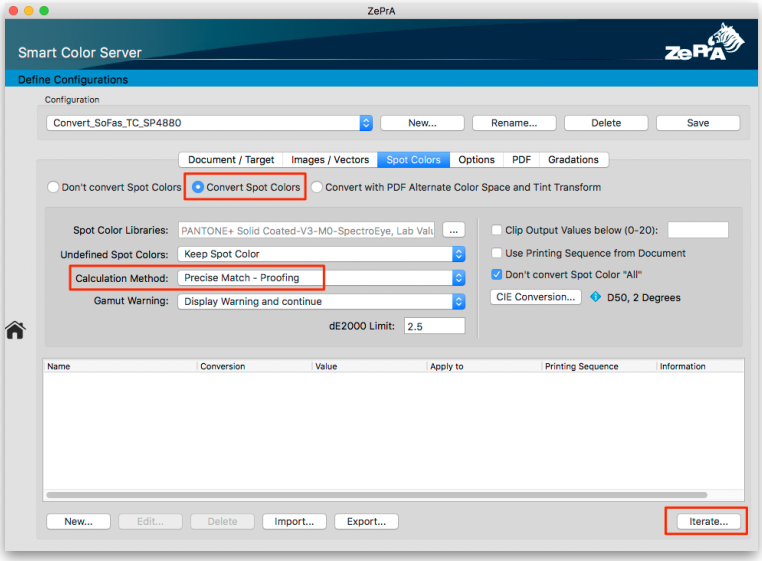
How to Iterate Spot Colors

Spot Color Iteration is a process that involves printing of the spot colors converted from ZePrA on the printer, followed by measuring test charts and optimizing the color differences (deltaE2000) until the measured deltaE values are within the desired tolerances. Printing the spot colors two times using the ***Iterate Spot Colors*** feature results in an improved spot color rendering which is usually close to the optimum of this printer.

Why can spot color iteration be required?
First of all, be assured that ZePrA already calculates the best possible spot color conversion based on the target profile set under ***Configuration/Target Color Space***. However, printers, inks and papers drift over time so that there are always some deviations from the state the printer was profiled. During spot color iteration we measure how converted spot colors are actually printed in the current state, and subsequently optimize the deltaE2000 values. The iteration report shows which colors are improved and where restrictions based on the spot color ***Calculation Method*** occur and can't be optimized further or if additional iteration steps are recommendable.

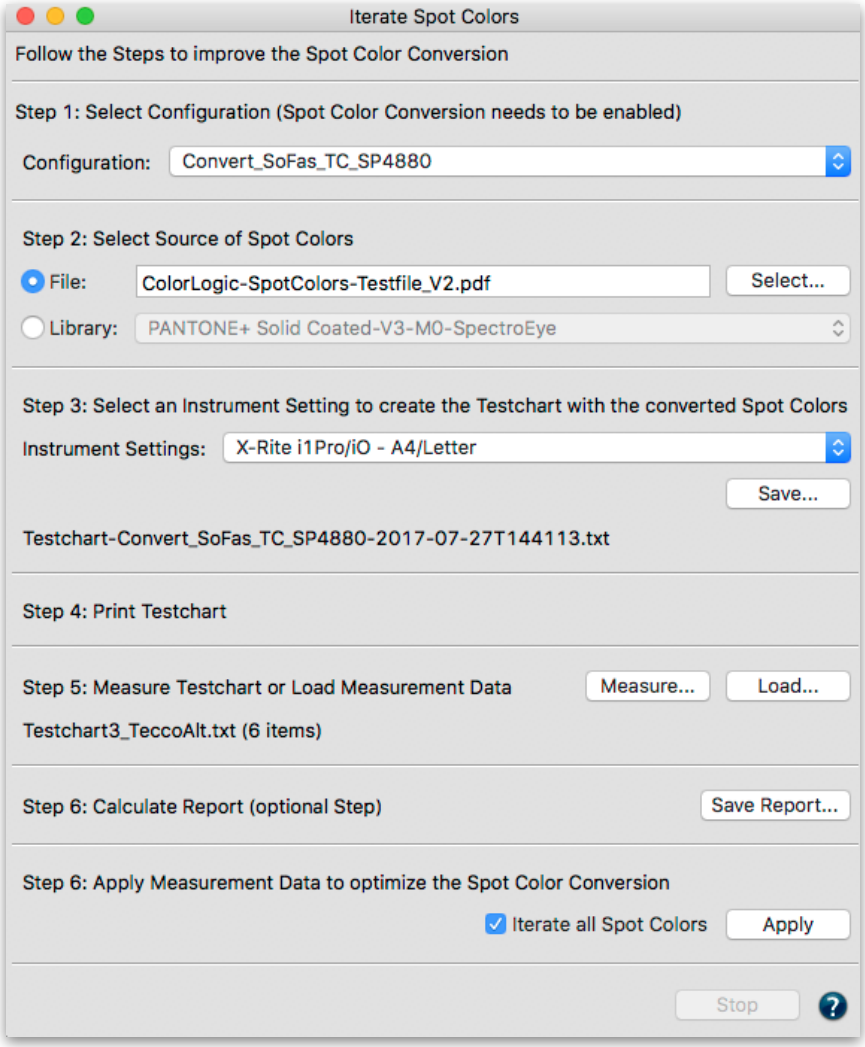
Procedure:
Open the ***Iterate Spot Colors*** dialog right from the ***Spot Colors*** tab of the ***Configuration*** you would like to optimize or the ***Tools*** menu and follow the steps from top to bottom. A Spot Color module license is required to use the tool.



