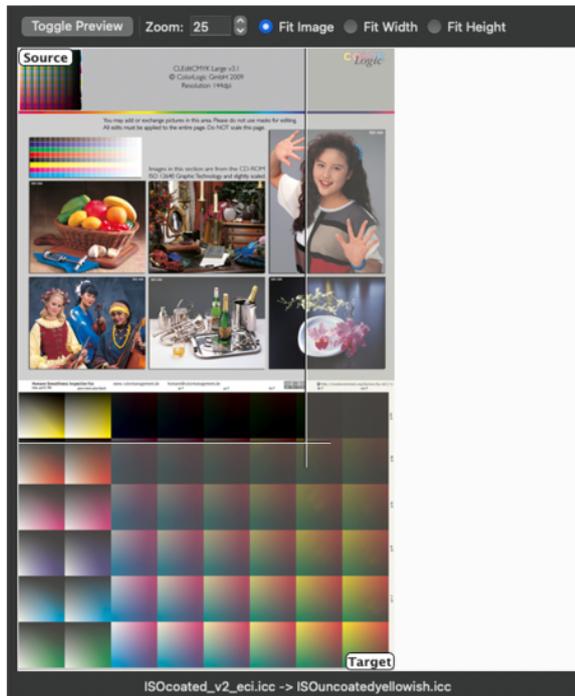
The **Toggle Preview** button switches the entire visible preview area so that either the image rendered with the **Source** profile, or the **Target** profile is shown.

To change the size of the comparison area, the adjustable overlay tool can be picked in the opposite corner of the selected preview, i.e. in the bottom right corner of the **Source** profile preview and in the top left corner of the **Target** profile preview.



## New image preview scaling options

New preview scaling options have been added to the **Image Conversion** preview area.



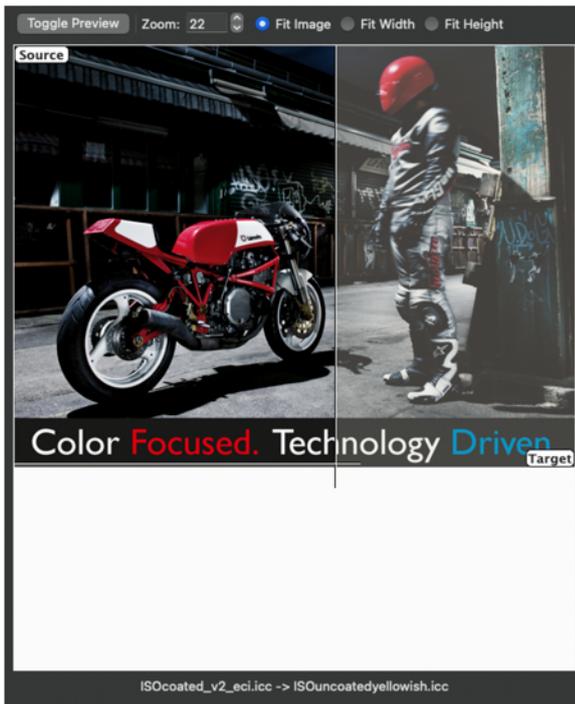
Zoom: Fit Image



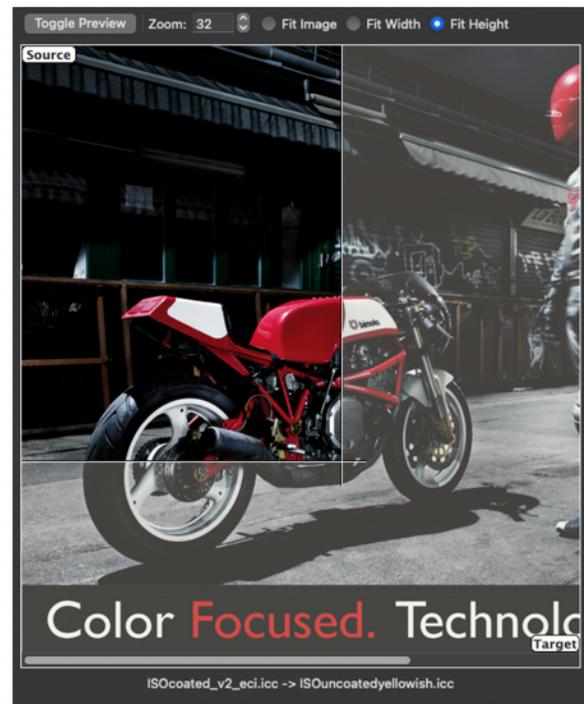
Zoom: Fit Width

The **Fit Image** option scales the image to the maximum size of the full image in height or width, depending on the image orientation.

