

Direct Color Systems®

Printing Spot Black

Definitions

Process Black: Or rich black as it is sometimes referred to, is an ink mixture of solid black, yellow, magenta and cyan. This typically results in a darker tone than black ink alone generates.

Process Grey: Similar to process black, process grey is an ink mixture of black, yellow, magenta and cyan. However, the percentages of these inks are equally diminished to generate a lighter tone than process black to achieve grey.

Spot Black: Printing using only the black ink and zero percent of yellow, magenta and cyan. This typically results in a lighter tone than process black.

Spot Grey: Similar to Spot Black, spot grey uses only the black ink, at a lower percentage, to generate a lighter tone than spot black to achieve grey.

Overview

By default, the print modes in the RIP are setup to convert any black and/or grey to a process color. What this means is that all four colors (CMYK) are used to create black and/or grey. Sometimes, converting these to a spot black and/or spot grey is necessary. As stated in the definitions above, a spot black tends to result in a lighter tone than process. Also, spot grey can sometimes give a pixelated look to the grey areas of the image.

Designing With Black

Regardless of the software you are sending the file from; Color Byte, Adobe Illustrator or CorelDraw, the black in the artwork will be setup with the same values. These values will also be the same whether you want a process black or spot black. The color values should equal *C 100% M 100% Y 100% K 100%* when using a CMYK Color Mode or *R 0 G 0 B 0* when using an RGB Color Mode. Any other values could result in a dull black when printed.

Designing With Grey

Like process black, the color values will remain the same whether you want a process grey or spot grey. The grey should be generated using equal percentages or values. For example, grey in a CMYK mode can range from the lightest grey *C 1% M 1% Y 1% K 1%* to the darkest grey *C 99% M 99% Y 99% K 99%* and in an RGB mode can range from the lightest grey *R 254 G 254 B 254* to the darkest grey *R 1 G 1 B 1*. Keeping the color percentages/values equal is extremely important. If they are not equal, the RIP will not interpret the color as grey and therefore will not print a spot grey if that is what is desired.



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Understanding Color Management

Contrary to what you may think, if a color is sent to the RIP that has the values C 0% M 0% Y 0% and K 100%, the output from the printer will include certain percentages of CMY. The reason for this is because of the color management/color correction that the RIP uses to match colors. If color management is turned off, the printer will print the actual color values that are sent but this will result in color matching issues. Therefore, to achieve a spot black and grey, we want to keep color management on but select some exceptions.

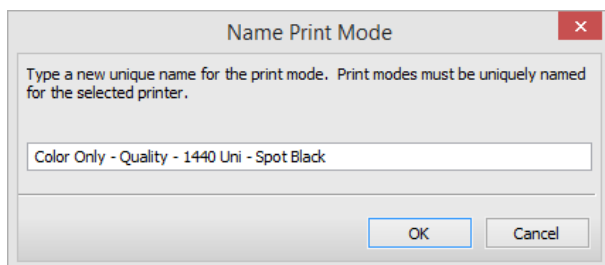
Making an Exception for Black and Grey

To print a spot black or grey using only black ink, exceptions need to be made to the ICC profiles. By making these exceptions, no other color will be affected besides the black and/or grey.

First, you will want to create a custom print mode. This way, the settings can be used on future jobs without having to go into the job properties to change them.

Copy the print mode you want to customize by going to **Devices > Manage Print Modes** and selecting the print mode and clicking **Copy Print Mode**.

Give the new print mode a unique name. It is recommended that you use the same print mode name and then add a description at the end. Click **OK**.



