V6 Profiler

Contents

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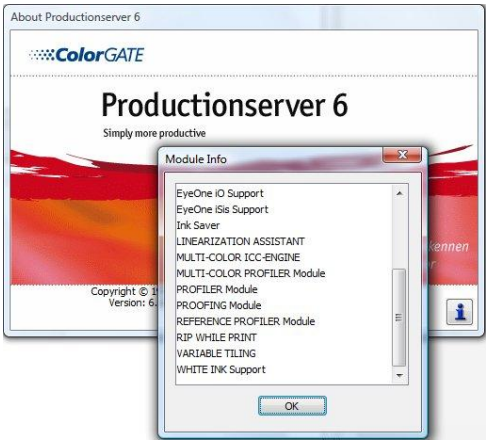
Committed to Color

Introduction

Thanks to its modular design, PS6 provides a seamless transition between production workflow and profile creation.
MIM Technology (Medium-Ink-Metamode) is available as the link, making it possible to adjust and exchange printing and color management settings.
The Profiler Module is assistant-supported, i.e. the application guides the user on the way to creating a complete profile, step by step.
We make every effort to make this process as simple and intuitive as possible, while still meeting the highest standards of special printing systems and satisfying the needs of experienced users at the same time.
As a result, the Profiler contains a wide range of advanced processing options, which will be explained in more detail in the following in this document.

Modules available

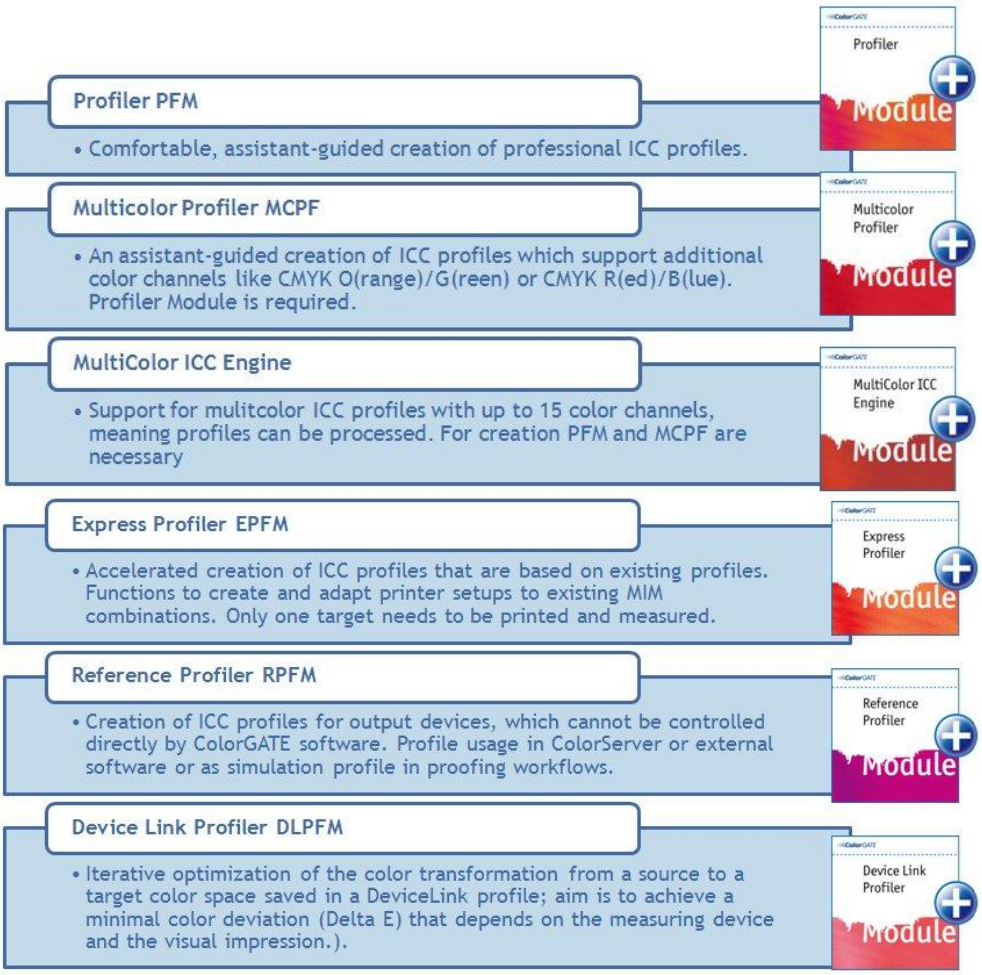


First of all, it is necessary to check the required prerequisites in terms of software.
This is where the module information comes into play, which shows you exactly whether or not all the program components are available and/or whether or not they have been correctly identified.
The ? menu indicates all the expansions available on the currently installed dongle/keycode.
They can include different profiler versions (see following page).
Other program parts are also required for different measuring devices, e.g. the support with the same name must appear in the module information for the devices listed:

- EyeOne iO
- EyeOne Isis
- Barbieri Spectro LFP
- Barbieri Spectro Swing

Profiler versions

Here is an overview of the profiler versions available:
Refer to the price list or the function overview at www.colorgate.com to find out which modules are already included in which CG software version.



How to create a profile

This overview is designed to show you which steps are necessary for creating profiles in which sequence.
The number of steps varies depending on the printing system or print mode used.
Since the individual steps are described in detail, this bar provides for additional clarity.

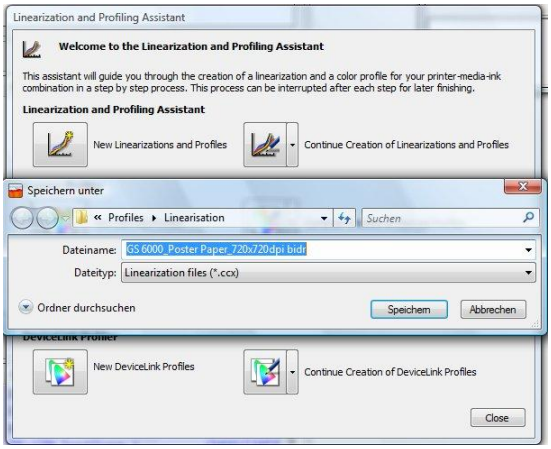
Settings	Define basic settings for the profile creation, like color mode, print resolution, measurement device
Linearization	comparison of input and printed output with regard to necessary limits per primary channel
Ink Limit	total ink limit (all channels)
Grey Balance	visual adjustment of the grey balance
Profile Target	print of several color patches as basis for the profile calculation
Profile Creation	Define the profile settings like separation conditions, input of black and gamut mapping options

Settings

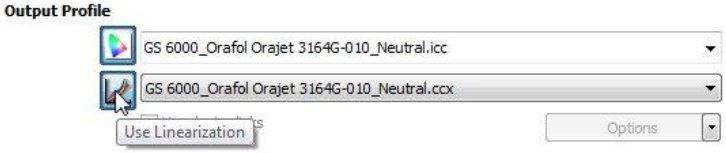
Different areas that are relevant to the profiling are defined exactly in the first step.
These points are explained in greater detail on the following pages.

- Creation of a ccx
- MIM creation
- Precalibration
- Selection of a measurement device
- Target template

When a new profile is created, you are first asked to name the ccx file. The ccx file is the linearization file that is filled with information during the next steps; it contains all the measuring data and settings.
It's a good idea to choose a name that provides you with some information on the profile so that you will be able to identify it later, if necessary, in the MIM combination.
For example: Printer_name_paper_type_print_mode



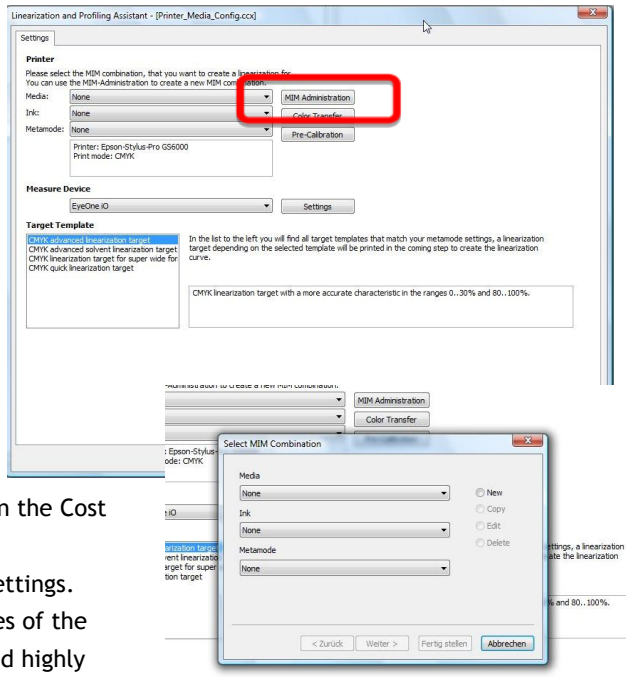
After it has been created, the ccx file is stored in the MIM combination with the profile. This means that it is active in the advanced color management settings and is taken into account for ripping and printing the data.



