ZEPRA 4.5
REFERENCE GUIDE

High-End Color Management Server

ZePrA

COLOR Logic

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01 FOREWORD

Thank you for choosing ZePrA.

ZePrA gives you a hot folder-based color server for optimizing TIFF/JPEG/PSD/PSB image and PDF data using DeviceLink and ICC device profiles. The main applications are optimization or color conversion of CMYK printing data, use in media-neutral workflows with RGB data, and Multicolor processing. The high quality of optimization and color conversion of CMYK, RGB, Grayscale and Multicolor printing data is achieved through the DeviceLink profiles calculated and used, as well as intelligent PDF processing. For a range of standard-compliant printing processes, ColorLogic has developed standard DeviceLink profiles that you can purchase in a bundle with ZePrA. Starting with version 4.0, our SmartLink technology can be used for "on-the-fly" calculation of DeviceLink profiles for high-quality color conversion to all printing processes.
Since automated color management often necessitates extensive configurations, especially in the case of PDF files, we attached great importance in ZePrA to simple creation, duplication and modification of configurations and queues for typical tasks in day-to-day production.

We hope you enjoy working with ZePrA and wish you successful optimization and color conversion!

The ColorLogic Team

02 OVERVIEW OF THE STRUCTURE OF THE MANUAL

Simple operation for practical production tasks

We see the principal application of ZePrA as being the optimization of PDF printing data by means of DeviceLink profiles. With just a few mouse clicks, ZePrA makes it possible to create and configure configurations and queues for typical tasks in day-to-day production. This simple mode of operation of ZePrA – also called Auto Setup – is highly suitable for getting started with the application.

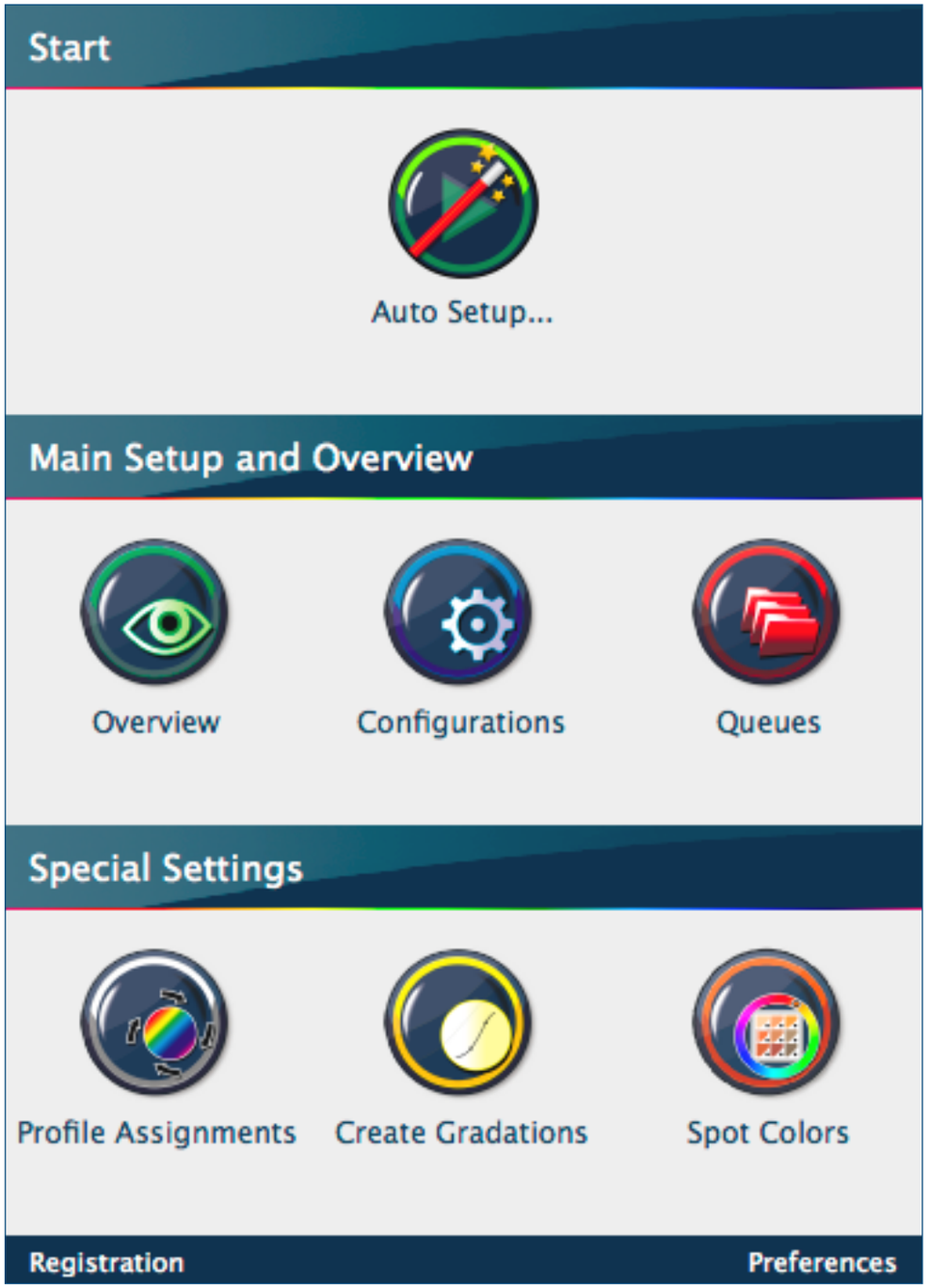
Flexible options for special requirements

ZePrA offers a host of specific options for experienced color management users who have special requirements. However, despite the simple operation of ZePrA, these options presuppose extensive knowledge in the fields of color management and PDF. These special options are therefore explained in the manual after the configuration of ZePrA via Auto Setup. Given the complexity of the subject matter and the effects of the individual options on the workflow, we suggest that you allow some time for reading.

Useful information about PDF preflighting and integrating ZePrA into your workflow

One common and important application of ZePrA is its combination with solutions for PDF preflighting. At the end of the manual, you will find a number of tips on how to combine the work steps of color conversion and PDF preflighting to the greatest possible effect. You will also find information about handling spot colors and PDF files with transparencies.

ZePrA can be integrated in Enfocus Switch by means of a configurator and generally in other workflows by command line interface. Hence, even complex workflows can be created, including data receipt, sorting, preflighting, color conversion and data distribution. For this reason, the manual also contains a sample Switch workflow with ZePrA.



ZEPRA INSTALLATION

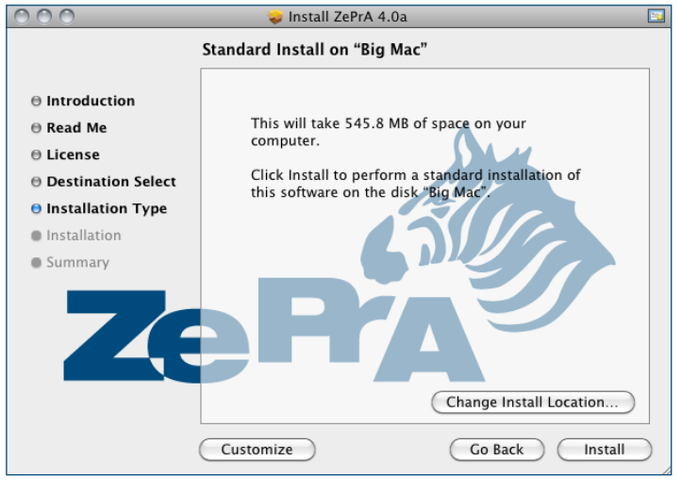
- Installing ZePrA
- Licensing

03 INSTALLING ZEPRA

ZePrA runs under Mac OS X version 10.5 and higher, up to the latest operating system version and on the latest Intel processor computer generation, as well as under Windows XP, Vista, Windows 7, Windows 8. The Installer for the respective platform installs the program in the corresponding Application or Programs folder of the operating system.

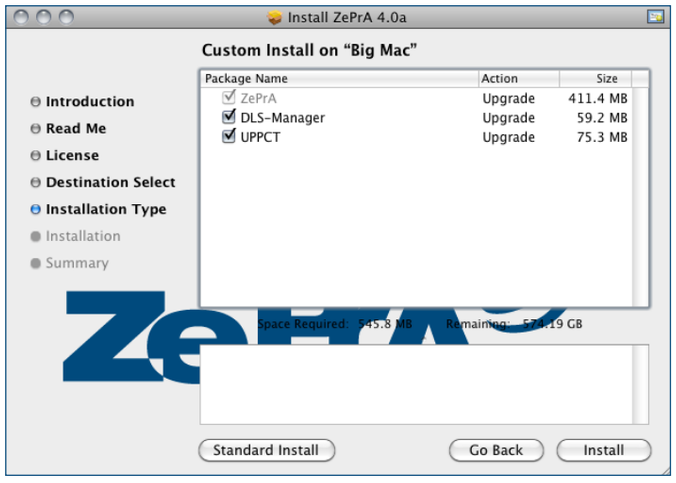
Installation is started by double-clicking on the ZePrA installation package.

- After accepting the Software License Agreement, select the destination volume.
- In the Installation Type step, you can choose between ***Standard Install*** or ***Custom Install***.



In the case of ***Standard Install***, the DLS-Manager and/or the UPPCT tool is automatically installed in addition to ZePrA. If you choose ***Custom Install***, you can individually deactivate the additional tools.

- **DLS-Manager** – This allows you to decide which DeviceLink Sets you want to install and test/use on your computer.
- **UPPCT** – This is software that supports the measuring of spot colors (provided you have a measuring instrument), allowing you to create customized color libraries for your spot color conversions.



Note: For a demo installation, you should always install everything, so that you can test the tools. With the full version of ZePrA, you should definitely install the DLS-Manager if you have purchased the corresponding DeviceLink Sets. The UPPCT tool is primarily relevant if you have a license for the Spot Color module.

Start the installation process by clicking on Install, and close the window as soon as the installation has been successfully completed.

› Computer license vs. USB dongle license

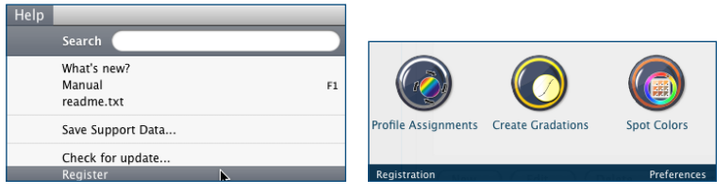
A computer-based ZePrA license always refers to the computer on which ZePrA was installed, and can be requested for a short time, e.g. for test purposes. A computer license is also advantageous if the computer has no USB ports or no space for a USB dongle is available in the server cabinets.

More flexible than the computer-based license is the USB dongle version, where the license is used on the ZePrA USB dongle. The ZePrA USB dongle is shipped with a full version of ZePrA as standard and permits alternating use of ZePrA on different computers. To be able to assign the license to the USB dongle, the dongle must be connected before starting ZePrA.

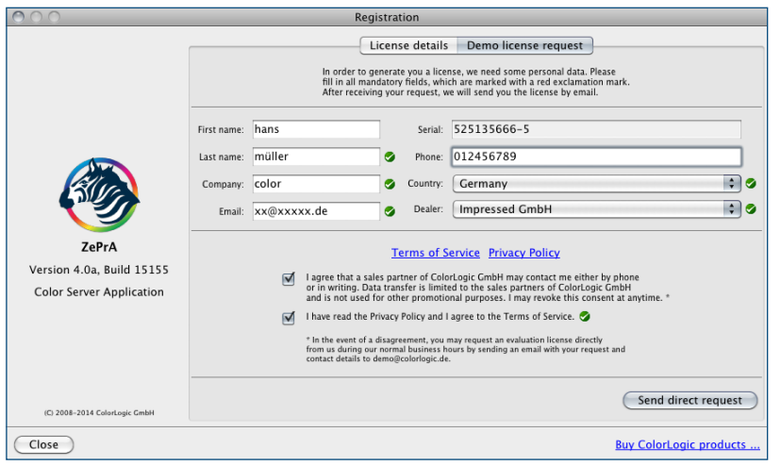
› Requesting and installing a demo license

To test ZePrA, you first have to install a demo license file, which you can generate yourself.

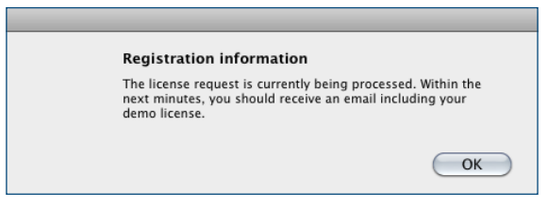
After installing ZePrA, you request yourself the demo license by selecting the ***Help/Register menu item*** or ***Registration*** at the bottom left in the navigation panel (button) of the main window.



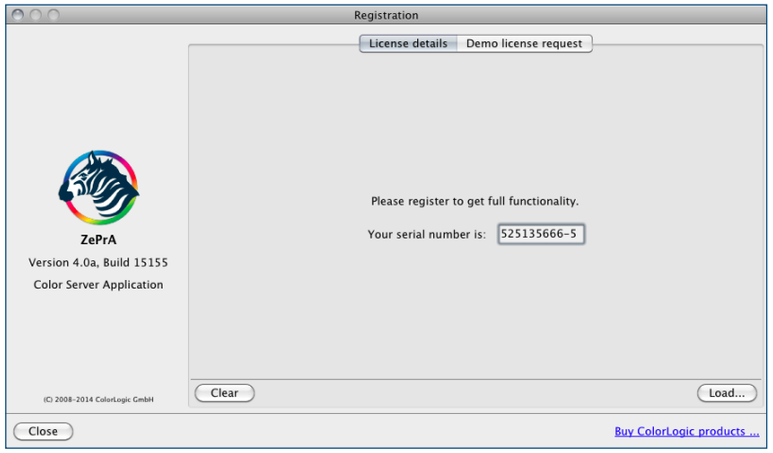
Enter the information necessary for license generation under ***Demo license request*** in the ***Registration*** window.



