1. New Features

1.1 What's New?

This chapter summarizes all major changes that have been applied to the program since the latest release. It is recommended that experienced GMG SpotColor Editor users read the information provided in this chapter very carefully, so that they can take full advantage of all new software features. Please follow the links for more information.

What's New in GMG SpotColor Editor Included in GMG ColorProof Version 5.2.3?

Advantage	New Feature	See Also
Extend your proofing color space	Since some printers can print **special inks** such as White or Metallic Silver, you can now use GMG SpotColor Editor to mix your own **spot colors** with special inks for impressive color reproductions.	"Special Ink Spot Colors" on page 6

What's New in GMG SpotColor Editor Included in GMG ColorProof Version 5.2?

Advantage	New Feature	See Also
Transparency on the results that can be expected from the target printer-medium combination	An already known feature from GMG ProfileEditor **Estimate Current Values from CMYK** has now been added to GMG SpotColor Editor. Out-of-gamut colors can now be easily detected by comparing Current Values with Target Values, without the need to measure "real" Current Values. You can select the display option **Automatic Update of Estimated Current Values** to automatically refresh the Current Values each time CMYK values (**Colors**) are changed.	
Compatibility with world-wide standards	Choose the **Color Difference Formula** you want to use for comparing Current Values with Target Values: delta E76, delta E94, delta E2000, or CMC(2:1)	
More **flexible** spot color simulations for the packaging business	You can now subtract the paper tint from spot color profiles to create **paper tint neutral** spot colors.	"Creating Paper Tint Neutral Spot Colors" on page 2
Enhanced user friendliness	Revised **user interface**: A more descriptive terminology is now being used for the spot color options. The options are logically grouped in the window. Changes are only cosmetic. The underlying functionality has **not** been changed.	"Comparison Table of Renamed Software Options" on page 2

1.2 Comparison Table of Renamed Software Options

The following options have been renamed and regrouped for GMG SpotColor Editor included in GMG ColorProof Version 5.2. Changes are only cosmetic. The underlying functionality has **not** been changed.

Previous Name	New Name
Calibrated Spot Color Set check box selected	**Calibrated Set (Use Gamut Defined by Calibration)** radio button
Calibrated Spot Color Set check box deselected	**Uncalibrated Set (Use Full Gamut of Printer)** radio button
More Parameters group	**Overprinting Behavior** group
With Color Profile check box	**Convert to Color Profile (Use Gamut of Profile/MX4)** check box
IRIS separation mode in drop-down list	**Max Black Generation** separation mode in drop-down list
White Spot Color check box	**Special Inks** separate settings

1.3 Creating Paper Tint Neutral Spot Colors

Often, spots are highly saturated colors and are used as a solid color (100%). In this case, the paper tint does not really affect spot colors (provided that the paper tint is rather light in color).

However, if you are using spot colors that are not highly saturated and/or if you are using different shades of a spot, the paper tint will affect the color in the same way as for process colors. You probably want to simulate the paper tint effect of the final output paper in the printed proof. If you simulate multiple print standards, you probably want to create spot color profiles that can be used together with all print standards.

How is it possible to simulate different paper tints with the same spot color profile?

In GMG SpotColor Editor, you can define the paper tint of your sample and **subtract** it from the spot color profile, thus storing the spot color as such, with a "Neutral Paper Tint".

The **printed** paper tint is **always** taken from the MX color profile of the Proof Standard. (This behavior is independent from the **Convert to Color Profile (Use Gamut of Profile/MX4)** option.) This way, paper tint neutral spots can be combined with **any** proof standard in GMG ColorProof, allowing you to simulate different print standards and paper tints with the same spot color profile.

The following illustration shows the behavior of a normal spot color (dotted line) and the same spot color after subtraction of the paper tint (solid line).
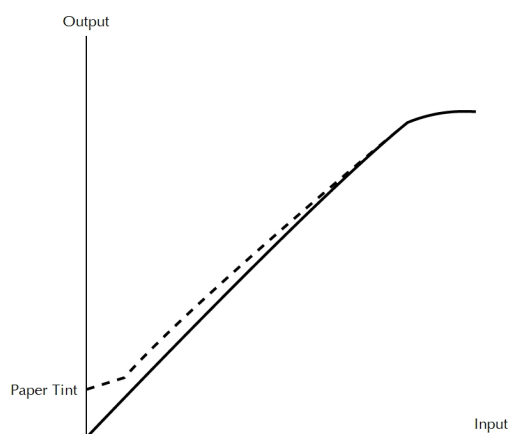

Fig. 1 Comparison of a "normal" and a paper tint neutral spot color.