**Fit Width** scales the image to the maximum width (recommended for images in portrait format).



Zoom: Fit Image



Zoom: Fit Height

**Fit Height** scales the image to the maximum height (recommended for images in landscape format).

**Important:** Please note that there is a preview bug when using **Image Conversion** with this beta version. Changing the profiles is not displayed directly in the preview, but only when the user interface is slightly resized. The converted file is still correct.

## Batch Overview

The optimized **Batch Overview** simplifies the further processing of profiling jobs

Index	Id	Info	File	Status	Progress	Error
> 0	DFFF7...B0A03	CMYKOGV_Default - Multicolor.icc		Job finished.	Ok	
> 5	5054B...B5C10	ISOnewspaper26v4_CMYKOGV_Default - Multicolor.icc		Job finished.	Ok	

The **Batch Overview** window has been completely revised. The icons present in CoPrA10 and older have been removed and all post-processing options have been moved to a context menu. This provides a clearer overview and a more efficient handling of subsequent tasks.

## Parent Job

Different processes within a profiling job have been combined under a single higher-level parent job with a unique **Index** number. The profile name is shown in the column **Info** of this parent job.

Index	Id	Info	File	Status	Progress
0	DFFF7...B0A03	CMYKOGV_Default - Multicolor.icc		Job finished.	Ok
3	D513F...8E0C9	ProfilePreview   RGB	CMYKOGV_Default - Multicolor_preview.icc	Preview profile saved.	Ok
2	64B43...48262	ProfileReport	CMYKOGV_Default - Multicolor_ProfileReport.pdf	Profile report saved.	Ok
1	E5ECB...B450A	Printer Profile   7CLR	CMYKOGV_Default - Multicolor.icc	Reveal profile.	Ok
4	0693F...1751B0	MulticolorVariants   CMYKX	6 Profiles	Multicolor profile variants saved.	Ok

For example, the printer profiles created, the profile reports, the preview profiles and the Multicolor variants are listed under the parent job. Additional information such as color space and profile types can also be found in the **Info** column.

### Additional Columns:

**Id** is only available on Macs and will be removed on release as it shows an internal number of the calculation. This column is not available on Windows systems.

The respective file names and the number of profile variants are displayed in the column **File**.

The **Status** shows the current processing progress of the job, i.e. whether it is currently being created or has already been completed.

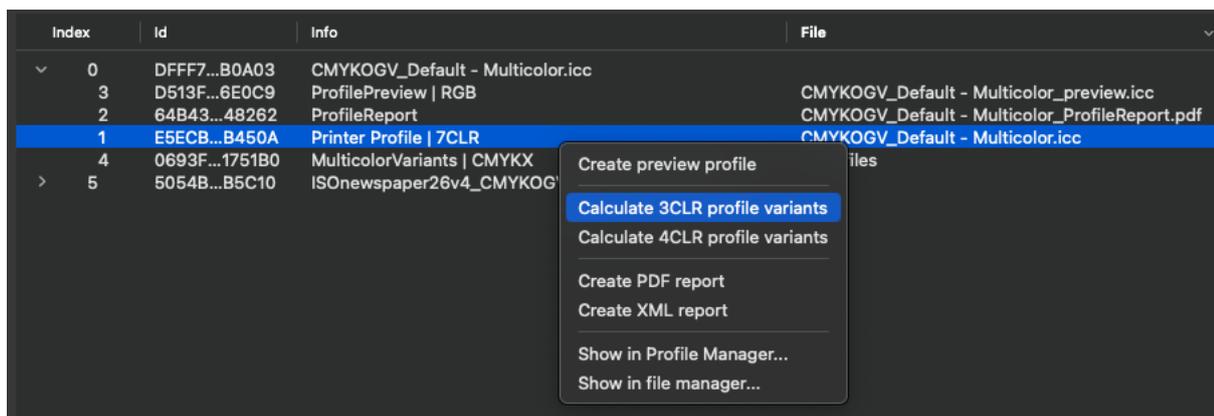
Index	Id	Info	File	Status	Progress
0	DFFF7...B0A03	CMYKOGV_Default - Multicolor.icc		Creating Multic...rofile variants...	92 %
3	D513F...8E0C9	ProfilePreview   RGB	CMYKOGV_Default - Multicolor_preview.icc	Preview profile saved.	Ok
2	64B43...48262	ProfileReport	CMYKOGV_Default - Multicolor_ProfileReport.pdf	Profile report saved.	Ok
1	E5ECB...B450A	Printer Profile   7CLR	CMYKOGV_Default - Multicolor.icc	Reveal profile.	Ok
4	0693F...1751B0	MulticolorVariants   CMYKX	6 Profiles	Multicolor profile variants saved.	Ok
9	F3ECA...A2A06	MulticolorVariants   4CLR	13 Profiles   8 done	Creating Multic...rofile variants...	64 %