- You can send off the license request immediately, after entering the customer data (***Name*** and/or ***Company***), the ***Country*** and the responsible ***Dealer***, as well as a correct ***Email*** address,.
- A 2-week demo license will then be sent to your email address within a matter of minutes.

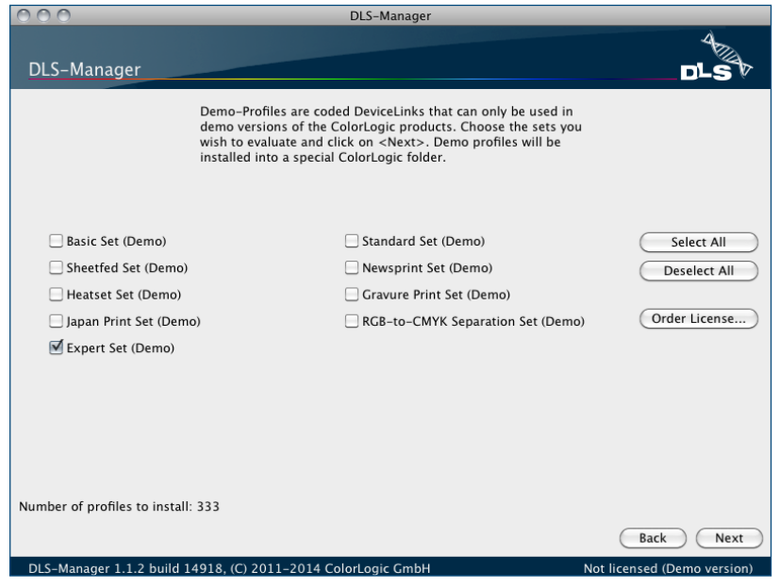


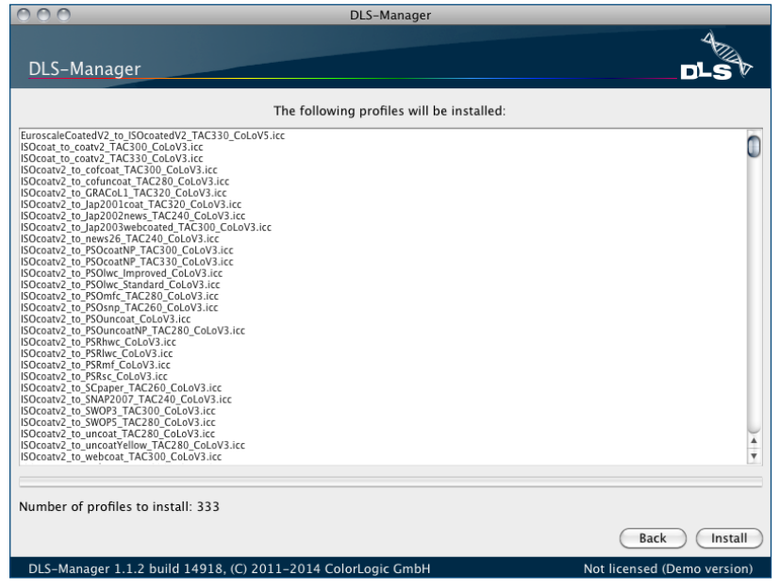
- Save the license file contained in this email (indicated by the ending *.lic) on your computer. Then click on ***Load*** under ***License details*** in the ***Registration*** window and select the .lic file.



- After installing the demo license file, the expiration date of the demo license is shown below the ***License details***.

When using the demo license, the output data will be watermarked with the word "Demo". The demo license also allows you to work with optimized demo Standard DeviceLink Profiles from ColorLogic, which you can install with the help of the DLS-Manager after loading the demo license. To ensure your tests are clearly structured, once you have registered, you can pre-select the demo DeviceLink profile sets that relate to your production operations or application (see the chapter on ColorLogic DeviceLink Profile Sets/Installing Demo DeviceLink Profile Sets in the manual). In this way, you can thoroughly test ZePrA as a color server for image and PDF files before you buy.



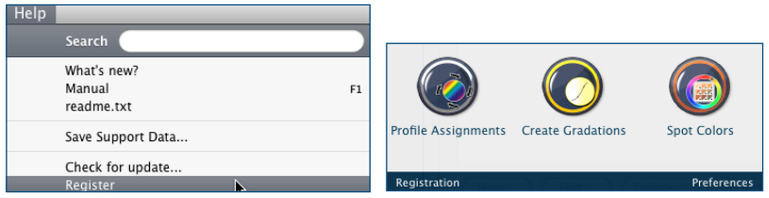


After loading the demo license, ZePrA will run exclusively on this computer. The words ***Demo version*** and the expiration date are displayed at the bottom, right-hand edge of the ZePrA window.

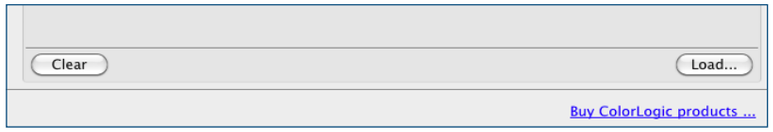
› Installing a full license

To use the full version of ZePrA, you have to install a full license provided by your ZePrA dealer. This full license is available in the form of a computer-based license or a dongle license (see above).

After installing ZePrA, you can find the dealer responsible for your region by opening the ***Registration*** window via the ***Help*** menu or on the left in the navigation panel (button) of the main window.

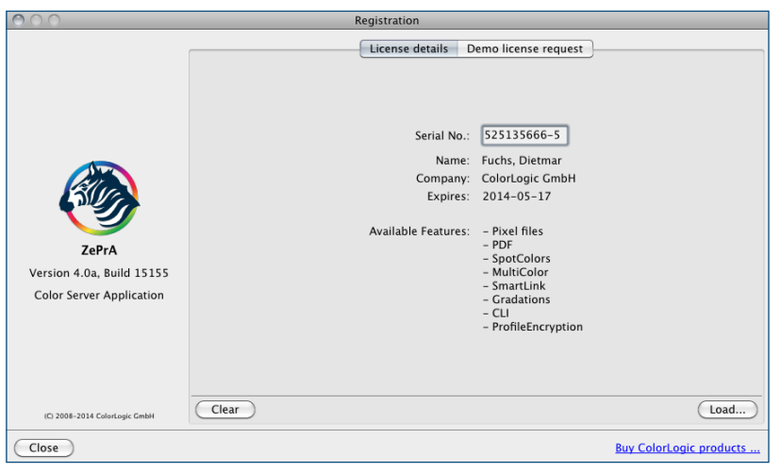


- Click on ***by ColorLogic products*** under ***License details*** or ***Demo license request*** in the ***Registration*** window.

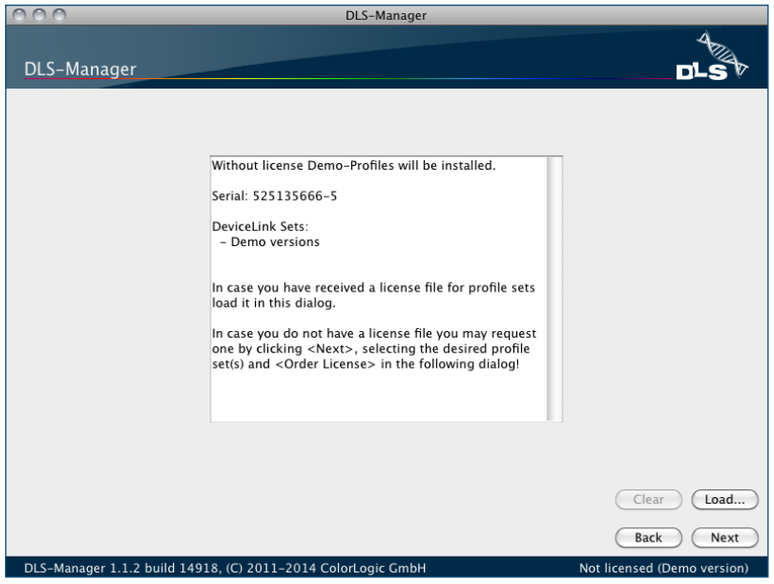


- A list of dealer contacts will open in the browser. From here you may choose a preferred dealer in your area and contact them regarding the purchase of ZePrA, additional licenses you may require, and DeviceLink Sets.
- After purchasing the software, you will receive a full license in the form of a license file. ***Load*** the license file under ***License details*** in the ***Registration*** window.

After installing the license file, the modules you have licensed are displayed under the ***License details***.



Note: If you purchase a full license for ZePrA, the demo DeviceLink profiles can no longer be used and are no longer displayed in the dropdown lists for profile selection. The corresponding DeviceLink Sets are available as a chargeable option, separately or in a bundle with ZePrA. You can load your DeviceLink profiles into ZePrA using the DLS-Manager (***Menu/Tools/Install DeviceLink Profiles***).



› Basic ZePrA packages

ColorLogic ZePrA is available in four different versions: ENTRY, BASIC, LARGE (L), XLARGE (XL). While the ENTRY package is solely for image formats (TIFF/JPEG, PSD and PSB files), with the BASIC version and higher, PDF data can also be processed. In addition, a CLI module is available in the BASIC package and higher, which allows linking to other workflows, such as Enfocus Switch. See the manual for details.

With the LARGE package, you have the SmartLink module at your disposal, and thus CoPrA SP and Reprofiler SP at the same time. The CoPrA SP and Reprofiler SP versions work via a Serialized Profile license and exclusively with the ZePrA package purchased. This allows you to use CoPrA SP to create your own DeviceLink Presets, as well as DeviceLink and printer profiles that are automatically displayed in ZePrA and can be selected there. Building on this, you can use SmartLink to create individually calculated DeviceLink profiles for data optimization.

The DeviceLink profiles and optimized printer profiles created with Reprofiler SP can likewise only be used in conjunction with ZePrA. The serialized profiles cannot be used in other applications.

ZePrA 4.0 BASE PACKAGES			
ZEPRA ENTRY	**ZEPRA** BASIC	**ZEPRA** L	**ZEPRA** XL
Standard Features	Includes all **Entry** features	Includes all features of **Entry** & **Basic**	Includes all features of **Entry**, **Basic** & **Large**
Hot folder Processing	PDF Conversion	CoPrA SP Serialized Profiles	SaveInk Add-on SmartLink
Image Conversion	PDF Flattening	Reprofiler SP Serialized Profiles	Multicolor support
Process Large Files	CLI Required for Enfocus Switch	Gradation	Advanced Spot Color Conversion
Simplified Navigation	Basic Spot Color Conversion	SmartLink Create DeviceLinks on-the-fly	SmartLink Multicolor

› Additional ZePrA modules

You can purchase additional modules to individually expand the basic packages described above to suit your production goals. Depending on your basic equipment, you have a choice of various modules to expand your options:

ZePrA 4.0 MODULE REQUIREMENTS		
ZEPRA MODULE	**ADDITIONAL FEATURES INCLUDED**	**REQUIREMENTS**
Gradation Module	None	Requires ZePrA
SmarkLink Module	CoPrA SP and Reprofiler SP	Requires ZePrA
SaveInk Module	Enables SaveInk Module for CoPrA SP	Requires ZePrA Requires SmartLink
Spot Color Module	None	Requires ZePrA
Multicolor Module	Enables Multicolor Support for CoPrA SP Spot color module included	Requires ZePrA Requires CoPrA SP

- ZePrA can be expanded with the use of **Gradations** for data preparation for specific printing characteristics and "on-the-fly" DeviceLink calculation via **SmartLink.**
- At the same time, **SmartLink** also offers you a CoPrA SP version that enables you to create customized DeviceLink Presets, as described above. These Presets are available for "on-the-fly" DeviceLink generation in ZePrA. The SmartLink license also provides a Reprofiler SP version for correcting color deviations on the press.
- The **Spot Color** module can be ordered separately or as an integral part of the **Multicolor module**.
- The **Multicolor module** permits the use of Multicolor profiles as document and target color spaces.
- The **Spot Color module** is used for high-quality conversion of spot colors to the target color space in order to optimally convert spot colors in PDF files to CMYK – or also to Multicolor spaces if you have a Multicolor license. During conversion, spot colors utilize the maximum color space of CMYK and Multicolor printing systems, achieving hitherto unknown accuracy and the best possible printing properties. This makes it possible to print different jobs with different spot colors on the same press, without having to clean the press for each job and provide it with the respective spot colors. The target group particularly includes packaging printers, who have to deal with numerous spot colors and want to optimize their printing process. The ColorLogic solution for spot colors offers printers the certain knowledge of achieving the best possible conversion of spot colors to process colors in terms of both colorimetry and printing properties.
- You can automatically save ink with the all-embracing XL package or in conjunction with the **SaveInk module**. Either you can choose one of the three preset saving options (***SaveNeutral***, ***SaveStrong*** or ***SaveMax***), or you can use **CoPrA SP*** to make your own specifications and apply them directly in ZePrA.