You can interrupt a linearization/profiling process at any time and continue with it again later. The last 10 ccx files edited are displayed in the right-hand selection button.

Settings — MIM creation

The ccx file you have just created is allocated to an MIM combination in the Settings tab. MIM Management is used to store the new combination; as an alternative, you can also make a copy of an existing MIM.
In addition to the ccx file and later the icc profile, the MIM combines all the settings relevant to the printer and the output.

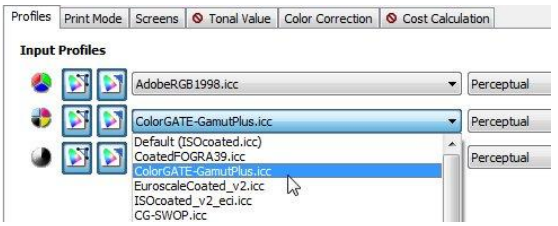


The workflow type is defined when at the MIM creation: (production, proof or color server). Thus, the MIM is only available for the hotfolders of the same workflow.

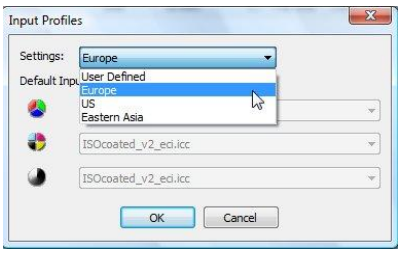
When the MIM is created, it is advisable to use the same names for the **medium** and **inks**.
This makes it easier to keep track of things and to set up the costs in the Cost Calculation Module (CCM) later, if necessary.
Before you indicate the **metamode**, you can choose the advanced settings.
Later, you can also create other metamodes, if necessary, - as copies of the original MIM – for different versions, e.g. a metamode for neutral and highly saturated output.

Settings — MIM creation: advanced color management settings: Profiles

The Profiles tab

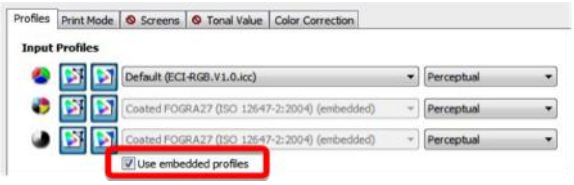


Indicating the **input profiles** is secondary when creating the profile, i.e. they are not used when the targets are printed.
The settings are now already made here for the later use of the MIM.
Selections can be entered for RGB, CMYK and gray-scale images; the two buttons activate the profiles for pixel/vector-based image data.

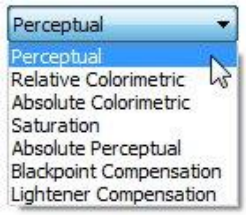


The input profiles can be freely defined as standard profiles (access under Options>Input Profiles).
They are indicated as the default (XXX.icc) in the MIM.

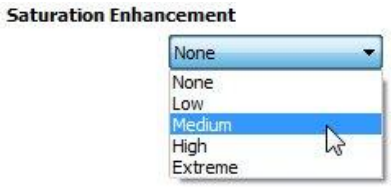
If a profile is embedded into the file, it will be analyzed and used as soon as the checkbox below the profile settings has been activated. The profile name is grayed out (in brackets behind: embedded)
This no longer happens for more than one embedded profile.



In addition to the standard rendering intents given by the ICC (International Color Consortium): perceptual (photographic), relative & absolutely color-metric, as well as saturation, there are also other options available for selection:
Absolutely perceptual
Black point compensation
Brightener compensation



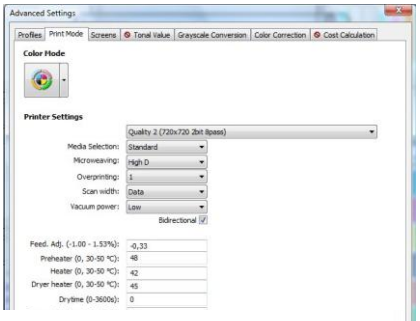
The saturation enhancement only works when the MIM is used later, not when printing from the assistant.
For example: create a MIM copy after completing the profiling for a later, application-related, more saturated output.



Settings | MIM creation: advanced color management settings: Print mode

The Print Mode tab

This tab is different for each driver, depending on which print modes the printer supports.
The targets, and later the orders, are then printed using these settings.
The profiling process depends largely on the settings made here. To show which steps are required in which combination of color mode and print mode, we have put together an overview as described in more detail in the following.



The color mode selected is indicated later in the window below the MIM (‘Settings’ tab).

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Color mode:

As a rule, we distinguish between two types of drivers: either the printer (or the module provided by the manufacturer) breaks down the print data to the print colors actually available in the printer or the RIP prepares the data accordingly.

RGB/CMYK Contone:

For many water-based printers, the first case applies: the drivers offer RGB and CMYK contone print modes.
The printer's own tables divide the RGB or CMYK output of the RIP into the available colors, e.g. Epson HTM/ Canon PB Module/ HP driver.
Such important parameters as the ink coverage are controlled by the selection of the matching paper type in the RIP (e.g. Premium Canvas Matt).
This makes it possible to very easily create profiles with a water-based 12-color printer, for example. In the case of RGB, only one profile target is required.

CMYK /CMYK-X:

Printers that are not equipped with this functionality are addressed directly.
The driver indicates the possible colors, e.g. CMYK or CMYKOG (orange and green).
If the printer also uses light colors, both options are usually possible: CMYK and e.g. CMYKLCLM.

The profiling assistant process applies as described for all print modes except for contone.

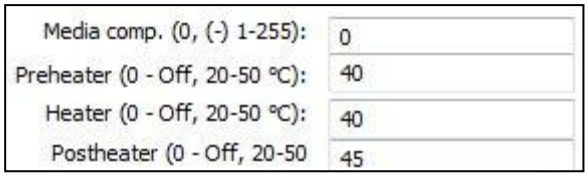
Print mode:

The print mode has an influence on the subsequently printed image.
As a rule, the higher the resolution and the more the passes, the more exact or finer the print image will be.

For some drivers, it is necessary to use certain combinations of both; others allow the user to choose freely.
The printed dot itself can also be influenced; some printers support variable droplet size (2bit) or have only one permanent setting (1bit).

Printer-specific settings, e.g. mechanical settings:

Mechanical parameters are also set, which as a rule have to be adjusted to the medium before the linearization and profiling process is started.
For example: Preheater, temperature of the drying units
Tips on this can be found in the manufacturer's information or printer manual; there might also be test prints using the printer firmware or you can test different settings directly from the RIP.

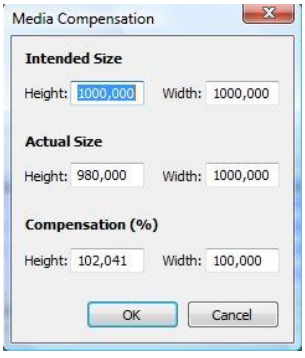


Optionally depending on the printing system: White/Varnish in layers

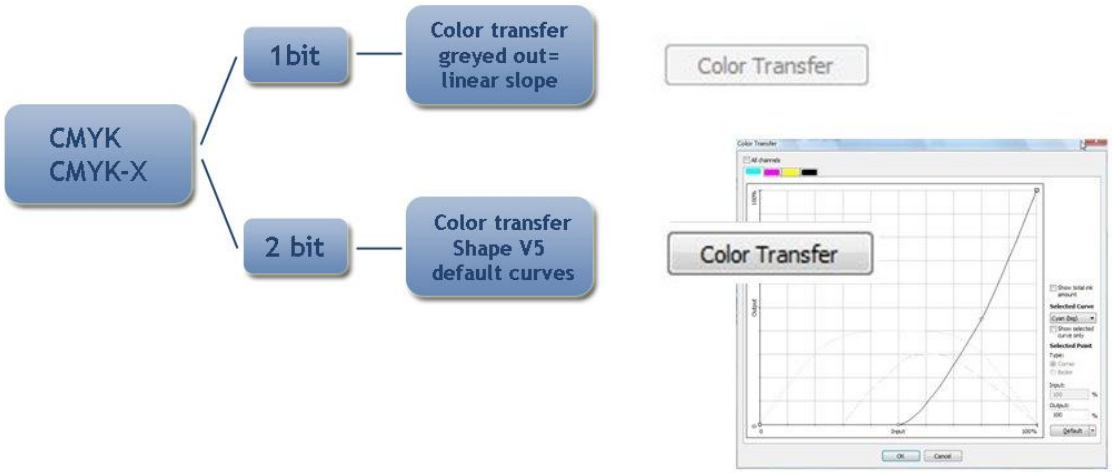
Media compensation:

If the printer exhibits a deviation in the horizontal or vertical direction, this can be balanced out.
For purposes of comparison, you print a target and determine a correction factor to eliminate the error on the basis of the actual size.
Test target at C: Programs>ColorGATE Software> Productionserver 6> Targets

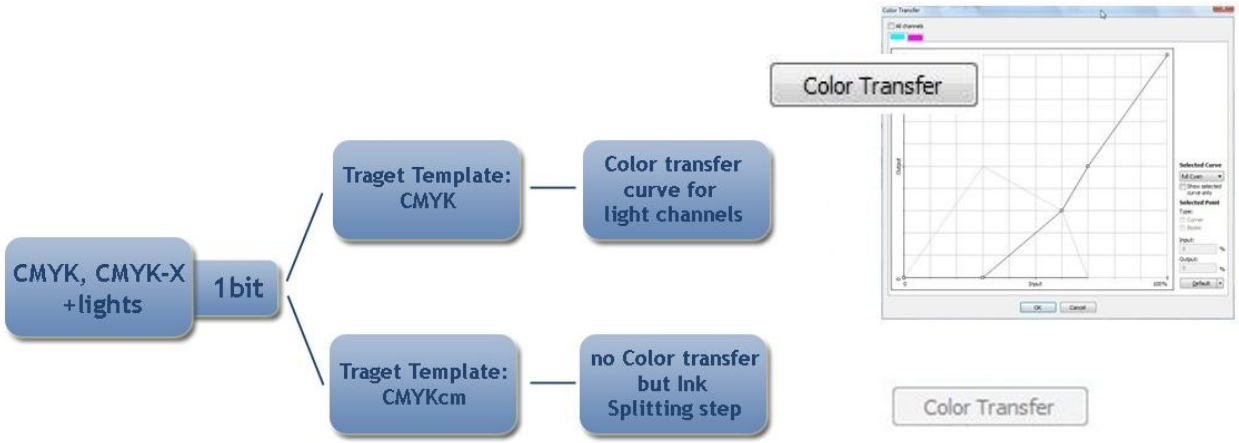
The printer's hardware calibrations should be properly executed before this is done.



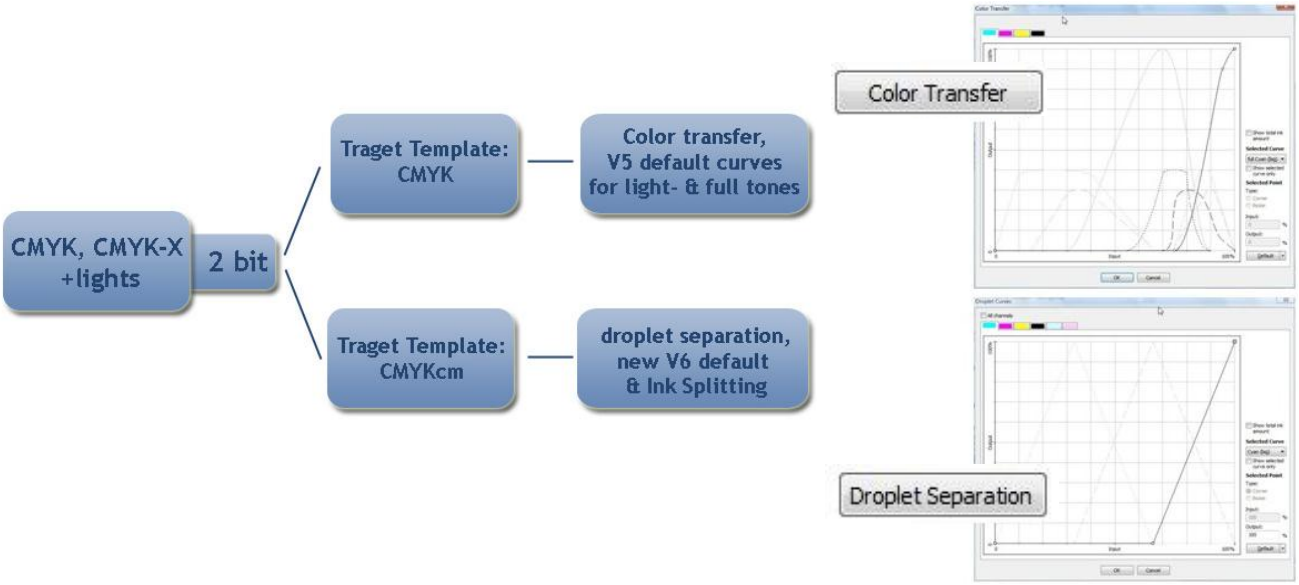
Overview: Connections between print mode/color mode:
Print modes without light colors:



Print modes with light colors, 1 bit:



Print modes with light colors, 2 bit:



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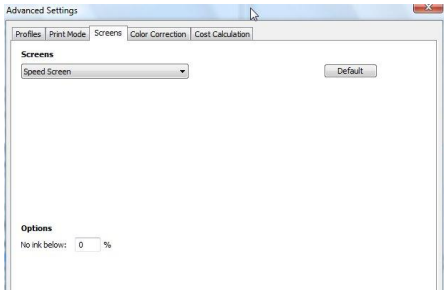
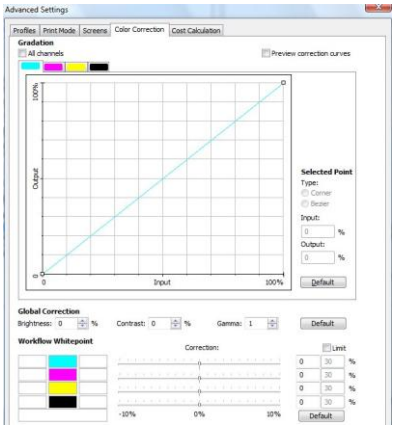
The Screens tab



CG's own Speed Screen is a frequency-modulated raster and is the default setting in the production/proof workflow, whereby the distances between same-sized raster dots vary to achieve different color densities. As an option, older raster processes can also be made visible (Options>Program settings).

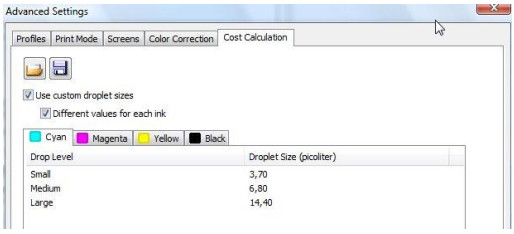
Individual, visible color droplets can also be optionally excluded by setting the ink laydown to a value greater than x%. This affects low-resolution printers in particular. The droplets are visible, but are perceived as more of an impurity.

Optional: Color correction tab



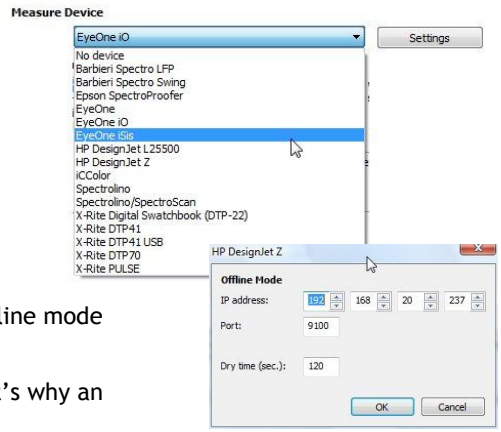
Color correction affects the following areas:
Gradation
Brightness
Contrast
Gamma

White point correction is also available for CMYK mode.
These settings are already taken into consideration during profiling.



For the optionally available Cost Calculation Module (CCM), the droplet sizes are also stored or can be edited here.

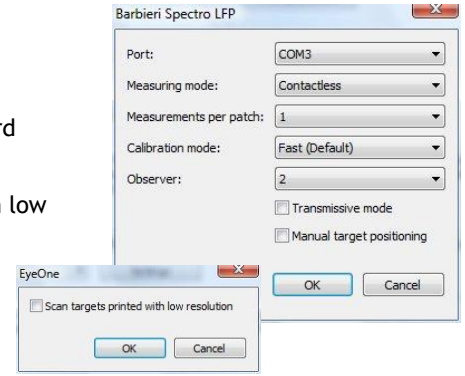
Settings and/or control for measurement devices



The selection of the measurement device depends on the selection of targets available, which are based on the requirements for the read-in, e.g. size of the measuring patches, registration marks on the target.