**Progress** shows the progress of parent jobs and individual jobs as a percentage.

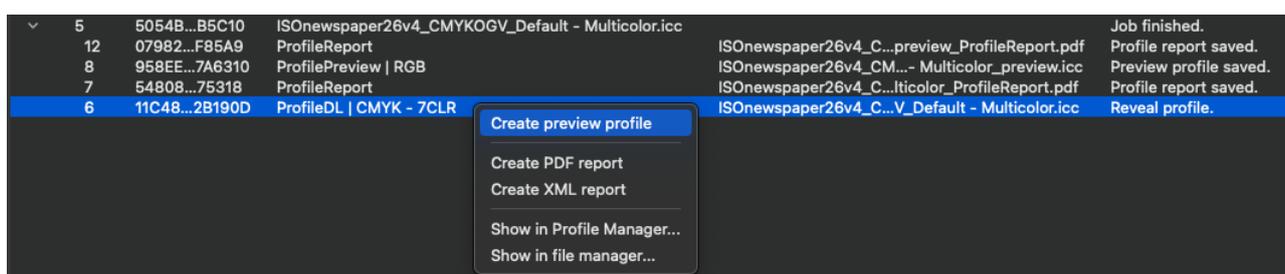
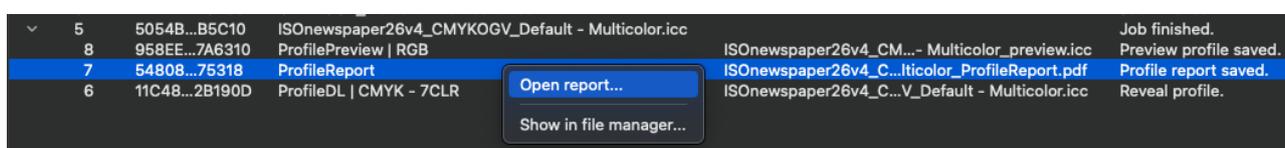
**Error** indicates jobs that could not be completed.

### Follow-up processing via Context Menu

Additional tasks can be assigned to each job within the parent job using the context menu. For example, additional variants can be calculated that were not yet calculated in the first step.



Depending on the type of the selected job, corresponding options are available in the context menu.



**Important:** Please note that the **Batch Overview** is still under development. Some terms within the columns are still being adapted and known errors are still being corrected.

## Improvements and Bug Fixes

- **General:** Revised naming of terms
- **Printer Profiling:** Improved **Black Channel** detection with **Auto Definition** (8315)
- **Printer Profiling:** Improved **Gamut** view and **Gamut Volume** calculation when enabling and disabling channels (8305)
- **DeviceLink Profiling:** Improved **Channel Definition** information in GUI (8287)
- **DeviceLink Profiling:** Fixed that a wrong **Channel Definition** order of the **Source Profile** was shown in the **Profile Report** (8263)

- **DeviceLink Profiling:** Fixed that wrong channel colors were used for the DeviceLink gray balance input graph in the **Profile Report** (8264)
- **Update Profiling:** Revised "**Default**" setting names across color spaces (8009)