Note: *SP = Serialized Profiles. The profiles created with SmartLink are encoded with the serial no. of the ZePrA color server and can only be used there. CoPrA is ColorLogic's software for creating high-quality ICC printer and DeviceLink profiles. Reprofiler is used to correct color deviations on the press in order to be able to restore compliance with the printing standard you require.

› ZePrA upgrade

ZePrA 4 is a comprehensive upgrade with many new production functions and simplified user guidance, and is offered in newly compiled packages (see above). The new version 4 contains more important functions in the basic package than ever before. If you already have a version of ZePrA, you may purchase the upgrade by contacting your dealer.

If you are upgrading from a previous version of ZePrA, your old configurations will be automatically available in ZePrA 4.x. Please check your previous configurations after upgrading to see how the feature enhancements can optimize your configurations.

Note: If, after installing the latest software, you want to compare whether the previous ZePrA v.3 yields the same results as the new ZePrA version 4, or if you simply want to retain both versions to be on the safe side, you can run the old and the new version of ZePrA on the same computer. However, you should never start both versions in parallel; you should only start them individually once the other version has been closed. During installation, be careful not to overwrite the old v3 version with the new one. The new version is installed in a separate folder as standard. After installation of the new version, old queues and configurations are transferred once and then used again independently.
Please be aware, queues and configurations newly created in ZePrA 4.x are not available in ZePrA 3.x when it is next started.

To access the new ZePrA 4.5 all former ZePrA customers (including ZePrA 4 customers) will be required to purchase this upgrade. Please be aware that installing ZePrA 4.5 will overwrite all previous ZePrA 4 installations. ZePrA 4 licenses will not be valid for ZePrA 4.5 any longer. You will need a new license which you can order from your preferred ColorLogic dealer. ZePrA 4.5 uses the same preferences and settings as ZePrA 4.

QUICK START

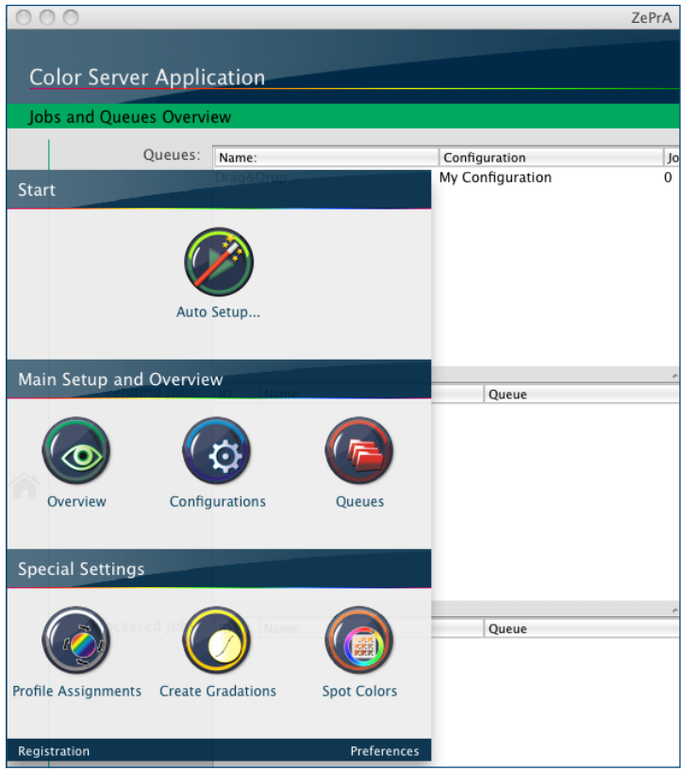
For a quick start

04 FOR A QUICK START

To create a queue and the associated configuration for processing your data in just a few steps, simply follow these brief instructions.

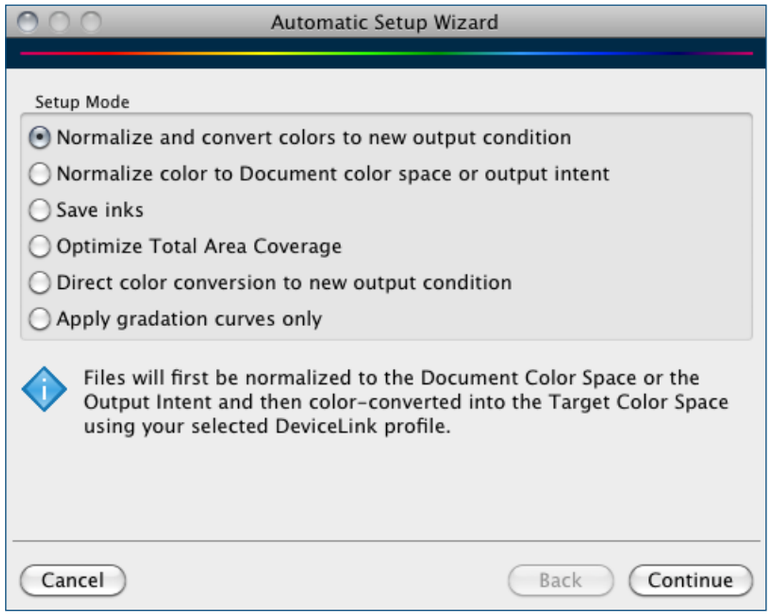
› Step 1: Selecting a setup mode

Start ColorLogic ZePrA and click on the button on the left in the main window. Click on the ***Auto Setup*** option in the navigation panel that then opens.



Auto Setup wizard is used to create a new configuration and/or a queue for your task. You can process TIFF, JPEG, PSD or PSB image files, as well as PDF files.

First, select a Setup Mode:



Normalize and convert colors to new output condition

- Data is first converted to the document color space or output intent (normalized), so that files have a common color space. The colors of the normalized data are subsequently converted to the desired target color space using a DeviceLink profile.

Normalize to Document color space or output intent

- Data is converted to the document color space or output intent (normalized), so that your files have a common color space. After conversion, the final, normalized file consists of just one color space and any spot colors.
- If, for example, you have PDF objects in the RGB color space, the embedded profile converts them to the document color space via the rendering intent defined in the PDF.

Save inks

- With the ***Save inks*** workflow, data is normalized to the document color space and subsequently optimizes the ink application of the data with your selected SaveInk profile, either by using an existing DeviceLink profile or by choosing one of three ink saving options via the SmartLink function.

Optimize Total Area Coverage

- With the ***Optimize Total Area Coverage*** workflow, your data are uniformly converted to the document color space and subsequently optimized using your specified TAC reduction profile or the total amount of color selected under Apply SmartLink under ***Desired TAC***.

Direct color conversion to new output condition

- Your data are directly color-converted to the desired output condition (target profile), without prior normalization to the document color space. This Setup Mode is particularly suitable for all media-neutral prepared data, e.g. RGB image data with ICC profiles. This mode permits the best exploitation of the gamut of the target color space.

Apply gradation curves only

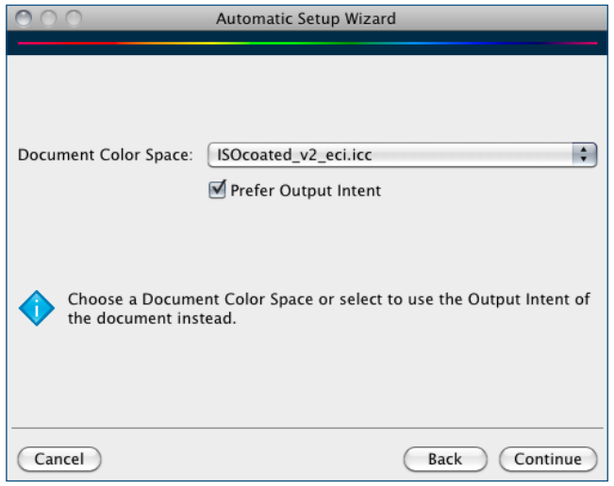
- If your printing process deviates because of different printing conditions (e.g. due to the substrate or other printing parameters) and you would like to adjust your data without CtP compensation curves in the RIP, you can use ZePrA to correct the gradation of your data "on-the-fly" – without changing the curves in the CtP RIP.

› Step 2: Choosing the conversion

Depending on the Setup Mode you select, you have a choice of different options for conversion.

Document Color Space

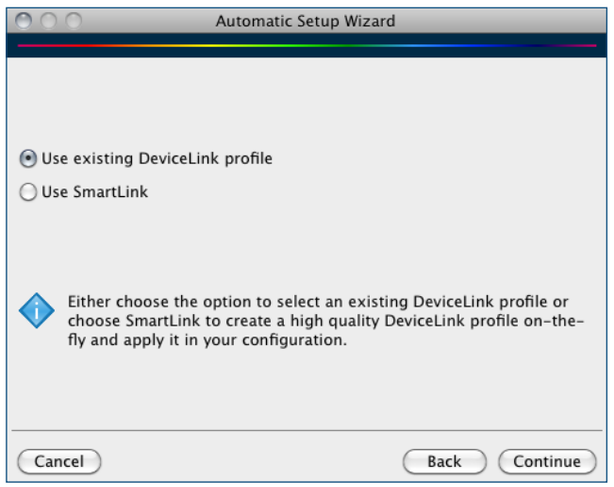
To ensure consistent conversion of your data to the document color space or output intent, select the required document color space here, and also the output intent if necessary.



Use existing DeviceLink profile

If you already have a suitable DeviceLink profile for your workflow, this DeviceLink profile configures the source profile of the file if files without embedded profiles are processed. The target profile is likewise set by the DeviceLink profile.

Note: DeviceLink profiles from other manufacturers must be in the Standard Profiles folder of your system.



Use SmartLink

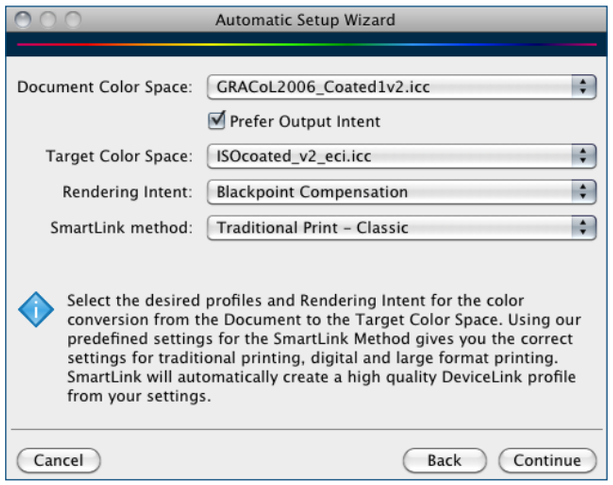
If you have purchased a SmartLink license, you can calculate high-quality DeviceLinks on the basis of your "normal" source and target profiles "on-the-fly" in order to avoid the problems occurring during normal ICC conversion and optimize the quality of your conversions.

Note: If you do not activate the SmartLink function, either via ***Auto Setup*** or via the ***Configurations***, normal ICC conversion is performed for objects with an embedded ICC profile.

If you select the ***Use SmartLink*** option, you will find settings in the Auto Setup that are briefly explained in the Details: Use SmartLink below.

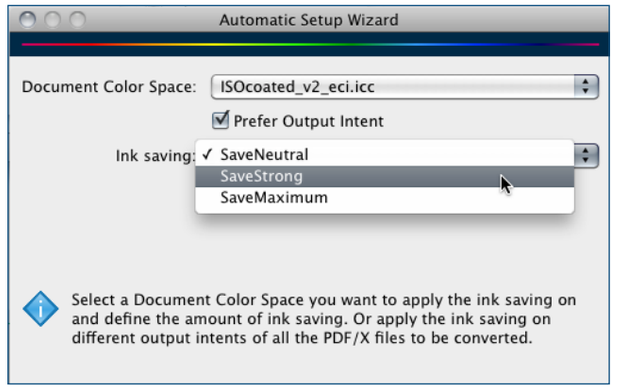
» Details: Use SmartLink

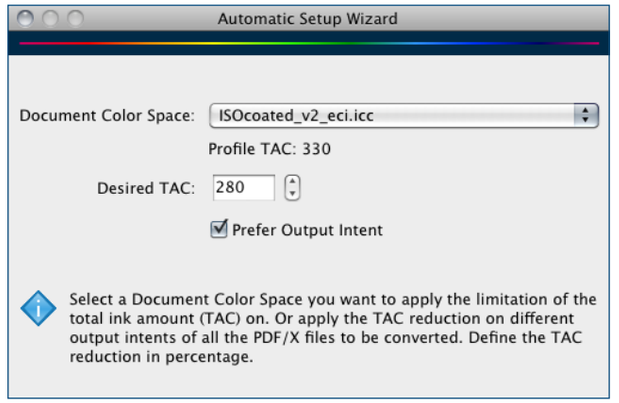
- If you have selected the ***Normalize and convert colors to new output condition*** Setup Mode, your file is first converted to the document color space you have preset and/or, if available, to the output intent. This is followed by further conversion from the ***Document Color Space*** and/or the output intent to the ***Target Color Space*** via the DeviceLink generation with SmartLink.