1. ***Step 1***: First, select the ***Configuration*** you would like to use for printing. The option ***Convert Spot Colors*** must be enabled in this configuration.
   Note: The best approach for the iteration of spot colors is to set the ***Calculation Methods*** to ***Precise Match*** or ***Visual Match*** in the configuration.
   Note: The setting ***Use the least Amount of Channels*** may be insufficient for iterating spot colors. Importantly, spot color iteration will not work when the spot color conversion is set to ***Convert using Alternate Color Space from PDF***.
2. ***Step 2***: Select the source of the spot colors you would like to optimize. You can either choose a PDF file with spot colors or a complete spot color library. In the following example we will use a PDF file with spot colors.
3. ***Step 3***: Here, a test chart file will be created from either a PDF ***File*** or a spot color ***Library***. If you select a PDF file and click on the ***Save*** button, ZePrA will extract all spot colors (full tones) used in the file and convert them using the selected configuration. In this step select a setting for your measuring instrument. Therefore, a PDF file will be created, which contains the spot colors as a strip optimized for your measuring instrument and, in addition, the associated reference file for measuring will be created.

The newly created PDF file needs to be printed on the printer to be used for the print job.
Note: The test chart contains the converted spot colors as given in the ***Configuration*** using the conversion settings and ***Calculation Method*** defined in the tab ***Spot Colors***.

4. ***Step 4***: Print the test chart on your printer. Do not apply any color management when printing the test chart.
5. ***Step 5***: Subsequently, measure the printed test chart using ***ColorAnt/Measure Tool*** or an appropriate software. The required reference file which is needed for measuring the spot colors will be shown in step 3. Click on ***Measure*** to open the ***Measure Tool*** in ColorAnt. The reference file will be selected automatically so that you can use the tool right away for measurements with your instrument. For information on how to use the ***Measure Tool*** in combination with your instrument follow the instruction given in the online help. Alternatively you may use the provided reference file for measurements with other tools.



6. ***Step 6***: This step is optional but highly recommended. If you click on ***Save Report*** a ***Spot Color Iteration Report*** will be generated.

Spot color iteration

2017-07-27

Configuration: Convert_SoFas_TC_SP4880
Target Profile: TC_SP4880_PPG250_2880_201778_reprofile.icc

Average dE00: 1.6
Maximum dE00: 3.4 (PANTONE 5825 C)
Median: 1.4
dE00 < 1: 16.7%
dE00 < 2.5: 83.3%