1.4 Reusing Spot Colors on a Different Printer

When changing the printer, the visual appearance of the spot colors may shift, even though you probably recalculated the spot colors in a colorimetrically correct way. If you want to continue printing your spot colors exactly as before, with the same visual appearance, you need the original target values used when calculating the output values of the spot color. As the target values are often not saved or updated after manual corrections, you need to estimate them as described in the following. After estimating the target values, you copy the database and calculate the new CMYK output values for each spot color, thus setting up new spot color databases for your printer which output the spots in the same way as with the old printer.

How to regain the target values of a spot color

To regain the target values, you need to copy the paper tint value from the MX profile you are using into the spot color profile, estimate the target values and then subtract the paper tint again (because spots are printed with the paper tint of the selected color profile).

Note When iterating a paper tint neutral spot color, please deactivate the option **Subtract Paper Tint** every time you recalculate the values (**Calculate with Target and Current Values**) and activate the option again before you save the file.

Tip If you are using the same print medium for several spot colors, you can **multi-select** these to define and subtract the paper tint value.

1. Open a spot color database and select the spot color you want to reuse.

2. Copy the Lab or CMYK paper tint values from the MX color profile of the printer-medium combination you are using into the spot color profile (**Edit** menu > **Define Paper Tint**).

3. Estimate the target values (**Measure** menu > **Estimate Target Values**).

4. Activate the option **Subtract Paper Tint** to filter out the 'real' spot colors without paper tint.

5. **Save** the database.

6. Right-click the database and select **Copy** from the context menu.

7. Right-click into the tree view on the right side and select **Paste** from the context menu.

8. **Rename** the database.

9. Double-click the spot color you estimated the target values for and select the correct gamut file for your printer-medium combination (**Profile Settings**: **Gamut**).

10. Select the required **Separation** mode, depending on the printer driver and printer type. (**Inkjet** for standard CMYK printers)

11. Redefine the paper tint, if required (**Edit** menu > **Define Paper Tint**).

12. Calculate the CMYK **output** values in the **Colors** column (**Measure** menu > **Calculate with Target Values**).
    (Deactivate the option **Subtract Paper Tint** before recalculating.)

13. Optimize the profile in an iterative process.
    (Activate the option **Subtract Paper Tint** again, if you want to iterate the profile any further.)

14. **Save** the database.

1.4.1 Creating a New Spot Color Set in GMG SpotColor Editor

This chapter outlines the creation of a new spot color set in GMG SpotColor Editor. For each spot color in the set, you need to create a spot color profile. The spot color sets created in GMG SpotColor Editor can then be imported and used in GMG ColorProof.

Note When creating a gamut / full gamut file for a **white** spot color, test charts should be printed with **Undercoat** of 100% **Intensity**. For further information, please see the GMG ColorProof documentation.

How to create a spot color set

1. On the **Tools** menu of GMG ColorProof, click **SpotColor Editor**.
   GMG SpotColor Editor is started.

2. On the **File** menu, click **Open Spot Color Database** to create a new spot color database (*.db3 file).
   (If you want to add a spot color to an already existing spot color database, click **Open External Database**. Please note that when modifying a GMG spot color database, these modifications may be overwritten when updating the software.)

3. On the tree view on the left, right-click on the **SpotColor.db3** named **Old_DB** and **Rename** the db3 file.

4. **Save** the (db3) database file under a meaningful name.

5. On the **Edit** menu, click **Add New Spot Color Set**.

6. Click the set name (default name: Set_1) and **rename** the spot color set. It might be useful to mention the supported print medium in the name.

7. On the **Edit** menu, click **Add New Spot Color**.
   A new spot color is added (default name: Color_1).

8. Optional: If you want to use the advantages of a printer calibration for this spot color set, select the spot color set again and select the option **Calibrated Set (Use Gamut defined by Calibration)**. This option can only be selected for the whole spot color set and not for single spot colors.

How to create a spot color profile in GMG SpotColor Editor

For **each** spot color in the set, you need to calculate a spot color profile.

Note The option **Convert to Color Profile (Use Gamut of Profile/MX4)** color converts the spot color and is a special case option generally **not** used to create spot color profiles.

Note To create paper tint neutral spot colors with the **Subtract Paper Tint** option, you do **not** need to apply a special gamut, but only the usual printer gamut.

1. Enter the characterization data (provided by the spot color manufacturer or measured from a print sample) as **Target Values** for all required fulcrums. A single fulcrum at 100 is sufficient for most use cases.