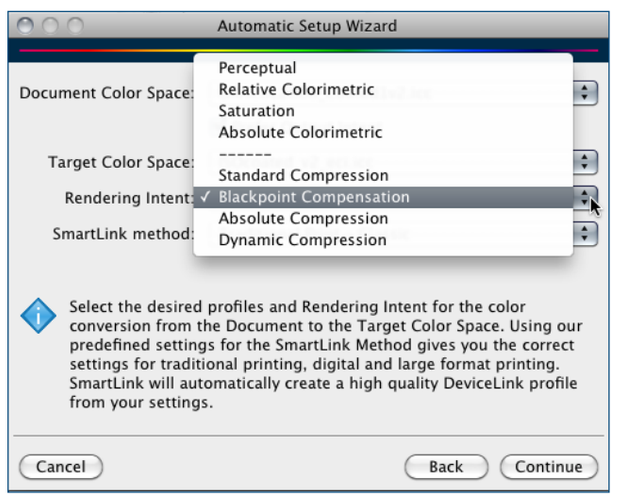
- ***Direct color conversion to new output condition*** performs direct color conversion via SmartLink from the ***Document Color Space*** and/or output intent, and of the objects under ***Images*** and ***Vectors*** to the ***Target Color Space*** with DeviceLinks. Images and vectors with embedded profiles are converted directly to the target profile and no longer normalized to the document color space beforehand.

- When using SmartLink, ***Save inks*** and ***Optimize Total Area Coverage*** take into account that the appearance and gamut are preserved, but also that an individual ink saving or limitation of the total area coverage can additionally be used. The data are normalized to the document color space prior to applying SmartLink.



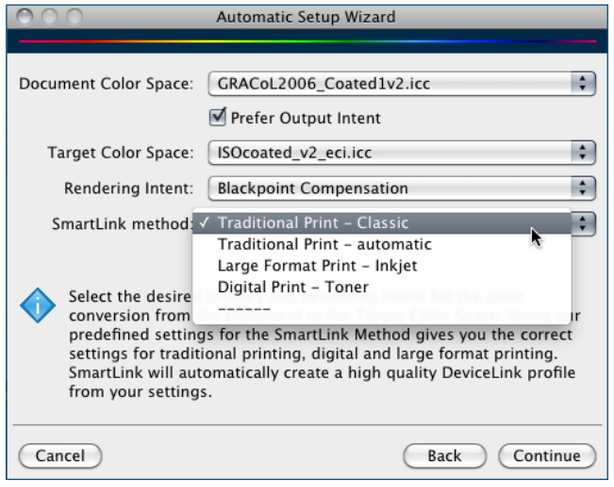


Select a ***Rendering Intent*** to be used for calculation. Above and beyond the four standard ICC Rendering Intents, ZePrA additionally offers its own conversion methods:



- **Standard Compression**, for conversion between gamuts of different size
- **Blackpoint Compensation** for gamuts of similar size. Similar to relative colorimetric conversion with black point compensation, but with better definition in highly saturated colors and hue-accurate color rendering. Not very suitable for small gamuts.
- **Absolute Compression**, if the gamuts are of similar size, but the paper color differs significantly.
- **Dynamic Compression**, if the input and target profiles have a very large dynamic and contrast range, e.g. for RGB-to-CMYK conversions.

The ***SmartLink methods*** in ZePrA 4 take into account the various requirements of different printing conditions, so that the printed color is correctly matched and optimally separated for the required printing process.



- **Traditional Print – Classic** is suitable for data you want to convert for offset, gravure or newspaper printing.
- If you want to print conventionally, but the color and paper of the target color space deviate significantly from the output intent or the document color space, the ***Traditional Print – automatic*** is the right choice.
- If you print on a (large-format) inkjet system, you should select the ***Large Format Print – Inkjet*** method.
- If you work with digital production machines or office printers, you should choose the ***Digital Print – Toner*** method.

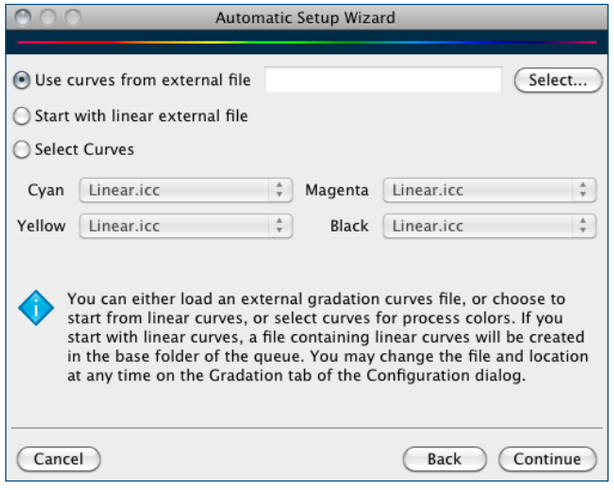
Note: Without a SmartLink license, CMYK objects with embedded profiles are treated like objects without profiles (i.e. like DeviceCMYK) and converted using the DeviceLink profile you have selected.

» Details: Creating a Gradation workflow

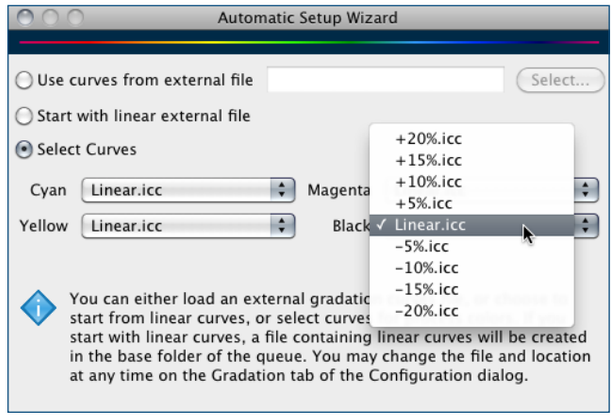
By using gradation curves, printing characteristics can be directly incorporated into the data to be converted. This makes it possible to comply with printing standards and compensate for imponderables in the printing process resulting from a host of printing parameters, including the substrate and inks. When subsequently setting the data, all that is necessary is linear implementation in the RIP software of the imagesetter.

It is best to apply pure gradation corrections to print-ready PDF/X-1a files that are comprised of only CMYK and possibly spot colors.

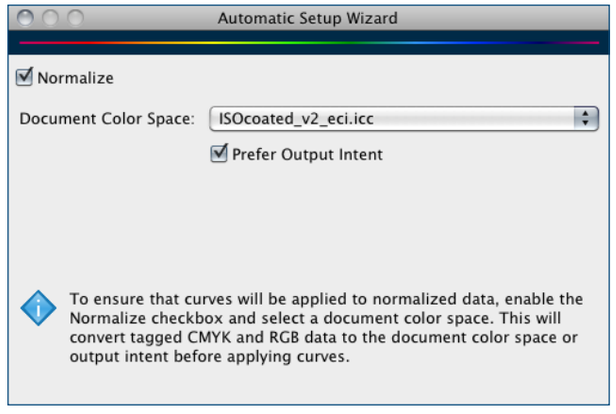
You have **three options** for creating a pure gradation workflow:



- **Use curves from external file**
  Load an external file with the gradation curves for process colors and/or spot colors.
- **Start with linear external file**
  If an external file with gradation curves is not yet available, but will be generated in the production process, then a corresponding configuration may be created in advance with initially linear curves.
- **Select curves**
  If the first two options are not feasible, you can create a configuration using the static gradation curves supplied with ZePrA or using the curves you have created yourself in Curve Management. Simply choose the required gradations for the process colors Cyan, Magenta, Yellow and Black.



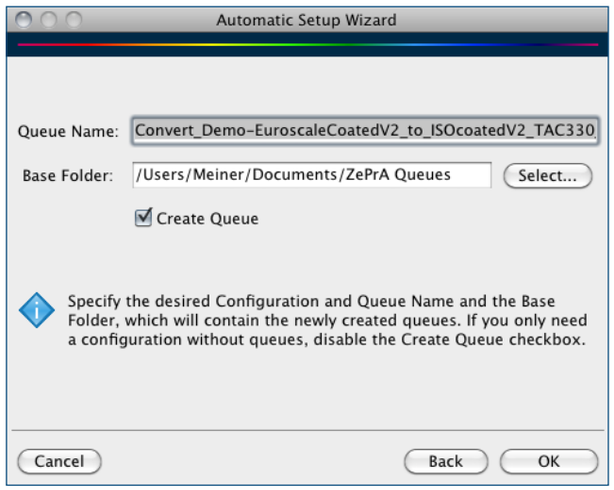
You can ***Normalize*** the data in the next step of the Auto Setup wizard.

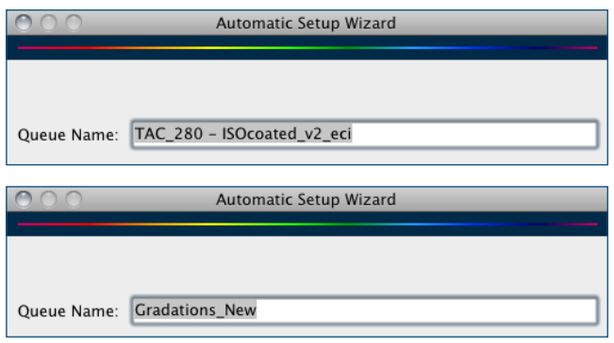


- If you are working with PDF/X-3 or X-4 files that possibly still contain RGB or CMYK objects with embedded profiles, you should have ZePrA normalize the file.
- Select an ICC profile that is to be adopted as the ***Document Color Space*** in the event that there is no output intent in a PDF file.
- Also, you must enable the ***Prefer Output Intent*** checkbox to ensure that any existing output intent always has priority over the set document color space and is always preserved.

› Step 3: Choosing and saving queue names

- In the final step in the wizard, specify a ***Queue Name*** that corresponds to the name of the configuration.



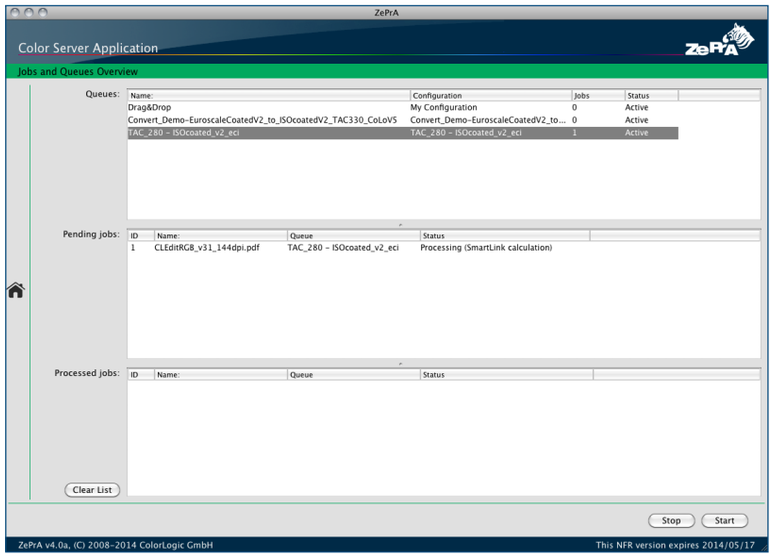


- Underneath the ***Queue Name*** you can specify the ***Base Folder*** in which you wish to create the queues.
- If you want to create queues (hot folders) in the ***Base Folder***, you have to select the ***Create Queue*** option.

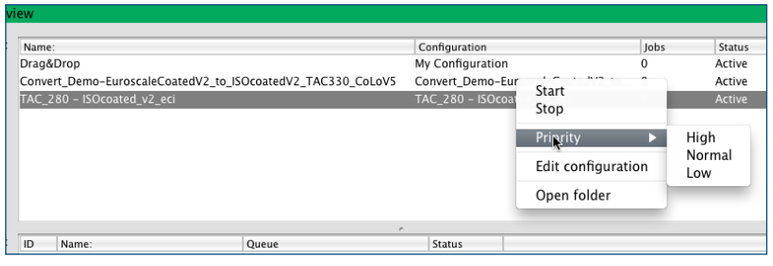
This completes the configuration of your workflow. You can use the queue immediately.

› Step 4: Converting jobs via queues

The ***Jobs and Queues Overview*** window (navigation panel: ***Overview***) gives an overview of the queues and the associated configurations in ZePrA.

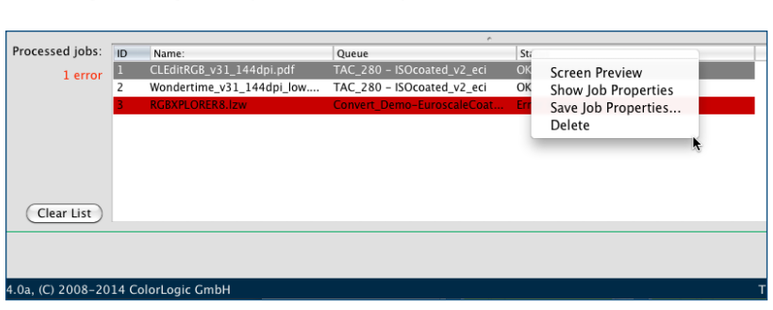


1. You can start or stop all queues directly using the ***Start*** and ***Stop*** buttons at the bottom right in the window, or you can right-click on an individual queue and start or stop it in the context menu.
   - Under ***Queues***, you can select a queue and right-click to open a context menu. The ***Priority*** option can be used to alter the order in which the queue is processed.