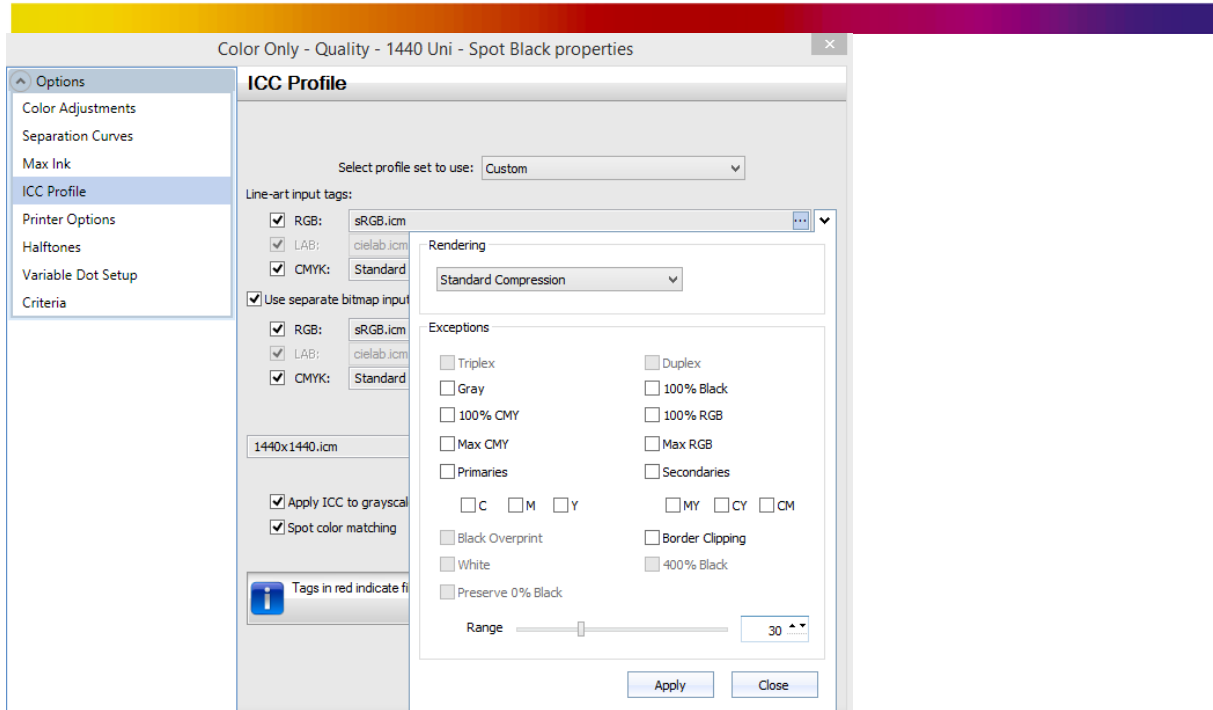
Double-click the new print mode and go to **ICC Profile**.

If it isn't already, change the profile set to use to **Custom**.

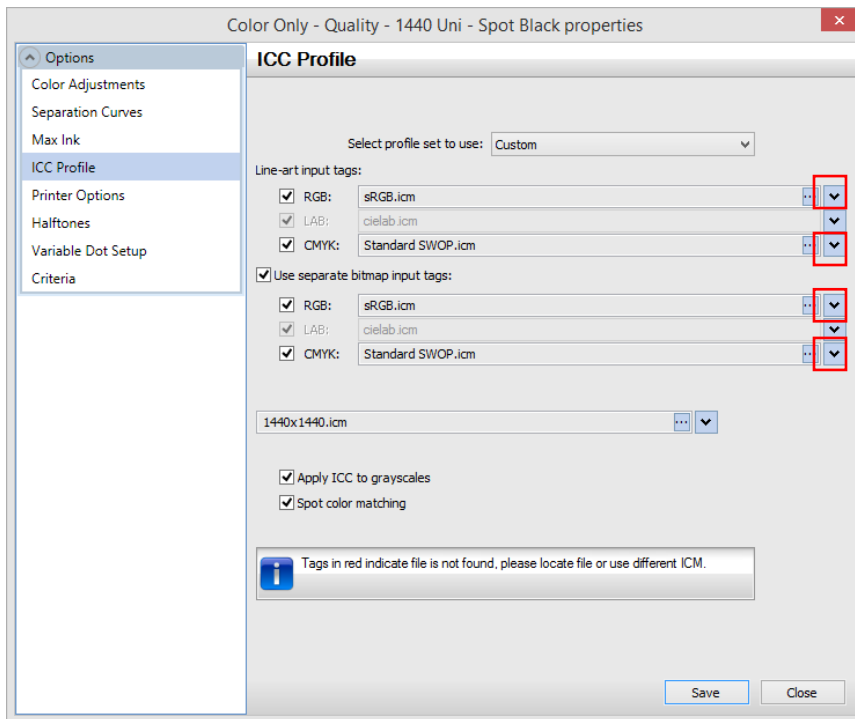
Beside each Input Tag, select the down arrow. This is where the RIP will make the exception for Spot Black and/or Gray. Select the check box next to the exception and hit **Apply**.



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Repeat the previous step for all four of the available input tags (Line-Art CMYK & RGB, Bitmap CMYK & RGB). When finished click **Save** to save the settings that you changed for the print mode. Then, when you want to use spot black and/or grey for a particular file, just select this print mode.



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