2. Delete all unused fulcrums (**Edit** menu > **Delete Fulcrum**).

3. If you set up a **Calibrated** spot color set, link the **gamut** file to each spot color in the set. If this option is not selected for the set, link the **full gamut** file to each spot color.

4. Select the required **Separation** mode, depending on the printer driver and printer type. (**Inkjet** for standard CMYK printers).

5. To create a **paper tint neutral** spot color, which can be used with **multiple** proof standards, copy the Lab or CMYK paper tint values from the MX color profile of the printer-medium combination you are using into the spot color profile (**Edit** menu > **Define Paper Tint**).
   Copying the values from the MX profile is required, since the spots are always printed with the paper tint of the profile.

6. Calculate the CMYK **output** values in the **Colors** column (**Measure** menu > **Calculate with Target Values**).

7. If you defined paper tint values, activate the option **Subtract Paper Tint** to filter out the 'real' spot color without paper tint.

8. Optional: Optimize the profile in an iterative process.

9. **Save** the (db3) database file.

How to iterate the profile

Optimize the profile in an **iterative** cycle (printing and measuring a test chart, recalculating the profile).

To be able to print a test chart with the created spot color in GMG ColorProof, you first need to **add** a new spot color set in GMG ColorProof and import the created db3 file (**System** menu > **Spot Color Sets** > **New**). For more detailed information on adding a new spot color set to the GMG ColorProof database, please see the documentation of GMG ColorProof.

Note When iterating a paper tint neutral spot color, please deactivate the option **Subtract Paper Tint** every time you recalculate the values (**Calculate with Target and Current Values**) and activate the option again before you save the file.

1. In GMG ColorProof, create a job and print the spot color test chart **GMG_SpotColor_<measuring device>.tif** from the **Testcharts** subfolder with the new spot color (**Color Management** > **Channels** > **Choose Spot Color**). Select the calibration set and print mode you want to use with the spot color set.

2. In GMG SpotColor Editor, measure the test chart with an external measuring device: On the **Measure** menu, click **All Current Values**. (You can also measure individual patches by pressing the M key.)

3. If **Delta E** values are too high, recalculate the profile: (Deactivate the option **Subtract Paper Tint** before recalculating.) On the **Measure** menu, click **Calculate with Target and Current Values**. The measured values will be compared to the target values. Output values will be adjusted accordingly. The target values will be computed with the gamut file to produce the output values of the profile.

4. **Save** the (db3) database file.
(Activate the option **Subtract Paper Tint** again, if you want to iterate the profile any further.)

5. Repeat steps 1 to 4 until the deviation (Delta E) between **Target Values** and **Current Values** meets your requirements.

1.5 Calibrated Spot Color Sets

Calibrated vs. not calibrated spot colors

Generally, spot colors should not be subject to an MX4/MX5 color transformation, as this color transformation simulates the limited color space of the target output device. Spot colors are used for extending this color space and are printed "as is" on the output device. Thus, it does not make sense to simulate a limitation that does not really exist. As a consequence, spot colors are **not** converted by the **MX4/MX5** as default. However, you can overrun this default by selecting the option **with Color Profile** in GMG SpotColor Editor. This option cannot be defined for the complete set, but has to be selected for each spot color separately.

The **printer calibration** of the proof printer can be considered for the color management to avoid differences in the output due to normal printer deviations. On the other hand, the printable color space of the printer will be reduced (that is, the gamut is used instead of the full gamut) to achieve a very stable output. Thus, using a printer calibration together with a spot color set is a trade-off between the stability of the print output and the size of the color space.

The iterative process for determining correct target values for each spot color in GMG SpotColor Editor is recommended for achieving results that match the original colors as closely as possible. The printer calibration then assures that this result is stable and not subject to deviations in the printer performance or environmental parameters.

The option **Calibrated Spot Color Set** is defined for the complete spot color set and cannot be defined for each spot color separately.

How to enable an MX3 printer calibration for spot colors

Note If you change the option **Calibrated Spotcolor Set** for an already **existing** spot color set, you need to replace the **gamut** / **full gamut** file linked to the spot color and create **new spot color profiles** for **each** spot color separately, including an **iterative optimization** of each spot color profile.

1. On the **Tools** menu in GMG ColorProof, click **SpotColor Editor**.
The **SpotColor Editor** opens.

2. On the **File** menu, click **Open External Database** to open the desired spot color database (default path: *<GMG ColorProof installation path>\SpotColors*).