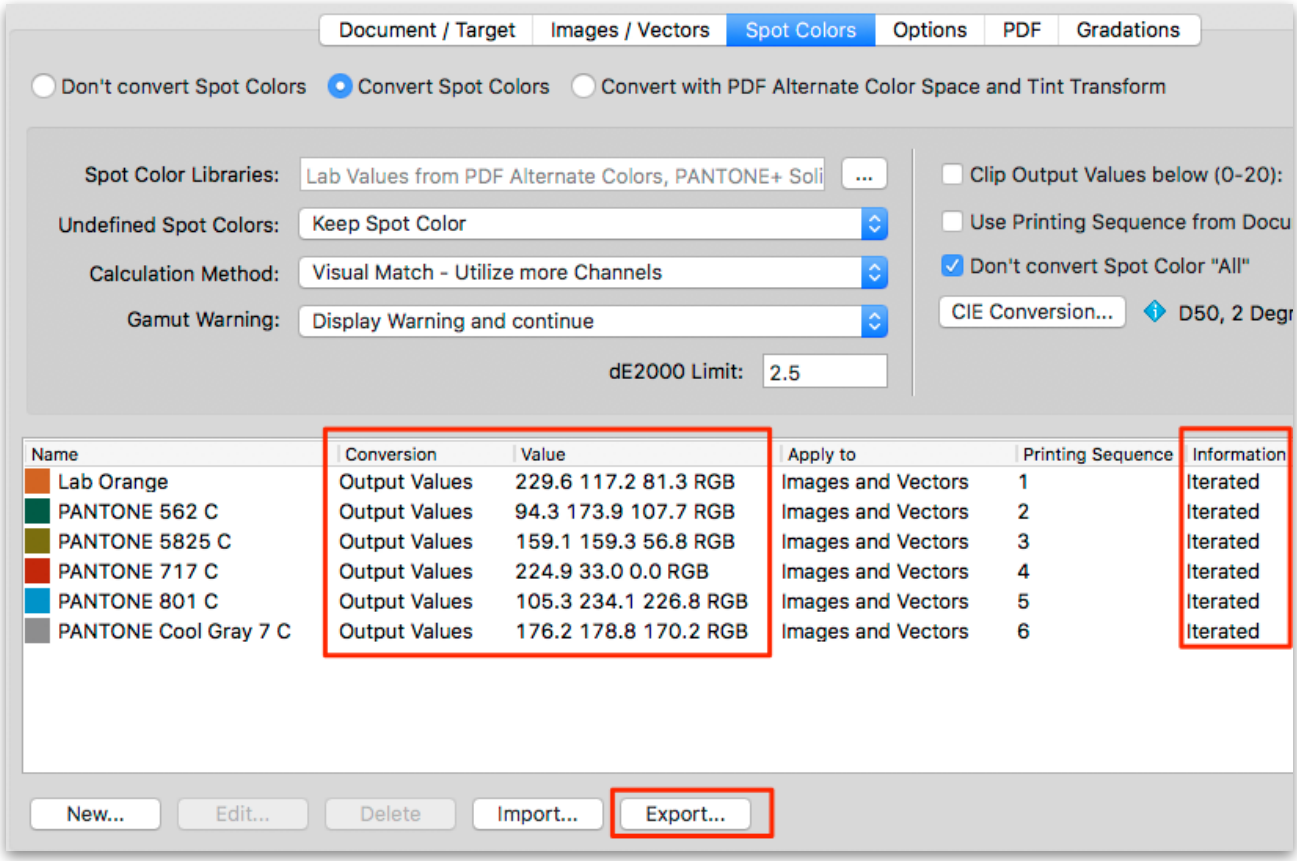
Name	Conversion:	Target Lab	RGB	Lab (measured)	dE00	dE76	Status
Lab Orange	Iterated	60.00 40.00 40.00	229.6 117.2 81.3	61.07 37.88 40.03	1.4	2.4	improved (7.0 dE00)
PANTONE 562 C	Iterated	40.39 -36.00 -3.00	94.3 173.9 107.7	41.41 -36.84 -4.58	1.4	2.1	improved (6.6 dE00)
PANTONE 5825 C	Iterated	53.73 -3.00 38.00	159.1 159.3 56.8	55.42 -5.43 45.85	3.4	8.4	improved (4.6 dE00)
PANTONE 717 C	Iterated	55.29 45.00 70.00	224.1 34.6 6.9	55.43 49.12 69.86	2.0	4.1	improved (13.8 dE00)
PANTONE 801 C	Iterated	55.29 -38.00 -43.00	105.3 234.1 226.8	55.25 -38.04 -43.05	0.0	0.1	good
PANTONE Cool Gray 7 C	Iterated	63.14 0.00 -1.00	176.2 178.8 170.2	63.89 -0.46 -1.79	1.2	1.2	improved (2.5 dE00)

Legend:

good:	The measurement matches the target value (dE < 1)
improved:	The previous iteration has improved the result
recommended:	The result is not good but will be improved by the next iteration
critical:	The result is not good and probably won't be improved by the next iteration
conversion settings:	The spot color conversion settings are not ideal
profile quality:	The profile does not match the actual output system
out of gamut:	The spot color is probably out of gamut

The report provides you with information about the archived and measured deltaE values. The last column of the report - ***Status*** - provides status information such as improvements, recommendations about further processing or warnings. If for example the deltaE00 value is already very low further optimization is not needed and the color is marked green, colors that are marked yellow are below 2 dE00 and colors marked orange are higher than 2 dE00.
If a spot color is out of gamut or optimization is not possible due to restraints from the selected configuration those colors are marked accordingly.

7. ***Step 7***: When clicking the ***Apply*** button the optimized spot colors (based on the measurement data) will be calculated and applied in the ***Configuration***. Tick the check box ***Iterate all Spot Colors*** if you would like to iterate all spot colors. If the check box is disabled only the recommended spot colors will be optimized. You will find the optimized device values (***Output values***) in the table of the tab ***Spot Colors*** under ***Configuration***. They will be marked as ***Iterated*** in the column ***Information*** of the table.



Expert tips: It is a good idea to ***Export*** the optimized spot color table of the tab ***Spot Colors***. This will give you the chance to revert to these values in case you do some further iterations or change some values manually. Another tip in case you would like to revert to the original values without iteration is to simply delete the colors from the table.

If you would like to find out about the improvements in terms of deltaE2000 after ***Step 7*** you have to print the optimized spot colors once more. To do so click on the ***Save*** button in ***Step 3*** of the ***Iterate Spot Colors*** dialog to create a new PDF file with the optimized device values and a new reference file. Make sure to use this second PDF file when printing and measuring! After measuring and saving a new ***Report*** you will see the

improved deltaE00 values. You can continue to iterate by simply clicking the ***Apply*** button in ***Step 7***. Or, in case the deltaEs are fine and further iteration is not recommended, simply close the dialog without applying the new measurements.