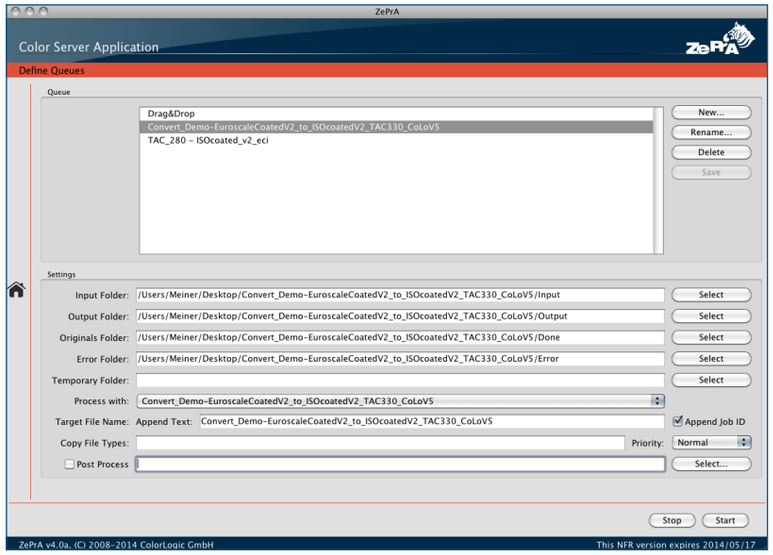
2. To quickly access queue folders and convert data, right-click on a queue in the list and open the context menu. Select ***Open folder*** in the context menu to open the associated input folder in the file system, or simply Drag & Drop your file (TIFF/JPEG/PSD/PSB image file, PDF file) onto the required configuration in the queues overview.
3. When you send a PDF file to the ***Input*** folder of the created queue, ZePrA automatically converts it in accordance with your color management specifications and saves the converted file in the ***Output*** folder. The original file is moved to the ***Done*** folder. Faulty files are saved in the ***Error*** folder.

4. Processed data appear in the ***Processed jobs*** list.
   - Incorrectly processed files and file types that are not supported are highlighted in red in the ***Processed jobs*** list.
   - If warnings occur during processing, the file is never-theless processed, but highlighted in yellow and labeled with a warning.
   - The ***Pending jobs*** and ***Processed jobs*** lists can each be sorted by ***ID***, ***Name***, ***Queue*** and ***Status*** (click on the ***ID*** or ***Status*** column).
   - Right-clicking on a processed job opens the context menu, where you can generate a softproof (***Screen Preview***), open a Job Report (***Show Job Properties***), or save (***Save Job Properties***) or ***Delete*** a job.

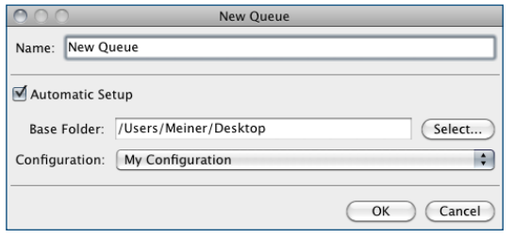


5. Your converted file is saved in the ***Output*** folder of the queue. The file name is extended by adding the Job ID and the name of the configuration.

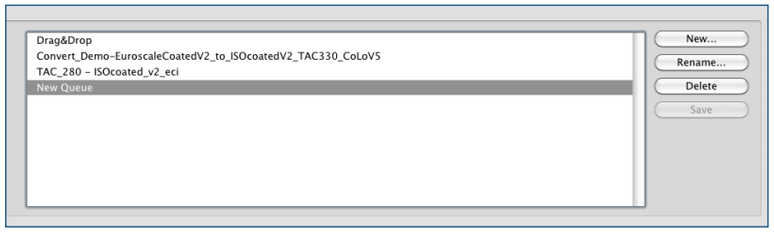
If you want to define queues individually, switch to the ***Queues*** button via the navigation panel.

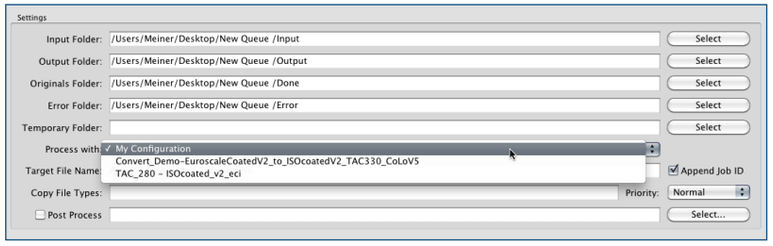


1. Click on the ***New*** button to manually define a new queue, comprising the queue name and the sub-folders.



2. To configure the new queue, first enter a ***Name*** for the queue and define the ***Base Folder*** where the sub-folders are to be created. Then use the dropdown list to select the ***Configuration*** to be used for converting the data.





3. The files to be converted are later put into the ***Input*** folder of the new queue. After conversion, the original files can be found in the ***Done*** folder. The color-converted files are stored in the ***Output*** folder. File types that cannot be processed by ZePrA and incorrectly converted files are put into the ***Error*** folder.
4. Create a ***Temporary Folder*** if you want to be sure that a workflow system that possibly already exists, and into which ZePrA is to be integrated, only accesses the data after conversion.
5. Under ***Target File Name: Append Text***, you can attach a suffix to the original file name. The ***Append Job ID*** option generates a unique, consecutive number and appends it to the original file name.
6. The ***Copy File Types*** function enables you to, for example, transfer control files belonging to a file (JDF, XML, TXT or similar file types) along with your original files.
7. With the ***Post Process*** function, you can enable subsequent further processing of each file in a particular queue after color conversion in ZePrA. In the dialog, you can select an available script or batch file or manually enter a command-line command.

Further information on this subject is provided in the chapter Queues.

USER INTERFACE

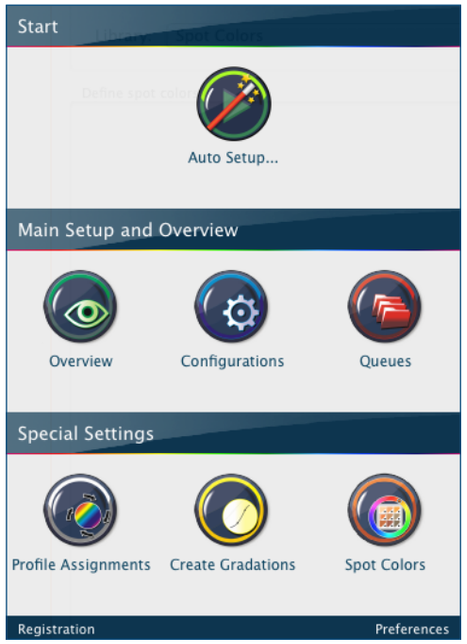
Navigation panel and menu bars

05 USER INTERFACE

› Navigation panel

The main control elements for setting up and operating ZePrA are pinned to a clever, space-saving, retractable **Navigation panel** in the main window.

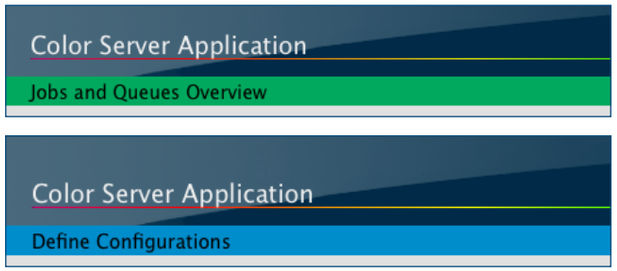
Click the button on the left edge of the window to access the respective module from the **Navigation panel**.



The navigation panel contains the ***Auto Setup*** as well as the main setting options and special modules.

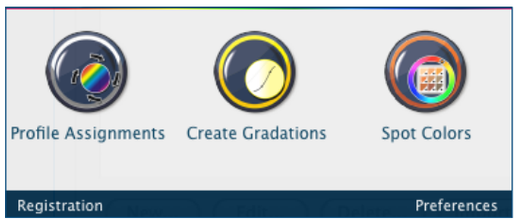
- Start – ***AutoSetup***
- Configuration and overview – ***Overview, Configurations, Queues***
- Special Settings – ***Profile Assignments, Create Gradations, Spot Colors***

Launch the module you require by clicking on the corresponding button in the navigation panel. The colored bar in the main window underneath the words ***Color Server Application*** tells you which module is currently active.

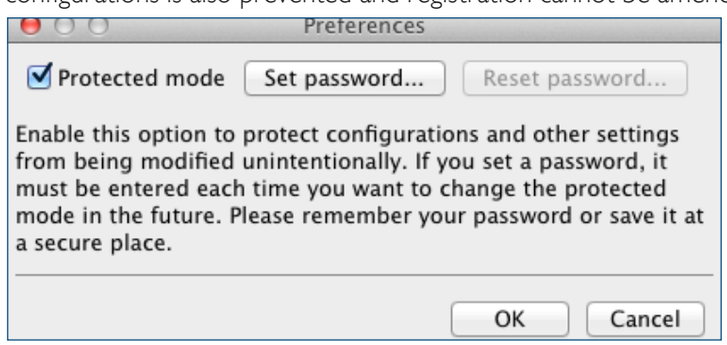


› ZePrA menu bar

At the bottom of the navigation panel, you can gain direct access to ***Preferences*** and ***Registration***, which can also be found in the menus under ***ZePrA*** and ***Help***.



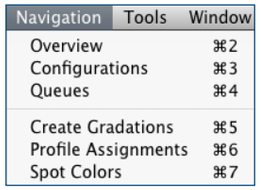
In the ***Preferences*** dialog, you can ensure existing configurations and queues are protected and can no longer be modified by enabling a checkbox. ZePrA then works in ***Protected mode*** and nothing can be altered by accidental adjustment of the settings. The importing of configurations is also prevented and registration cannot be amended.



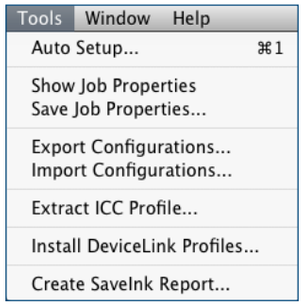
You will find additional information about the protected mode here.

› Navigation menu bar

Via ***Navigation***, you can learn how to quickly and conveniently access all ZePrA dialogs/windows through shortcuts.



› Tools menu bar

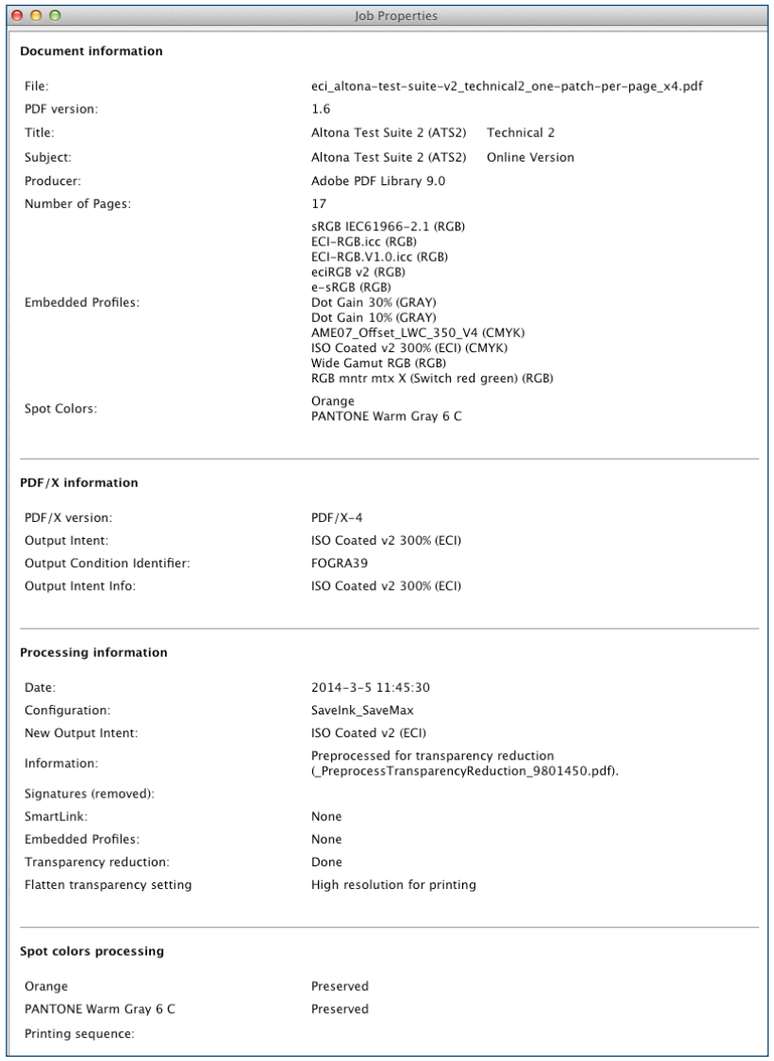


» Auto Setup

The ***Auto Setup wizard*** is the easiest way, even for experienced users, to set up a new configuration and queue for your task in ZePrA. You can also access Auto Setup from the ***Navigation panel*** in the main window. Find out more about Auto Setup under For a quick start.

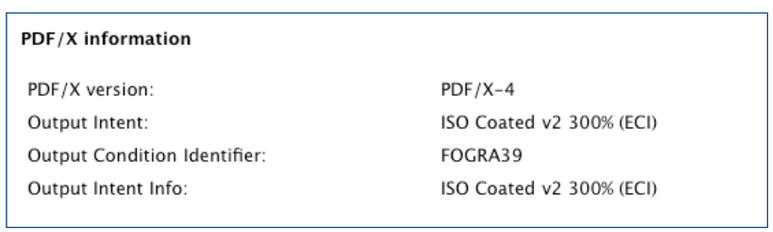
» Show and Save Job Properties

If you have clicked on a job in the ***Jobs and Queues Overview***, you can view further information about the file, any PDF/X information and ZePrA processing information in the menu under ***Tools*** or via the context menu (right-click on ***Show Job properties***).