3. In the treeview pane on the left, select the desired spot color set.

4. A selected spot color set is highlighted with a different background color.

5. Select the option **Calibrated Set (Use Gamut Defined by Calibration)**.

6. Click the **Save** button on the SpotColor Editor toolbar. The printer calibration file (from the calibration set linked to each spot color set in the GMG ColorProof database) is now used for all jobs that use spot colors from this spot color set.

See also:

- "Creating a New Spot Color Set in GMG SpotColor Editor" on page 3

1.6 Printing Spot Colors with a Gradation Correction

For most spot color applications, it is only required to print the spot color as full-tone (100%) color. If you, however, want to print spot color gradations, there are two possibilities how to reflect the **dot gain** of the spot color in the profile:

- **Fulcrums** in the profile: Add several fulcrums to the profile, for example, in 10% steps. For each fulcrum, print, measure, and iterate the profile by comparing the proof to a print sample of the corresponding tone value, as described in "Creating a New Spot Color Set in GMG SpotColor Editor" on page 3.

- **Gradation Correction** linked to the profile: Create a spot color profile with only a **100%** fulcrum. Link a **Gradation Correction** to the spot color profile. This method has the advantage that you will only need one print sample per spot color and only need to iterate the profile once. If several spot colors show a similar dot gain behavior, you can assign the same gradation correction to multiple spot colors.

A gradation correction file can be created in GMG SpotColor Editor and is saved as an sfg file. It can be applied to a spot color in two ways, as described in the following:

- Link the sfg file to one or multiple **spot colors** directly in the db3 spot color database as described in the following.

- Link the sfg file to a **spot color set** in GMG ColorProof if you prefer flexibility, applying one gradation correction per GMG ColorServer **workflow**.

How to link a gradation correction to a spot color in the spot color database

1. On the **Tools** menu in GMG ColorProof, click **SpotColor Editor**.
   The **SpotColor Editor** opens.

2. On the **File** menu, click **Open External Database** to open the desired spot color database (default path: *C:\Program Files\GMG\ColorProof05\SpotColors*).

3. In the **Color** tree view pane on the left, select the desired spot color. You can also multiselect multiple spot colors, if you want to link them to the same spot color gradation file.

4. A selected spot color set is highlighted with a different background color.

5. Next to the **Gradation** box, click the browse button and select the sfg file.

6. Click the **Save** button on the toolbar.
   The gradation file is now used for all jobs using the spot colors of this spot color set.

1.7 Special Ink Spot Colors

Printing an image with special inks such as White, Silver or Silver Blended requires a spot color channel for each special ink you want to use. You can mix your own spot colors with **Metallic Silver** or **White** ink using special ink settings which can be defined separately for each spot color in a set.

You can define the **Area Coverage** for the special ink (in our example, we added 50% Silver) by clicking the **Change Settings** button on the bottom of the main dialog. The **Area Coverage** defines the ink coverage at an **Index** of **100%**. Between an index of 0% and 100%, the spot color shows a **linear** behavior. You can, however, use a gradation correction to tweak the linear behavior.
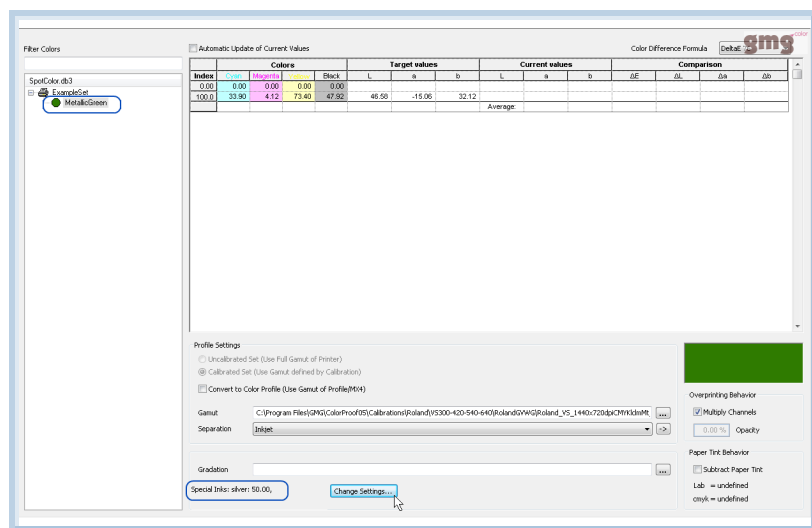

Fig. 2 Creating a new spot color with Metallic ink in GMG SpotColor Editor.