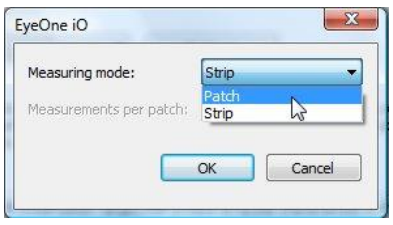
Special features:
For some of the integrated measure devices (Epson Sprectroproofer/HP Z series), it is possible to automatically read-in the target after printing or in offline mode (manual positioning, target is measured later).
Special features for the HP L25500: the targets are centered when output; that's why an exact indication of the media size is important in the first hotfolder.

Special settings for measurement devices:



Each measurement device has different setting options,
e.g.:

- Barbieri: ComPort must be the same as shown in the control panel (standard COM3, selection of observer angle, transmissive mode)
- EyeOne: Low-resolution mode, this can be used to also read in targets with low resolution
- EyeOne IO: the automatic measuring arm supports strip or patch measurements
- X-Rite Isis: Isis is the only measuring instrument to offer an optional UV cut filter
- Internal Spectros: (Epson/HP-Z): This is where the IP address for measuring in offline mode is set as well as the dry time



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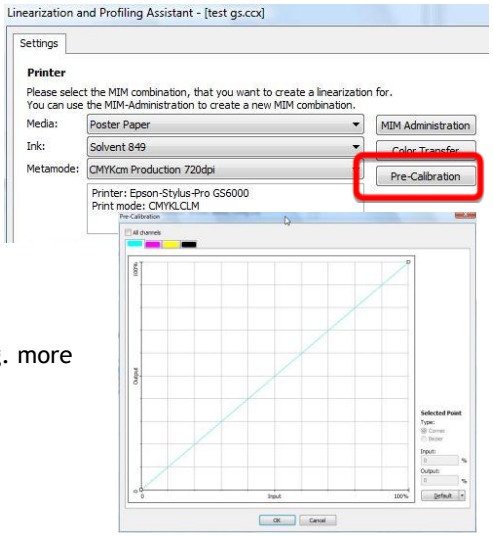
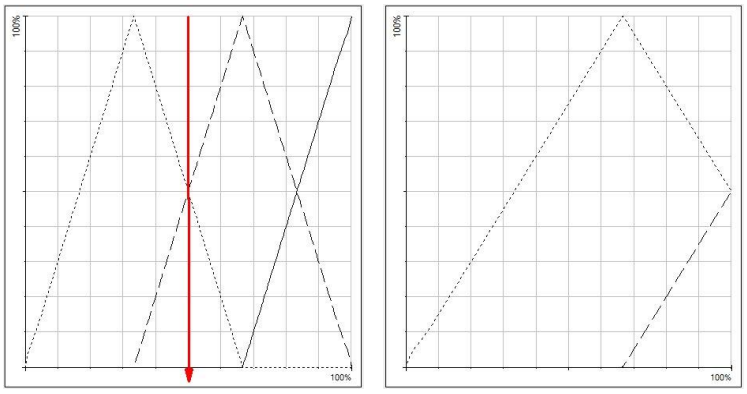
Precalibration:



The precalibration regulates the individual channels down prior to linearization to the % value set.
This setting normally remains untouched until the first target is printed.
Adjustments make sense when, for example,
- the ink does not dry completely in places after the first linearization target is printed or already runs
- or the necessary limitation for the linearization is more than 20-30%.
In this case, you should test to see if another printing mode could be used (e.g. more passes).

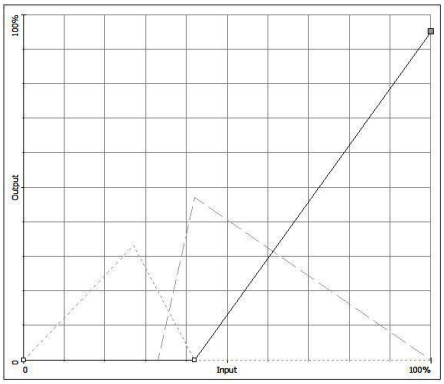
Effect on the distribution of droplets:



The example shows the effect of the basic calibration on the distribution of the droplets after a reduction of 50 %:

(Note: the distribution is not updated under the button for ‘droplet separation’; that’s why the information is presented as a symbolic diagram.)

The reduction cuts the original cap curves in the vertical direction and expands the remaining part of the curve accordingly to a 100 % area, i.e. with a reduction of 50%, for the most part, small droplets are used, a number of medium-sized are added, but there are no large drops used anymore.



To specifically alter the droplet distribution and e.g. prevent the use of large droplets, it is possible to adjust the curves as follows:
In doing so, the small and medium-sized droplets were also weighted less. This distribution is based on the recommendation for Roland solvent printers.

The ‘color transfer’ button can change into ‘droplet separation’. This depends on the color mode used in combination with the target selected.
The overview on the previous pages provides a detailed overview.
Droplet separation describes a new distribution of the inks in V6 for variable droplets (small-medium-large-sized droplets), when a color mode with light colors has been selected. In this case, the light and full colors are linearized separately in the first step and then mixed together in a separate step (ink splitting).
This gives the user more options for controlling the use of the inks.

If a color mode using light colors is selected, the corresponding target with the additional colors will be selected automatically.

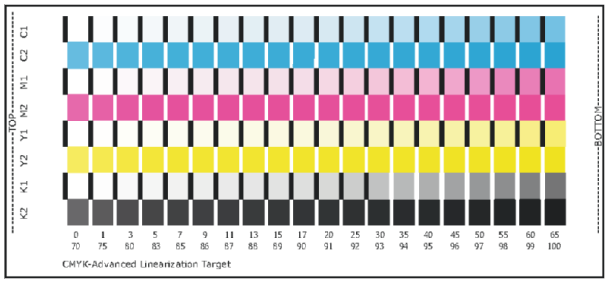
For some measuring devices or uses, there are different target templates available:

- *Advanced*: largest number of measuring fields (40 per channel), particularly detailed between 0 and 30% as well as between 80 and 100%
- *Advanced solvent*: same number as ‘advanced’, additional markings between the fields
- Quick: quick measuring in 5% stages
- Super-Wide Format: linearization in 10 % stages per color channel to rule out inaccuracies in these devices

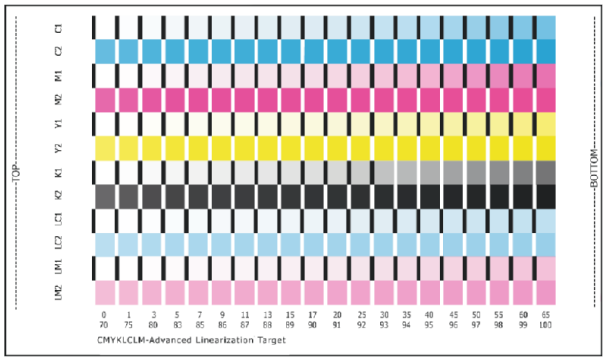
Linearization:

Here are the two processes:
1) Linearization in the pure CMYK mode (or CMYK multicolor)
2) Linearization of the individual channels for CMYK with light colors

pure CMYK or CMYK-X (+multicolor) mode



CMYK (+multicolor) plus light channels

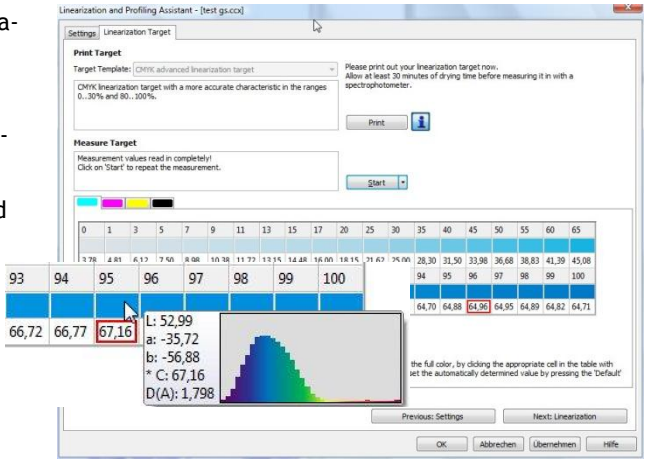


Linearization — pure CMYK or CMYK-X (+multicolor) mode

A linearization is created in the first step of the profiling, i.e. a planned vs. actual comparison of different shades of the primary colors (pure CMYK – perhaps plus multicolor).
For modes with light colors, these are linearized additionally (see further steps in the following section).
The further steps that follow the linearization are identical in both cases: ink limit, profile target and profile creation.