As in PDF preflighting, you will be shown, e.g. for ***PDF*** and ***PDF/X***, information regarding, amongst other things,

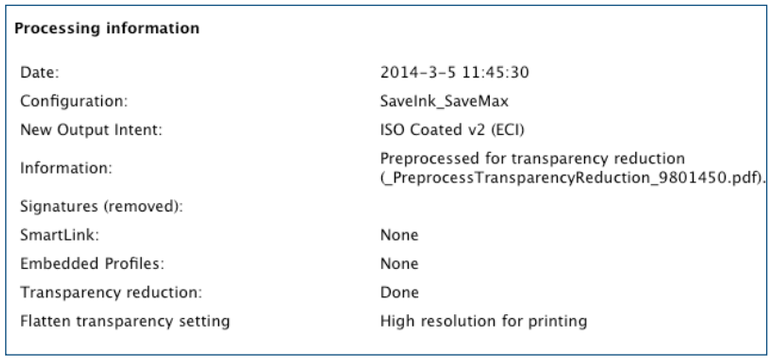
- the ***PDF version*** and/or the ***PDF/X version***
- ***embedded profiles*** in the original file
- any ***spot colors*** present
- the ***output intent***



For a multipage PDF file, the ***number of pages*** is shown in the ***Document Information*** section. If you have only converted some of the pages with ZePrA, the number of converted pages is shown in the ***Processing Information*** section.

Furthermore, the following changes resulting from the ZePrA color conversion are recorded in the ***Processing Information*** section:

- the ***date*** and time of conversion
- which ***configuration*** was used for the conversion
- information regarding the ***new output intent***, provided this was incorporated in the file
- whether DeviceLink profiles were calculated in the background using ***SmartLink***
- a note advising that no ***spot colors*** were used
- ***Ink saving*** in percent, provided you enabled the ***Calculate ink saving*** checkbox under ***Configurations/Options*** prior to the conversion
- if ***Transparency reduction*** is used for a conversion, this will be indicated and the ***Transparency reduction*** setting used will also be displayed.



If the Spot Color module is licensed and spots colors were converted to the target color space, then all spot colors and their DeltaE color value reached upon conversion are listed in ***Job Properties***. This means you can quickly check, e.g. in the event of a ***Gamut warning***, which spot color(s) are concerned. In addition, you can view the ***Job Properties*** to see which spot color library was used in performing the conversion and which printing sequence was used.

The list of DeviceLink profiles dynamically created with ***SmartLink*** and used is also very helpful. If ***automatic*** appears in brackets after the conversion specified, the profile was calculated by SmartLink. If a profile name appears in brackets, this means that the profile used was indeed the one you had set up earlier in the table in the ***Define Profile Assignments*** dialog.

On the rare occasions when an error occurs during conversion in ZePrA, you will find corresponding information under ***Warnings***.

Via the ***Save Job Properties*** entry in the context menu of a job, you can also save the job properties as a report file in various formats (PDF, XML, TXT, HTML).

» Importing and exporting configurations

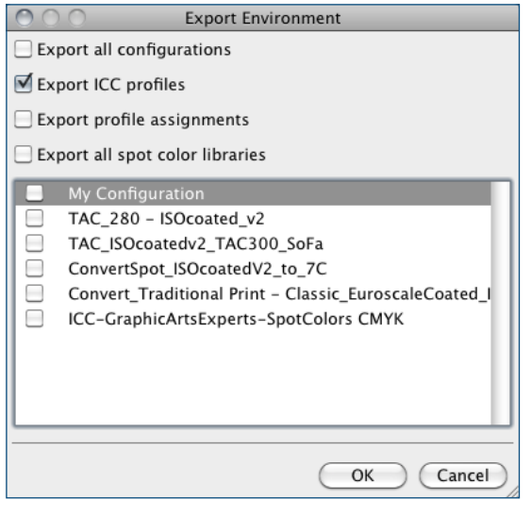
Importing and exporting configurations is an important function. The primary aim of this function is to save complete configurations, with and without hot folders as well as including or excluding ICC profiles, as an environment backup. Should your system ever decide to go on strike, or should you need to transfer your configurations to a different computer for support reasons, this function ensures that you can quickly and easily import your presets to the new environment.

Configurations can also be easily exchanged and adapted between different locations in this way. And as a service provider, you have the opportunity to offer complete ZePrA configurations that your customer then only needs to import.

Note: When exporting and importing configurations, the association of a configuration with a queue is taken into account. Should you import a configuration that is associated with a queue that already exists in your ZePrA system, then after import, the new configuration is associated with the existing queue.

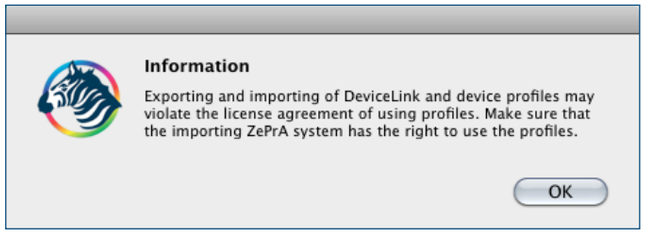
How to do it:
You can find the corresponding import and export options under ***Tools*** in the ZePrA menu bar.

1. To export your configurations/profiles, go to ***Tools/ Export Configurations*** in the menu to open the dialog for ***Environment Backup***.
2. You have four export options:



- **Export all configurations** – All the ICC device profiles and DeviceLink profiles and configurations of all queues are exported. If you wish to ***Export profile assignments*** and ***Export all color libraries*** as well, then you need to enable the corresponding checkboxes.
- **Export individual configurations** – To do this, select the required configurations from the list displayed. In this way, only the selected configurations and their settings are exported. With ZePrA 3 and higher, configurations without hot folders can also be imported and exported. If you enable the ***Export ICC profiles*** checkbox too, all the ICC device profiles and DeviceLink profiles used in the selected configurations are exported as well. If in addition you wish to ***Export profile assignments***, enable the corresponding checkbox. The same applies for exporting the spot color libraries as well.
- Exporting profile assignments makes it possible to export all settings, including the profile table you created in the ***Define Profile Assignments*** dialog. In so doing, only the settings are exported, not the DeviceLink profiles created from SmartLink as these profiles are only valid on one computer.
- **Export all spot color libraries** – all settings, including the spot color libraries you have defined, are exported.

3. When you click the ***OK*** button, a Save dialog appears. Once you have entered a file name, a ****.CCF*** file is saved containing your configurations and, if applicable, ICC profiles.
4. Afterwards, an ***Information*** dialog appears informing you about the license provisions when exporting and importing ICC profiles and DeviceLink profiles.

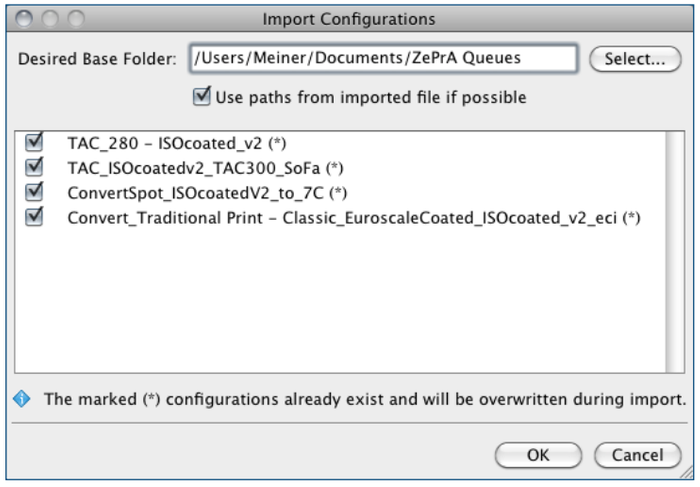


For any additional ZePrA system using ColorLogic profiles, these profiles, or a profiling tool such as CoPrA, must be purchased.

You can import configurations as follows.

How to do it:

1. To import configurations/profiles, select in the menu ***Tools/Import configurations.***
2. Select the previously exported file or the ***CCF*** file provided to you for importing. An Import dialog pops up listing all the configurations:



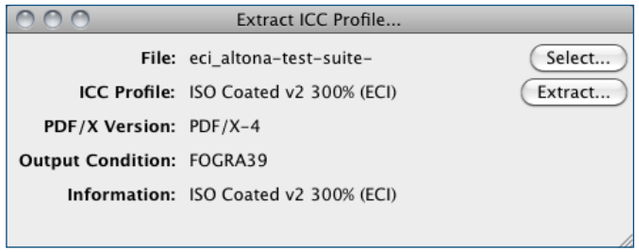
3. Select the ***Desired Base Folder*** where the hot folder should be created when importing configurations.
4. Alternatively you may enable the checkbox ***Use paths from imported file if possible*** in order for ZePrA to retain the hot folder paths from each imported configuration individually. Otherwise, the hot folders will be created in the base folder specified. Configurations already existing in the importing system are marked with ***(*)***.
   You can prevent such configurations from being imported by disabling the checkbox. Otherwise, your existing configuration will be overwritten.
5. After clicking ***OK***, the configurations/profiles are immediately at your disposal for using in ZePrA. Initially, imported configurations have the status inactive, but they can be activated again in the ***Jobs and queues dialog***.

» Extract ICC profile

The ***Extract ICC profile*** tool filters out the embedded profile from images and the output intent from PDF/X files. The extracted ICC profile is stored in a location predefined by you. The ***Extract ICC profile*** option is particularly useful if the embedded profile is not available to you as a file and you want to create, for example, a DeviceLink profile or a SaveInk profile from this ICC profile in CoPrA.

How to do it:

1. Under ***Tools***, open the ***Extract ICC profile*** menu entry.
2. Use ***Select*** to choose the appropriate file (PDF, JPEG, TIFF PSB or PSD files) with embedded profile. You can also use Drag & Drop to drag a file onto the dialog.



3. The embedded ICC profile or the output intent in a PDF/X file is displayed and can be stored in a desired location via the ***Extract*** button.

» Install DeviceLink Profiles

When ZePrA is installed, a DLS Installer is created which you can call up via the ***Tools*** menu entry ***Install DeviceLink Profiles***.

Your dealer will provide you with a license key for the set you require, if you have purchased one.

Profiles updates, e.g. new or improved profiles, are also very easy to perform via the ***DLS Manager***.

Read more about this under ColorLogic DeviceLink Profile Sets/ Installing DeviceLink Sets.

» Create SaveInk Report

In the ***Tools*** menu, you can call up the option ***Create SaveInk Report***. This report generates a detailed overview of all the SaveInk queues you have set up and their processed jobs.

ZePrA SaveInk Report 2014-03-26

Summary

Queue	Jobs	Pages	Ink savings
SaveInk_ISOnews26_SaveMax180	2	2	16.3%
Drag&Drop	5	28	22.2%
SaveInk_Japan2001Coated_SaveMax300	4	4	13.9%
SaveInk_ISOnews26_TAC240_CoLoV3_Loop1	2	2	1.5%
SaveInk_ISOnews26_TAC240_CoLoV5	8	9	4.1%
SaveInk_ISOcoatedV2_SaveMax300	446	2365	17.9%
TAC-ISOcoatedv2_TAC300	2	2	9.6%
Spot-ISOcoatedV2	9	9	13.3%
SaveInk_ISOcoatedV2_SaveNeutral300	1	1	13.1%
SaveInk_ISOcoatedV2_SaveStrong300	1	1	18.3%
SaveInk_SaveMax	8	8	25.1%
SaveInk_SaveNeutral	1	1	13.1%
SaveInk_SaveStrong	14	14	20.1%
TAC ISOcoatedv2_TAC300	1	1	9.6%
Spot ISO Coated V2	1	1	5.6%
SaveInk_test	2	2	28.2%
SaveInk_ISOnewspaper26_SaveMax200_v2	1	1	15.3%
SaveInk_ISOnews_SaveStrong200	2	2	27.1%
All queues	510	2453	17.8%

Ink saving per queue and job

SaveInk_ISOnews26_SaveMax180

Job	Date	Pages	Ink savings
e1411x03xxxxxxxxx.pdf	2012-11-21 17:58:10	1	9.5%
Graff.pdf	2012-11-21 17:58:16	1	18.9%

Drag&Drop

Job	Date	Pages	Ink savings
SpotColorSC6-Test_noX.pdf	2012-11-23 15:54:22	1	2.1%
9632 arbeidsbog F29.pdf	2013-2-19 09:56:53	24	-1.3%
Tattoo-ISOcoatedV2.pdf	2013-2-21 10:23:23	1	28.2%
SpotColorSC6-TestV5_X4.pdf	2013-3-21 15:31:37	1	5.6%
SpotColorSC6-TestV5_X4.pdf	2013-3-21 17:06:27	1	9.6%

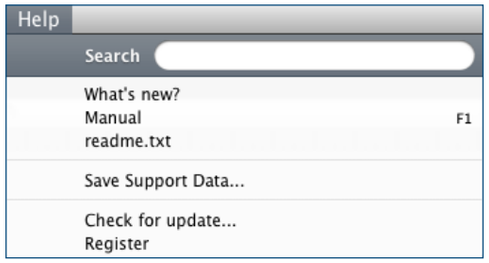
The overview lists the overall ink savings across all queues, the savings per queue and the savings per job, which will be helpful to you when calculating prices and costs.

Note: Calculation of the percentages in the SaveInk report only refers to the CMYK components saved, whereby transparency effects and overprinting elements are also taken into account. Spot colors are not taken into account.

The report may be created as a PDF, TXT, HTML or XML file.