The linearization target is printed first.

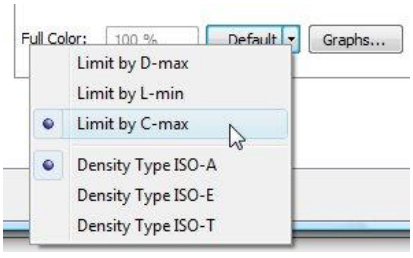
After the measured values are read in, detailed information is available for the evaluation.



If you move the mouse over the values shown, you will see the spectral process as well as the lab, chroma and density values.
The assistant recommends the value of the highest chromas (framed in red) as the full color.

It is based on the requirements to limit chroma for all CMY colors and luminance (brightness) for K.
In the 'Standard' dialog, the requirement can be altered for the limitation according to density (instead of according to chroma/luminance). This was the default option up until V5.

Note:
ISO status A density is shown by default. It can be altered to status E or T via the selection dialog.



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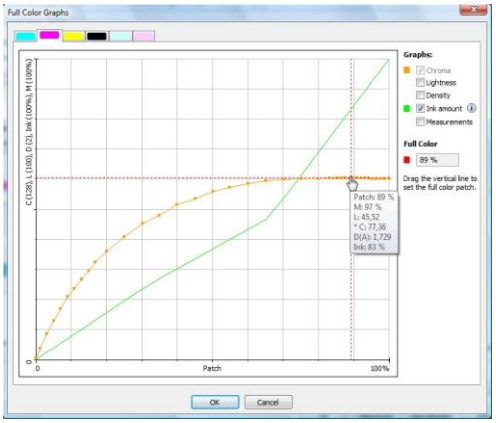
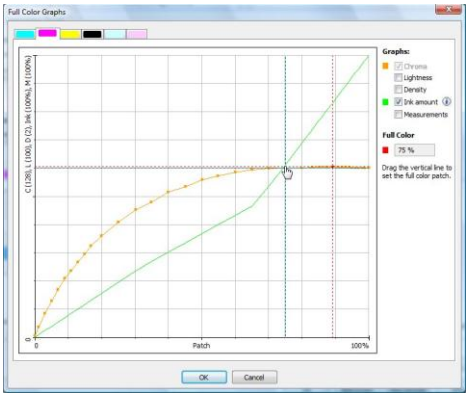


The new graphics introduced in Version 6 are designed to help you in the choice of the correct full tone. The measured values are shown clearly for chroma/luminance and optionally for the density.
The red cross-hairs indicate the recommended value. If you hold the mouse over the measuring points, the detailed results will appear.
As a rule, the chroma curve increases steadily (luminance curve falls) to a threshold starting from which the values fluctuate or go down again slightly. Ideally, it is limited at the point at which the maximum chroma (minimum luminance) value is reached for the first time. This guarantees that the maximum color space is reached with minimum ink coverage.

Nevertheless, the visual impression of the target can require a different choice of the limit, e.g.:

- if artifacts already become visible in the target due to high ink coverage (e.g. fish eyes, color blurs, fields do not dry completely, etc.), the limit should be lower
- the density values increase significantly even when the chroma value stays the same and the medium can absorb a high ink coverage, the limit can be set higher to take advantage of the visual effect

If the limitation already (has to) be more that approx. 20-30%, it is advisable to go back a step in the assistant and to print the target again using the **precalibration** (in the corresponding % limitation).
Also see notes on the effect of the precalibration.

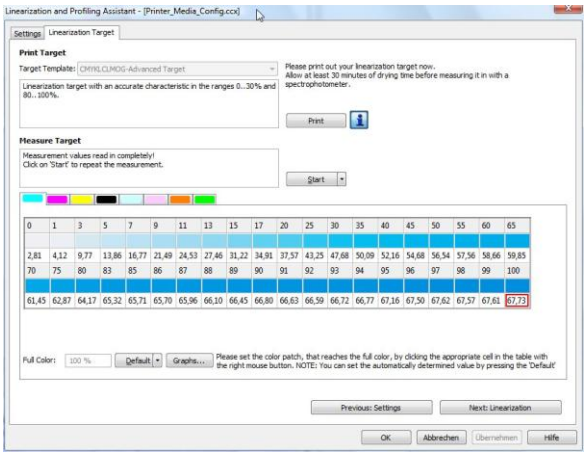


For profiling without light colors, the documentation continues with the Total Ink Limit (page 24).

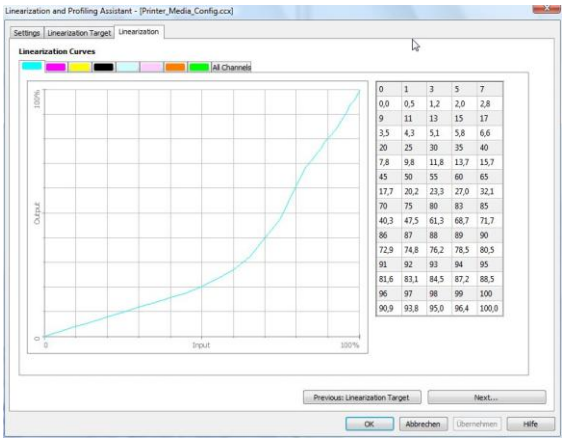
Linearization — CMYK (+multicolor) plus light channels

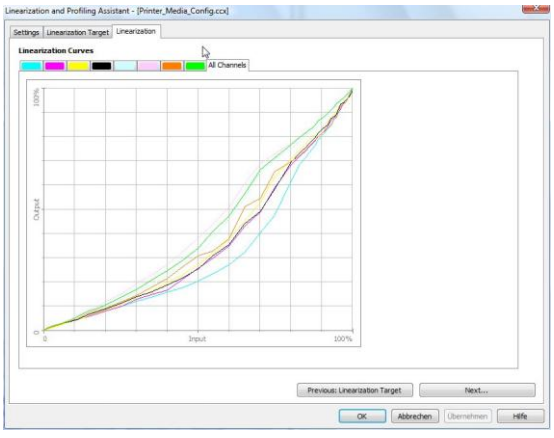
All the channels are linearized separately for print modes that also use light colors. Examples include CMYKLCLM, CMYKOVLCLM, etc.
This is the case when the corresponding target was also selected with light colors in addition to the print mode.

The assistant adds the corresponding tabs to the screen for the measured values for all the additional color channels. The limitation of the full colors is done with the help of the graphic according to the notes similar to the pure CMYK linearization (see previous section).
Limiting the light channels at this point is not absolutely necessary because that is done in the following step for ink splitting.

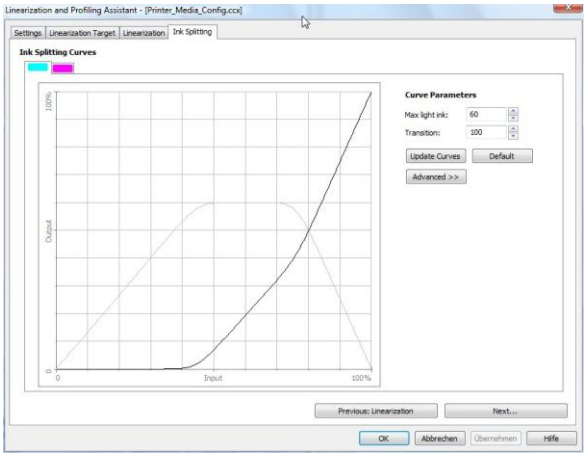


The results are presented in the form of a diagram indicating planned and actual status.
The individual channels and measured values can be compared once again in the table.



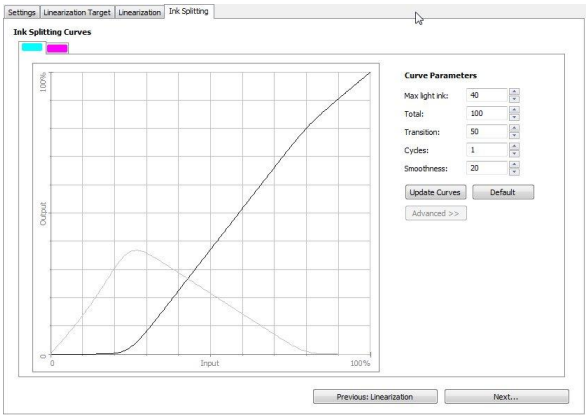


The section on Ink Splitting defines the transition from full and light colors.
In the basic setting, the light colors are used up to 60 % for a maximum range for light and full colors (transition =100), i.e. light and full shades are mixed over the complete bandwidth of 0-100%.
As a rule, the more light colors that are used, the finer the printed image will be.



Based on the example of the HP L25500, a somewhat altered curve proves to be better:

- Light colors already show their saturation in the linearization for the standard print modes (low ink) in the field of 35%, i.e. no increase in chroma or density
- In addition, the strong use of light ink in the dark image areas is undesirable (can lead to coalescence)
- That's why this example works with 40% lights and a transition reduced by 50%



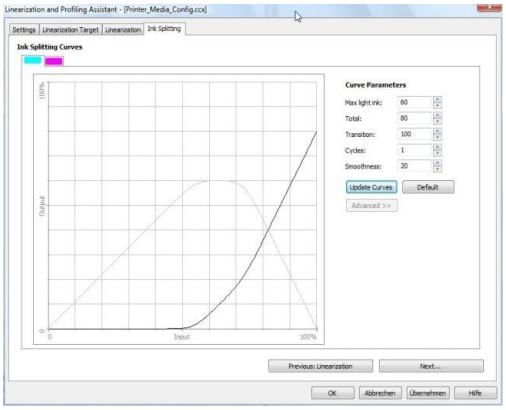
Recommendations for different printing systems (can vary in individual cases):

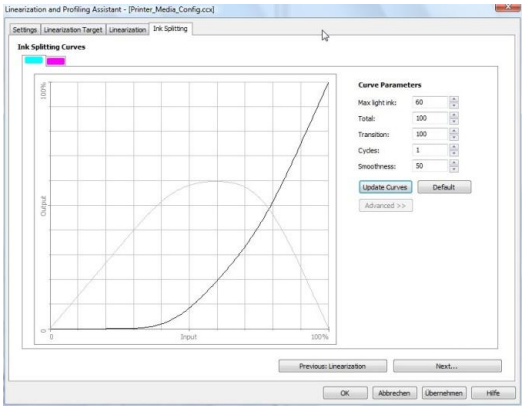
- Super wide format: Max Lights at 80%, 'Total': 150% (advanced settings, see ff.): smoother output
- Roland solvent printers: Max Lights 60%
- HP Latex (low ink print mode): Max Lights 40%, Transition: 50
- Epson GS 6000: 35-40% Max Lights

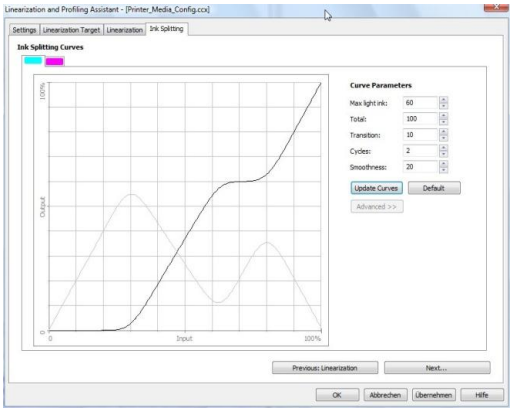
For special applications or test series, there are **Advanced settings** for ink splitting:

- *Total*: an overall limitation of the input values to less than 100% is possible; with a value of more than 100% it is possible to prevent the light curve from falling in darker areas, i.e. they can be used as 'filler'
- *Smoothness*: this can be used to increase the smoothness of the curve, whereby the individual measured values become more inexact
- *Cycles*: describes the number of possible zero points in the curve, i.e. whether a curve rises again after the first fall

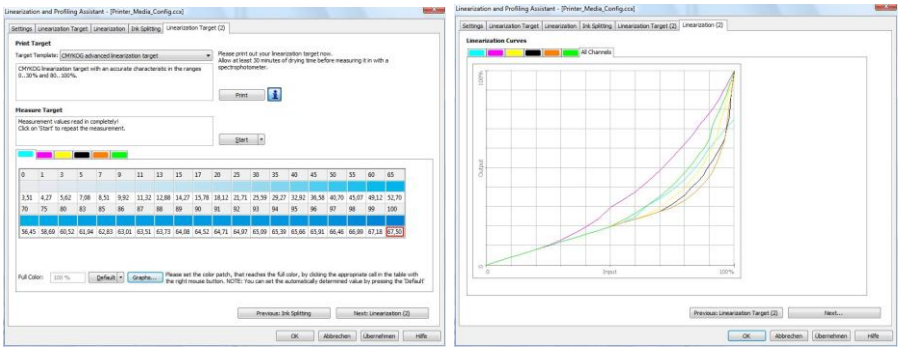
These settings are for experienced users and do not need to be changed as a rule.







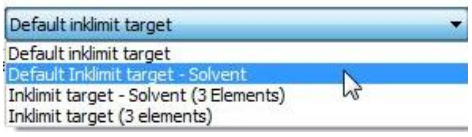
2. Linearization:

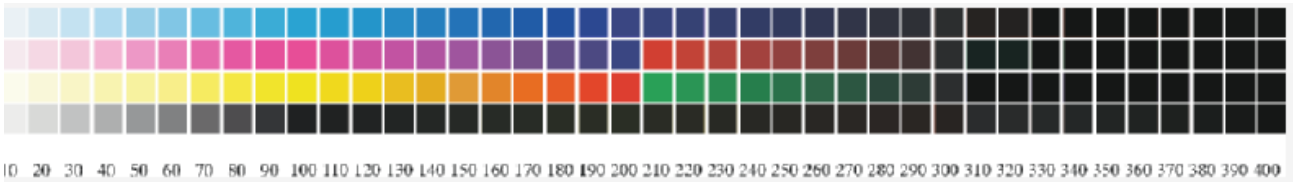


To complete this step, the linearization is now printed a second time using the Ink Splitting parameters.
In addition, the full color limits can also be corrected at this point.

Total Ink Limit

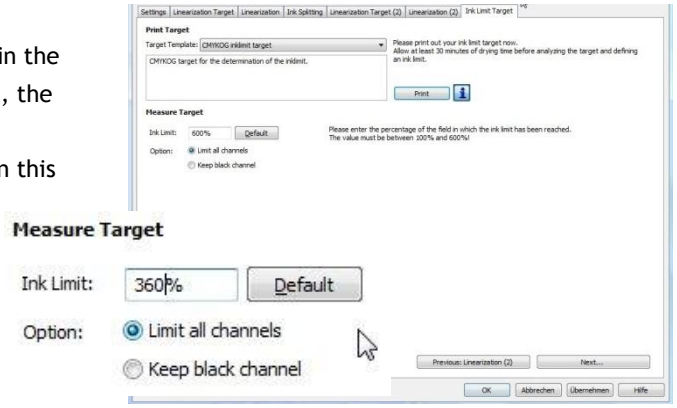
In the next section, it is necessary to determine the ink limit, i.e. how high the ink coverage can be for all channels at the same time.
To do this, it is necessary to print a target and check it visually. The value entered is then used to create the profile target.





Weighting:

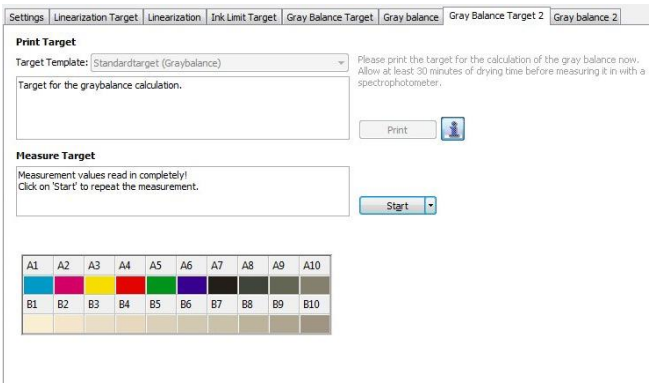
As an option, the limitation can be applied to all four channels in the same amount or used only for the CMY portions. In the last case, the black channel is kept.
A very high limitation (under 250%) leads to a loss of contrast. In this case, it is possible to reduce to full colors of the individual channels in the previous linearization or to create a new linearization with a reduced precalibration.
Other notes:



- UV-hardened ink: in this case, the ink limit entered has an effect on the color overlay
- There is no adjustment necessary for water-based ink (printer halftoning, CMYK mode) as a rule, because the maximum ink coverage is already influenced by the selection of the paper type

Grey Balance:

Gray Balance is an instrument used for visual adjustment for which the linearization curve is adjusted to a neutral output iteratively. This is available in the CMYK mode only.



The adjustment is aimed at equally proportioned CMY channels. Thanks to different improvements in the profiling process (e.g. 16-bit linearization, as well as the additional linearization since V6 of existing light colors and transition with the full colors), a neutral grey balance is already achieved in most cases with the linearization.

As a result, this step is optional and as a rule no longer necessary. It can be skipped and the profiling concluded with the profile target; however, the assistant also remains downwards compatible for older MIMs.