› Help menu bar

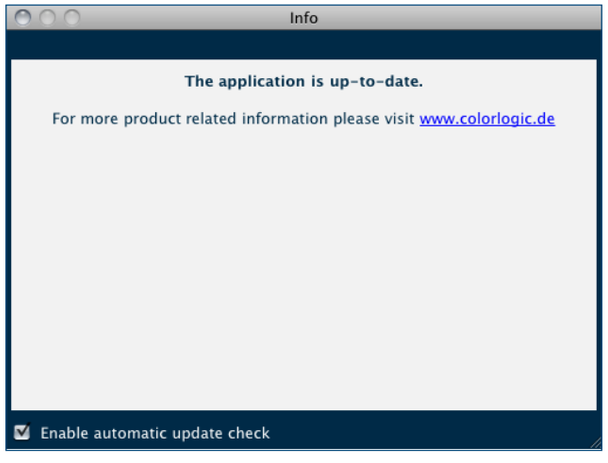
Under ***Help***, you will find just that, as well as the option to ***Save Support Data***, manually trigger a ***Check for update*** and access ***Registration*** (which you can also do via the navigation panel).



» Automatic update check

The automatic update check in ZePrA regularly checks for updates via an Internet connection. You can use the ***Check for update*** entry in the ***Help*** menu to trigger a manual check at any time.

You can switch automatic checking on and off via the checkbox ***Enable automatic update checks***. If you have no Internet connection, it is better to switch this option off. If an update is available, you can download it directly from the dialog, ensuring you are always up-to-date.



» Save Support Data

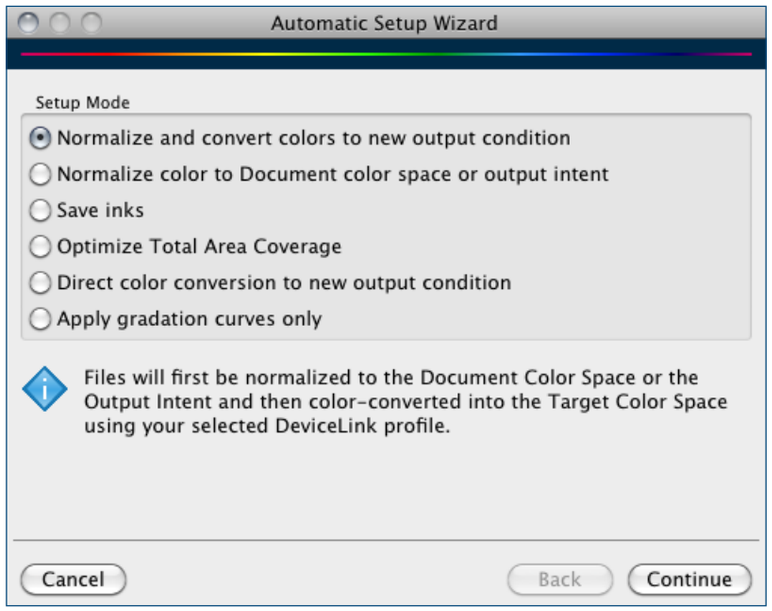
In the event of a problem, it is very easy to gather the required background information such as the operating system used and ZePrA Log and Preset Files as well as the functions enabled. To do this, select the ***Save Support Data*** menu entry in the ***Help*** menu, save the file under a name and send it to your dealer, along with a description of the problem.

AUTO SETUP

Automatic configuration wizard

06 AUTOMATIC CONFIGURATION WIZARD

The ***Auto Setup wizard*** is the easiest way, even for experienced users, to set up a new configuration and queue for your task in ZePrA. The wizard comprises six workflow suggestions and therefore covers all the typical tasks.



The purpose of an Auto Setup queue created for a workflow is to optimize image and PDF files for standardized offset, newspaper or gravure printing as well as for flexographic, Multicolor, LFP and digital printing.

If you have purchased the SmartLink module as well, you can safely circumnavigate the typical problems encountered in the color management of PDF files and define all vital color management parameters in just a few steps during configuration. The wizard will automatically do the rest for you. Once you have completed the wizard, the new configuration and, if applicable, the new queue will be immediately ready for use.

Note: Any professional, high-quality conversion presupposes that the source color space of the objects to be converted is known or can be read out. If no unequivocal document color space (output intent) is assigned to the objects in the PDF file, conversion is performed on the basis of the ***Document color space*** you selected as a source profile and may produce results that differ from those anticipated by the creator of the document.

In most cases, the PDF file converted using an Auto Setup queue is a device color space file optimized purely for the output (i.e. either CMYK, RGB, Gray or Multicolor depending on target profile) without embedded profiles in individual objects.

Data containing additional spot colors are not changed in the standard queues. All the color information needed for PDF/X, including use of the target profile as the output intent, is set automatically in Auto Setup queues.

For almost all cases encountered in practice, Auto Setup queues can be used as automatic functions without any problems. However, if your workflow requires special configurations, you can find individual setting possibilities in the chapter Configurations/ Defining configurations.

If you would like to find out more about handling hot folders that have been created using the ***Auto Setup wizard*** or in the ***Define Queues*** main window, please read the chapter Queues.

This section explains the effects configurations from Auto Setup queues have on image files and PDF files.

› PDF files in Auto Setup queues

All ColorLogic DeviceLink profile sets are optimized in such a way that the colors of both image and vector data in a PDF file can be reliably converted with them.

- For normalizing or color conversion, all the color information needed for the PDF/X, including use of the target profile as the output intent, is set automatically in Auto Setup queues.
- Gradients in vector graphics that consist of just one or two CMYK colors still contain only the original colors after application of the profile. The color values are adjusted in accordance with the purpose of optimization.
- The ColorLogic DeviceLink profiles have been checked both for smoothness and for visually correct conversion and have proven their worth in years of practical use.
- If, for example, PDF objects are in the RGB color space and have the relative colorimetric rendering intent embedded, the Auto Setup queue automatically activates black point compensation to ensure clean reproduction of details in the shadows.
- Grayscale objects are converted in accordance with the presets for CMYK objects. By doing this, as much gray as possible is preserved and not converted to four colors
- If the SmartLink function has been licensed, color conversions of objects with embedded profiles are always performed via SmartLink and using DeviceLink profiles in order to guarantee the best possible quality.
- If the PDF files contain spot colors, the spot colors are not changed in the standard queues. If you want to convert spot colors to process colors, you can adjust the conversion later on in the configuration.
- No ICC device profiles are embedded in the individual objects of the output PDF file as standard.
- PDF files can be optimized without any problems through the identical processing of image and vector data in Auto Setup queues.
- If a PDF file contains transparencies, the individual PDF objects are processed in exactly the same way as in a PDF file without transparencies. The colors of the transparencies are converted as standard, and the transparency information is preserved unchanged. If you want to reduce transparencies, you can adjust these later on in the configuration.

› TIFF/JPEG/PSD/PSB image files in Auto Setup queues

TIFF, JPEG, PSD or PSB image files in an Auto Setup queue are handled by ZePrA in precisely the same way as the corresponding image objects in a PDF file. Please note, however, that there is no document color space for pure image files and therefore the settings under ***Images*** are relevant.

For pure image data conversion of TIFF, JPEG, PSD and PSB images from a source color space to a target color space, it is advisable to use the ***Auto Setup*** option ***Normalize and convert colors to new output condition***. There, two options are available to you:

Option 1 – Use a previously created DeviceLink profile. The DeviceLink profile you indicated in the Auto Setup wizard already configures the source profile of the image if images without embedded profiles are processed. The target profile is likewise set by Auto Setup. Although conversion is performed via a detour via the document color space to the target profile, more consistent results are obtained in this way.

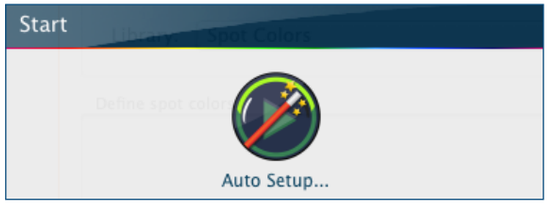
Option 2 – Use ICC profiles for document color space and target color space to calculate a DeviceLink "on-the-fly" via SmartLink (requires a license for SmartLink). You yourself choose the rendering intent for the calculation. Furthermore, via Prefer Output Intent, you can also select the output intent of the PDF/X file instead of the manually set document color space.

You can also use the ***Auto Setup*** option ***Direct color conversion to new output condition***. If you use the SmartLink function, either a DeviceLink profile is calculated "on-the-fly" or a stored DeviceLink profile is used depending on the setting under ***Profile Assignments***. If you want to be certain that a specific DeviceLink profile is applied in this configuration, e.g. for TAC reduction or ink saving, store this profile in the table in the ***Profile Assignments*** window.

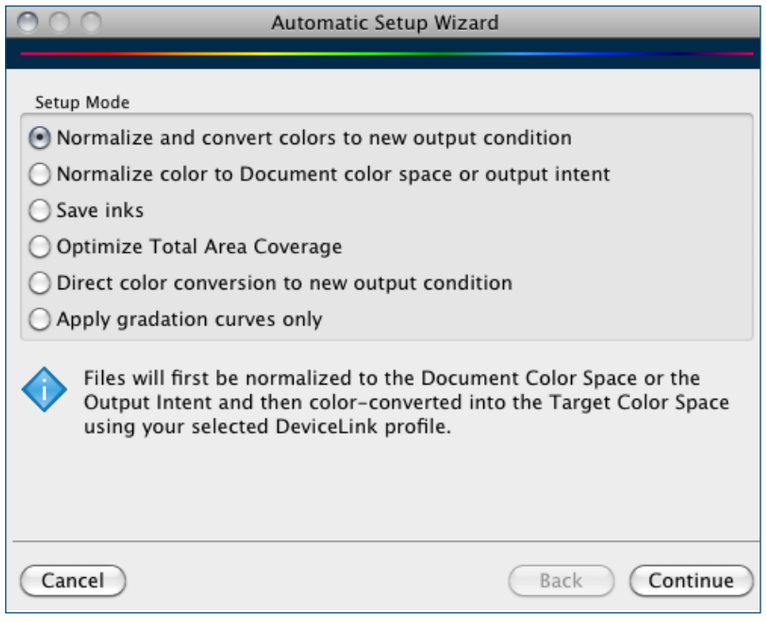
Note: The color depth of the input data is preserved with the conversion. The only exception: If, under ***Options/Image quality***, you change TIFF, PSD and PSB files into JPEG files, this will result in a color depth of 8 bit because only 8 bit is possible in JPEG files. Read more about this under Configuration – Options/Image quality.

› Selecting setup modes

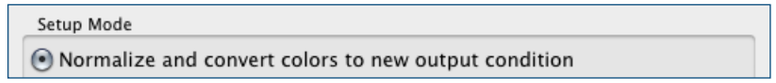
After starting ZePrA, you will find the button at the bottom left in the main window. If you click on the button, you will see the symbol for ***Auto Setup*** in the ***Start*** section. The Auto Setup wizard allows you to create a queue for optimizing your PDF files with just a few mouse clicks.



Since color conversion can have very different purposes, ZePrA also has to be configured in different ways. So, you have choice of six different setup modes for creating your queues:

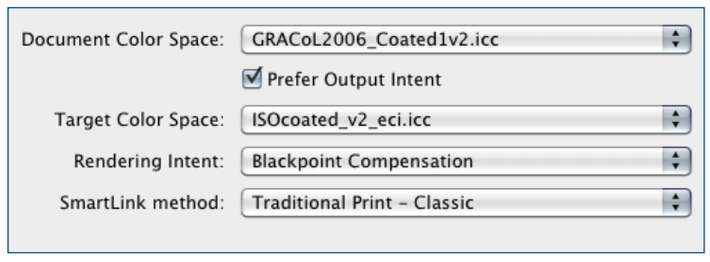


» Normalize and convert colors to new output condition



- With this queue setting, the contents of the PDF file are first normalized to the document color space or output intent, if available and selected, and then color-converted to the required output condition using a DeviceLink profile.
- After ***Use existing DeviceLink profile***, select a DeviceLink profile which converts from the document color space to the required output condition. All other options for RGB, CMYK, Gray and Lab color spaces will be set automatically.

- Or, select the ***Use SmartLink*** option to calculate the ICC profiles you selected as the ***Document color space*** and ***Target color space*** to a DeviceLink "on-the-fly" (requires a license for **SmartLink**).



- You will need to choose the ***Rendering Intent*** for the calculation (see also Automatic configuration wizard/Use SmartLink/Rendering Intent). Furthermore, via ***Prefer Output Intent***, you can also select the output intent of the PDF/X file instead of the manually set document color space.
- In addition, four ***SmartLink methods*** are available to you. The methods are explained in the next chapter, Automatic configuration wizard/Use SmartLink/SmartLink methods.
- The default name of this queue begins with ***Convert***.

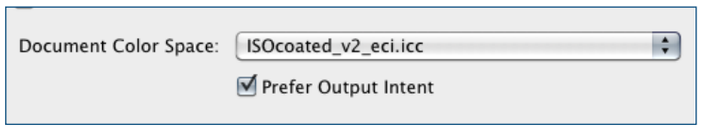
First, RGB objects with embedded profiles are color-converted to the CMYK color space of the document and then the entire document is further processed via the DeviceLink profile. Embedded profiles and rendering intents in RGB objects are taken into account. When normalizing, all images that do not have an embedded profile are color-converted to the document color space using the sRGB profile. Black point compensation is generally activated for the event that the embedded intent is relative colorimetric.