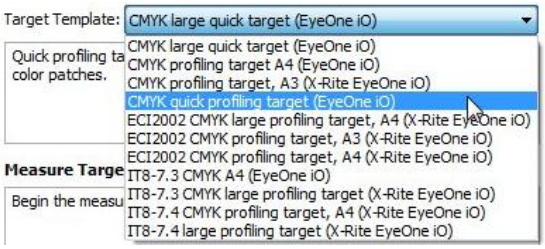
In the following examples, however, it is advisable to run a grey balance calculation:

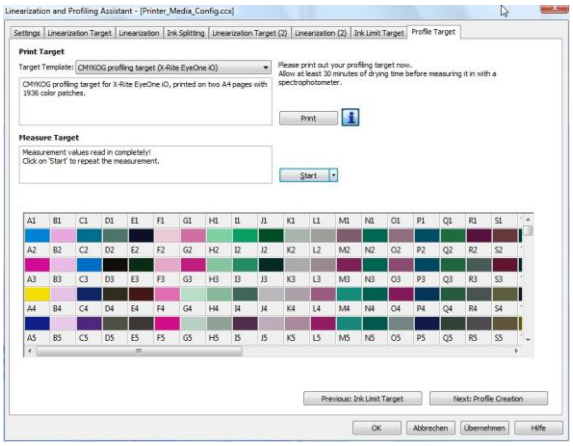
- You want to print without an ICC profile
- The black ink has a color cast (pure, without CMY portions; compare Linearization)

Profile Target:

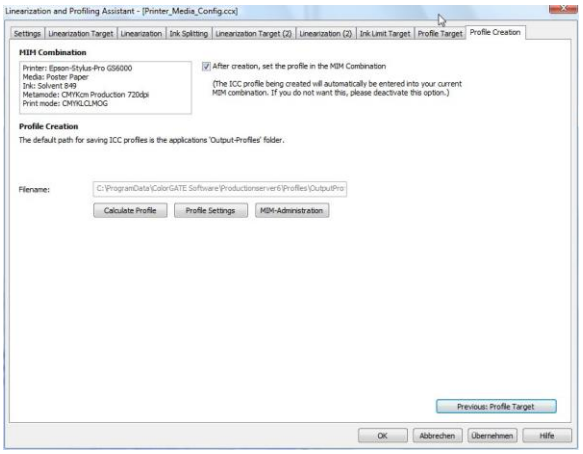
Depending on the measurement device, different templates are also available for the profile target:
They are used to measure differently composed color patches as a basis (sampling points) for the profile calibration.

- Large: here the individual color patches are larger, (e.g. 10 instead of 6mm for EyeOne), this makes it easier to position the measuring head, for example
- Quick: these targets offer a lower number of measuring field, to accelerate the measuring process
- Other different standards are also implemented, e.g. ECT 2002 or IT 8





Profile Creation:
The Profile Creation is the last step in the profiling process.
The measured values are now shown in a 3D table and saved as an ICC profile.

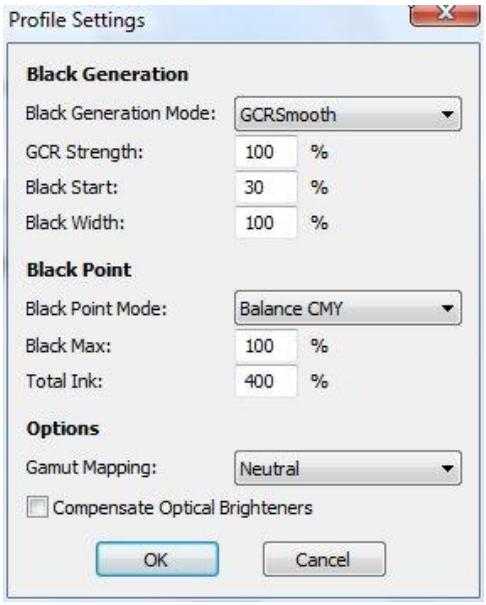


After that, the profile is stored in the MIM combination and is taken into consideration when the MIM is used.

The file path leads to the software application data:
Win XP:
C:\Documents and Settings\All Users\Application Data\ColorGATE Software\Productionserver6\Profiles\OutputProfiles
Win Vista/Win 7:
C:\ProgramData\ColorGATE Software\Productionserver6\Profiles\OutputProfiles

The profile output can be influenced with different settings:

Black Generation Mode:
The GCR or UCR mode generally dictates to what extent CMY proportions are reduced and replaced by K in the separation.
As a standard, we use a GCRsmooth, which allows a strong weighting of K to achieve a grey balance as stable as possible and to keep the ink coverage low. In this context, Smooth stands for harmonious transitions.



GCR Strength:
This is where it is possible to infinitely regulate how strong the GCR option is. Available for the GCR and the GCRsmooth modes.
Note: GCR(Smooth) and GCR strength 100% correspond to the previously used GCRMax (GCRMaxSmooth) standard, which is also still available.

Black Start:
This is where the % value for the black process color start can be set. Normally, it is not set at 0% to avoid a 'peppering' effect, i.e. that light parts of the image are not influenced with colored dots.

Black Width:
Black width indicates how strong the black process color replaces colors in the strongly saturated image areas.
A low value only allows the replacement of CMY combinations close to grey axis (the same and/or similar proportion of CMY), while a high value also allows the replacement of colors with stronger saturation.

Black Point Mode:
This option controls the calculation of the black point. The following weighting options are available:

- Automatic: Leaves the black channel untouched and optimizes (reduces + balances out) CMY for a neutral black point. This is the default setting for CMYK profiles.
- Neutral CMY: Leaves the black channel untouched and balances CMY for a neutral black point. This is the default setting for MultiColor-Profile (e.g. CMYKOG).
- Manual: Leaves all channels untouched. The black point can be set manually with this setting.
  Note: The values given for “Black Max” and “Total Ink Coverage” are used as the perceptive black point. Example: “Black Max”=100%, “Total Ink Coverage” =400% -> CMY=400% - 100% = 300% means 100% per channel CMY.

Black Max:
The limitation determines the highest input value for the black channel.
Ideally, this value is between 95 and 100% to achieve as high as possible a contrast over all image areas.

Total Ink Coverage:
This value describes the uppermost limit for the mixture of the black value, whereby the Black Max value is taken into consideration. However, the total value can fall short of this depending on the Black Point Mode selected.

Gamut Mapping:
- Neutral output of the profile creation (standard)
- Color Boost describes the highly saturated output. This emphasizes the highly saturated colors, but neutral shade, such as skin tones, are kept largely the same.

Compensating for optical brighteners:
If you find out during the linearization process that optical brighteners are in the measured medium, then you can checkmark this option to compensate for the optical brighteners in the profile creation. Optical brighteners are used to achieve a higher white on paper. It is possible to see this when comparing a 0% patch to the overhang in the blue area of the spectral distribution.

Different **profile variations** can also be created for testing purposes,
when the settings are altered and the calculation is restarted

- Here it is important to note: the profile will be overwritten for each new calculation because CCX and ICC are given the same names. A warning message is issued before this happens.
- If you want to save the different versions, you can do so as follows:

1) Copy the profile in the subdirectory of the application files (directory see previous section)
2) Make sure that there are three files with the same name (.icc, sicc, ricc), all three have to be copied and immediately renamed
3) Create the new profile with the altered settings (the files then have the original names in the CCX)
4) Under Options> Profile Management> Update list: the copied/renamed profile now appears in the list
5) Then make a copy of the MIM in the MIM administration and rename the new metamode
6) The altered output profile can now be allocated to the new MIM combination and the original CCX can be used with the altered profile, the profile copied in step 1) needs to be allocated to the original MIM

Glossary

Coalescence:
This artifact shows up if the ink is printed too quickly on the media that can't fully absorb it. Small drops remain on the surface, which don't penetrate into the substrate.

Color Server Workflow:
The task of this workflow type is to perform color transformations on file basis. It allows converting colors of all file types without directly driving a printer. The output driver writes bitmap or PDF files. Main advantage is to create device link profiles on the fly with lots of different functionalities for output aims like: keeping the separation, lower ink consumption, usage of black and keeping colors pure like primaries, secondaries and triplex colors.

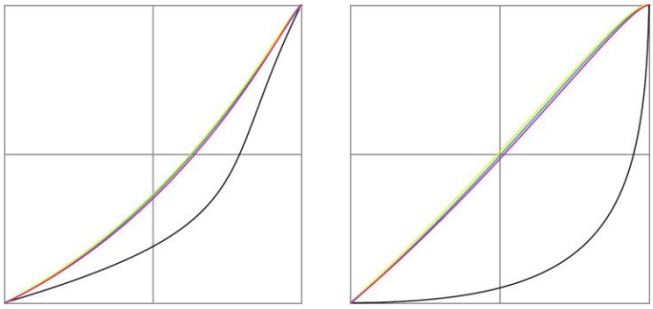
Contone /PB/ HTM/ module:
These three claims describe different halftoning modules of several printer manufacturers which are included on a software basis. Depending on the printer type, the module will be installed parallel to the RIP application (Epson HTM or Canon PB) or with the printer firmware directly in the device (HP Contone).
A halftoning module is responsible for the transformation of input data to the printable data, meaning RGB or CMYK will be split into all colors available in the printer. Color separations, screening and calculation of dot sizes are its task and stored for several paper types. As there is no linearization necessary, profiling in RGB mode is very easy and saves time.

Density, status:
According to ISO 5-3 weighting factors for spectral data
Status A: transmissive film
Status E: Graphic arts, usage Europe
Status T: Graphic Arts, usage USA
(Status M: color negative film)

DeviceLink profile:
Without DeviceLinks, the transformation of the simulation color space (CMYK) into the output color space (CMYK) took place via the Lab color space. As these color spaces have different structures, a complete re-separation process is carried out. This results in undesirable effects if, for example, a color value achieved using specific percentages (black) is

structured differently in the target profile. Using a DeviceLink profile, the black generation and other specific color combinations can be obtained.

GCR/UCR:
Methods to separate color in CMYK process colors, diagram



Left side: GCR (Gray Component Replacement): large amounts CMY will be replaced by K
Right: UCR (Under Color Removal): higher weighting on CMY for color composition

Lab, LCH:
Describes the color space "CIELab". The vertical coordinate L determines the brightness of a color, and the two horizontal coordinates a and b determine the color value and the saturation on a red/green or a blue/yellow axis. It's used for color measurements through the production range of print, proof and color management.
LCH is a description of Lab in cylindrical coordinates, while C means 'chroma' as a measure for the distance to the whitepoint (saturation) and H means hue for the color angle.

Media-Ink-Metamode (MIM):
Media-Ink-Metamode. The MIM refers to a combination that contains information on the printer, the paper used, the ink and the metamode. It is available as a CMP file on the installation DVD or on the website and can be imported into the RIP software. When it is imported, the profile and linearization files contained in it are stored in the software folder.

Proof Workflow:
Proofing refers to the binding color reproduction or an advance simulation of exact color printer results from other printing systems (offset printing machine). A media or printer is only appropriate if its color space can completely include the color space of the printer being simulated.

Raster FM:
Frequency-modulated screening: The screening works with very small dots of the same size in varying numbers of dots per unit area. Shadow areas of the image contain more

dots while key tones have fewer. The screening isn't susceptible on moiré artifacts.

Rendering Intents:
Rendering intents (RI) are methods for converting the individual colors of an image from one color space to another. Four different rendering intents have been specified by the ICC (International Color Consortium):

Perceptual (photographic):
The image impression is retained thanks to an even compression of all color values of the largest source color space in the smaller target color space. It is a good idea for the smaller target color space to be fully included in the larger source color space. Used in the conversion of RGB to CMYK (e.g. RGB-Scan to CMYK).

Relative colorimetric:
The color values for the source color space included in the smaller target color space are retained 1 : 1, the color values of the larger source color space not included in the target color space are cut out. There is no paper simulation; the white dot is not taken into account. This RI is used when converting CMYK 1 to CMYK 2, from smaller source color space to larger target color space or with digital proof on print run paper.

Absolute colorimetric:
The same as the "Relative Colorimetric" Rendering Intent, but with simulation of the white dot (paper simulation). Used with digital proofs on special paper (not the same as print run paper) or displaying the print simulation on the screen.

Saturation:
It has no significance for the reproduction and printing. Colors of the source color space are reproduced with as high a saturation as possible in the target color space. Used for business graphics and presentations.

Absolute perceptual:
A photographic color transformation is carried out in this process while retaining a simulated white dot. This Rendering Intent uses the dynamics of the printer color space in full, but in addition simulates the white dot of the input profile. This is a particularly useful option with a simulation of a printer color space without proof requirements. For example, if you want to reproduce a mini-lab printout including paper simulation on an inkjet printer. Please note that this RI, depending on the profiles used, can result in undesirable results. You should not use this with the standard RGB working color spaces such as ECI-RGB, AdobeRGB or sRGB.

Blackpoint compensation:
This method corresponds to the "Relative Colorimetric + depth compensation" Rendering Intent recognized by ™Photoshop. This rendering intent is popular with photographers in particular, but also print service providers, who use it to preserve RGB image data containing bright, highly saturated colors in the print output. If your image output using the "Photographic RI" does not achieve printouts with adequate brightness, use this RI instead. Another advantage of the "Black Compensation RI" is that it brings the print output closer together when using profiles from different manufacturers.

Lightener compensation:
This RI is important for the proofing workflow. The condition for using this RI, however, is that you have not already compensated for optical brighteners in the profile creation. A recommendation is to switch off the compensation of the optical brightener in the profile creation and instead in the proofing workflow - if there are optical brighteners in the paper - the RI "Lightener Compensation" is used instead of the "Absolute Colorimetric" RI.

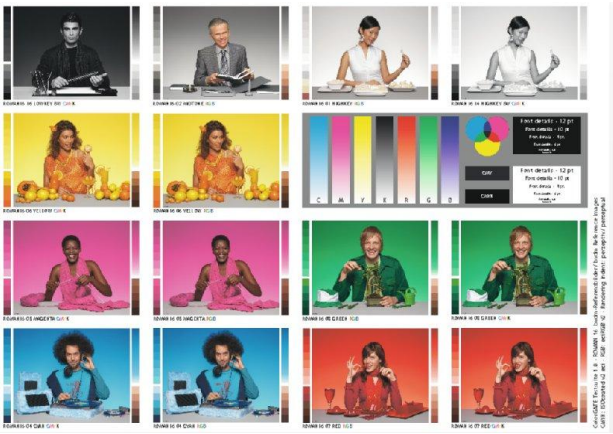
Optical brighteners:
This refers to substances (crystals) that are mixed into the coating and that have the property of converting energy-rich ultraviolet light, which is invisible to the naked eye, into visible light. They generate as bright a white as possible in papers. Many papers for inkjet printing contain many optical brighteners and are not suitable for use as a proof media as brighteners change the result in the color measurement for profile creation and quality control:

Resolution (dpi):
In terms of optics, the resolution is a measure of the capability of input and output devices and of photographic films to display two adjacent pixels separately from one another. The resolution depends on the physical properties of the device or material displaying or storing the information. It is generally limited by the wavelength of the light used. The resolution is normally specified in dots per inch (dpi) or in lines per mm.

RICC, SICC, ICC:
RICC (Reference ICC) describes the whole color space of the profile patches measured and is the basis of all internal calculations.
ICC: includes approx. 98% of the reference color space, which can be obtained by every printer of identical type
SICC: is the device link profile between RICC and ICC
The split-up is the basis of the functionality to recalibrate the printer provided by the RIP (MDS- media device synchronization).

Examples of usage:
Saturation enhancement vs. Color Boost:

In general, both functions have similar aims:
Highly saturated colors are vivid, neutral parts and skin tones are reproduced naturally.
The main difference:
Color Boost is available as a setting when calculating the profile and therefore already emphasizes the colors in the profile.
The saturation enhancement is an attribute in the advanced color management settings and offers several levels to adjust. As this setting is stored as a part of the MIM, it can be applied on job or hotfolder level. The strength varies from Low-Medium-High-Extreme.



Output: Neutral

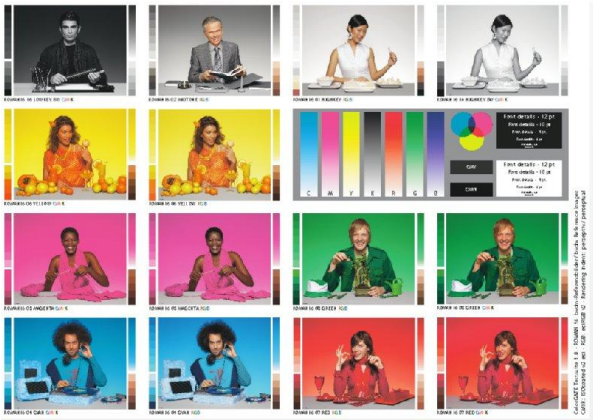
ColorBoost

Neutral – saturation enhancement medium

Neutral- sat. enh. extreme

Enlarged Input profiles: Adobe RGB & ColorGATE Gamut Plus

Output: Neutral



ColorBoost

Farbe bekennen
Committed to Color