CMYK objects with embedded profiles are always converted to the document color space first (normalized). If you have enabled the SmartLink function and an individual PDF object (image, graphic, section of text) has an embedded device profile, the device profile is not used, but the profile information is taken into account during conversion via the DeviceLink profile (SmartLink).
If a relative colorimetric rendering intent is active in the PDF object, ZePrA performs conversion with black point compensation as standard.
If the DeviceLink profile was calculated with the option for preserving pure primary and secondary colors, this option ensures that pure colors remain pure in CMYK objects with embedded profiles.

After normalization, the PDF document is color-converted via the DeviceLink profile set under ***Document color space***. If you have not purchased SmartLink, direct ICC-based conversion to the target profile or document color space is performed. Pure CMYK colors are almost always contaminated in the process, leading to problems with overprinting elements.
The procedure of first normalizing and then color-converting delivers the most consistent results for color conversion as it is recommended in the PDF/X specification.

» Normalize color to Document color space or output intent

- When normalizing, the color spaces of your image data or individual PDF objects that do not correspond to the document color space or output intent are correctly converted to these (usually CMYK). Generally, they are converted to the output intent. If there isn't one, the document color space you selected is used instead. After conversion, the final, normalized file still only consists of the document color space or the color space of the output intent and any spot colors



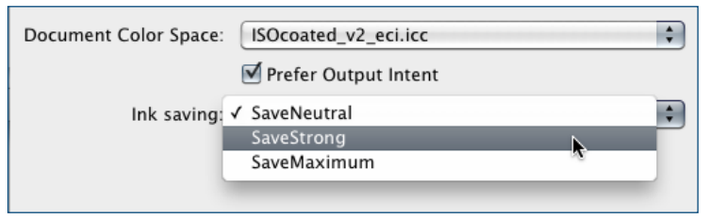
- If image data or PDF objects are in the RGB color space, the embedded profile converts them to the document color space with the rendering intent defined in the PDF.
- If a relative colorimetric intent is embedded in PDF objects, the Auto Setup queue automatically activates black point compensation to ensure clean reproduction of details in the shadows.
- The default name of this queue begins with ***Normalize***.

The following color conversions apply when normalizing:

- Conversion of DeviceRGB and ICCbasedRGB to the document color space (usually CMYK).
- Spot colors are left unchanged.
- If necessary, you may decide to convert spot colors to the target color space.
- Conversion of ICCbasedCMYK to the document color space, preserving pure colors and the separation characteristics (when using the SmartLink function).
- Mapping of ICCbasedGray onto the black channel of the document color space.

» Save inks

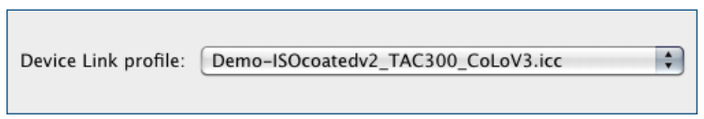
- With the ***Save inks*** queue, your data are normalized to the document color space and subsequently optimized with your predefined SaveInk profile or the ***Ink saving*** you specified in advance.



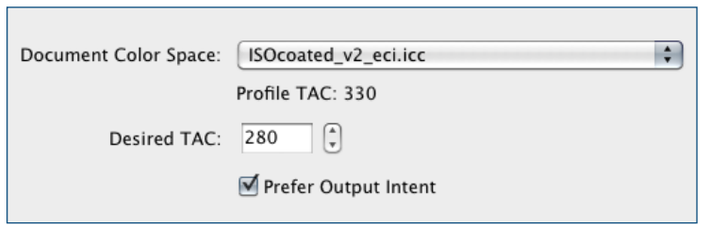
- The source and target profiles are identical, which means that the optimized file stays in the same color space as the document color space. The focus here is on faithful reproduction of your files, while simultaneously reducing the CMY components and increasing the K components in order to save ink. Accordingly, the dropdown menu for choosing the DeviceLink profile will only show profiles whose source and target profile are identical.
- The default name of this queue begins with ***SaveInk***.

» Optimize Total Area Coverage

- With the ***Optimize Total Area Coverage*** queue, your data are normalized to the document color space and subsequently optimized using your specified TAC reduction profile or the total amount of color you entered under ***Desired TAC***.
- The source and target profiles are identical, which means that the optimized file stays in the same color space as the document color space. The focus here is on faithful reproduction of your files, while simultaneously reducing the ink limit.
- After ***Use existing DeviceLink profile***, select a ***DeviceLink profile***. The dropdown menu for choosing the DeviceLink profile will only show profiles whose source and target profile are identical.



- Or select the ***Use SmartLink*** option to assign a TAC to your selected ***Document color space*** "on-the-fly" (requires a license for **SmartLink**).
- You will need to choose the ***Desired TAC*** for the calculation. Furthermore, you can also apply the desired limitation to all output intents in different PDF/X files.

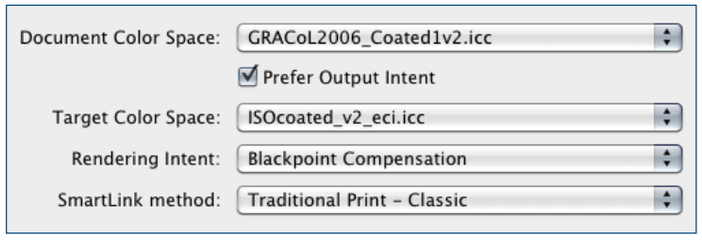


- The default name of this queue begins with ***TAC***.

» Direct color conversion to new output condition

- This queue directly converts the colors of data with embedded profiles to the required output condition (target profile) without first normalizing the data to the document color space. Use this setting mode for data prepared in media-neutral fashion, e.g. with RGB image data. Using this setup mode, maximum utilization of the target color space is possible because image and vector data differing from the document color space are directly converted to the target profile.
- After ***Use existing DeviceLink profile***, select a ***DeviceLink profile*** which converts from the document color space into the required output condition. All other options for RGB, CMYK, Gray and Lab color spaces will be set automatically.

- Or, select the ***Use SmartLink*** option to calculate the ICC profiles you selected as the ***Document color space*** and ***Target color space*** to a DeviceLink "on-the-fly" (requires a license for **SmartLink**).



- You will need to choose the ***Rendering Intent*** for the calculation (see also Automatic configuration wizard// Rendering Intent). Furthermore, via ***Prefer Output Intent***, you can also select the output intent of the PDF/X file instead of the manually set document color space.
- In addition, four SmartLink methods are available to you. The methods are explained in the next chapter, Automatic configuration wizard/Use SmartLink/SmartLink methods.
- The default name of this queue begins with ***Output***.

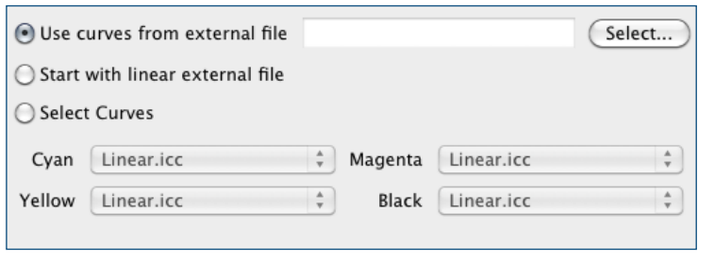
RGB objects with embedded profiles in the PDF file are converted directly to the target color space in order to exploit the maximum color space. However, embedded profiles and rendering intents are taken into account in the process. This guarantees consistent conversion and optimization of the data. For RGB data without an embedded profile, it is assumed as standard that they are in the sRGB color space. Black point compensation is generally activated for the event that the embedded intent is relative colorimetric.

In the event of direct color conversion of CMYK objects, **CMYK objects with embedded profiles** are optimized via the DeviceLink profile, thanks to the SmartLink function. Embedded profiles/intents are taken into account.
For special cases, ZePrA offers the option of deactivating color management for vector/text objects via the ***Vectors*** tab. In this way, you can, for example, take the embedded profile into account only for images and leave vector graphics unchanged.

» Apply gradation curves only

- The Auto Setup option ***Apply gradation curves only*** is useful if you have already prepared your printing data for the desired printing process and would like to make an adjustment due to different printing conditions (e.g. caused by the substrate or other printing parameters) without CtP compensation curves in the RIP. ZePrA enables the gradation of your data to be corrected "on-the-fly" without changing the characteristic curves in the RIP.
- You can automatically apply gradation adjustments to existing configurations or to pure gradation workflows to be newly created. In doing so, the gradation curves affect the process colors and/or spot colors, but the document color space is not changed. It is best, therefore, to apply pure gradation corrections to print-ready PDF/X 1a files that are comprised of only CMYK and possibly spot colors.

You have **three options** for creating a pure gradation workflow:

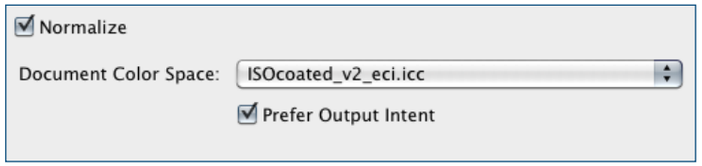


- **Use curves from external file**
  Load an external file with the gradation curves for process colors and/or spot colors. ZePrA reads the gradation curves from the loaded file and assigns them automatically to the appropriate process colors. If spot-color curves for defined spot-color channels are also stored in the external gradation file, then ZePrA creates the corresponding spot-color channels in the configuration and assigns the relevant curve to each color.
- **Start with linear external file**
  If there is no external file with gradation curves and they are to be generated during the production process, then a corresponding configuration may be created in advance with initially linear curves. By doing this, ZePrA automatically creates a file with linear gradation curves in the ***base folder*** of the queue, which can be simply overwritten later during the production process by an updated file with new curve information and immediately applied to files in the workflow.

Note: In the above two options, ZePrA knows if the external file has changed, i.e. if it has been provided with updated curves. ZePrA adopts the gradation curves immediately and without restarting the system, to the files in the queue for conversion. The prerequisite for this is that the gradation file of the respective configuration is overwritten with the same name in the corresponding storage location.

- **Select curves**
  If you do not work with tools that can create external files with gradation curves as required for the first two options, then you can create a configuration using the static gradation curves supplied in ZePrA or using the curves you created in the ***Create Gradation Curves*** window (in the form of a gray DeviceLink profile). Simply select the desired gradations from the options available for process colors Cyan, Magenta, Yellow and Black. Naturally, you can amend the curves in the configuration at any time.

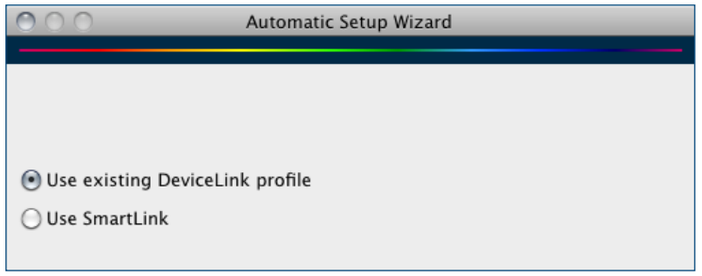
In the next step in the Auto Setup wizard, you can choose whether to ***Normalize*** the data.



- If you are working with PDF/X-3 or PDF/X-4 files that may still contain RGB objects or CMYK objects with embedded profiles, you should let ZePrA normalize the file. ZePrA then applies the curves to the normalized file.
- Select an ICC profile that is to be adopted as the ***Document Color Space*** in the event that there is no output intent in a PDF file.
- Also, you must activate the ***Prefer Output Intent*** checkbox to ensure that any existing output intent always has priority over the set document color space and is always preserved.
- The default name of this queue begins with ***Gradations***.

› Use existing DeviceLink profile

Under ***Use existing DeviceLink profile***, you use an existing DeviceLink profile located in the standard profiles folder on your system.

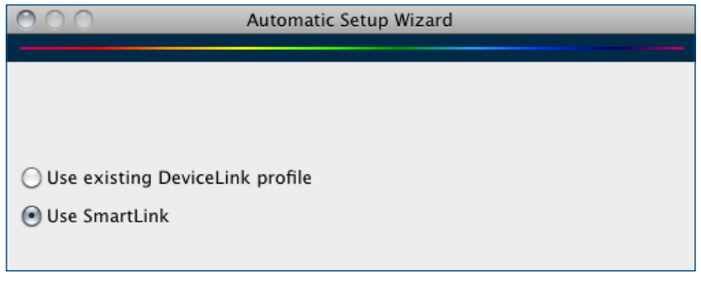


The DeviceLink profile you indicated in the Auto Setup wizard configures the source profile of the file if files without embedded profiles are processed. The target profile is likewise set by Auto Setup.
If you previously selected a setup mode with normalization, the conversion is performed via a detour via the document color space to the target profile, but consistent results according to PDF/X rules are delivered this way.

In the ***Save inks*** and ***Optimize Total Area Coverage*** setup mode, the dropdown menu for choosing the DeviceLink profile will only show profiles whose source and target profile are identical.

› Use SmartLink

Under ***Use SmartLink***, the SmartLink DeviceLink is calculated "on-the-fly" based on the ICC profiles used for the document color space and the target color space (requires a license for SmartLink). You yourself choose the rendering intent for the calculation. Furthermore, via ***Prefer Output Intent***, you can also select the output intent of the PDF/X file instead of the manually set document color space.



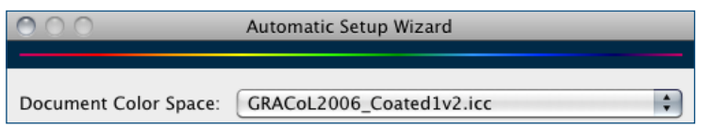
Via SmartLink, high-quality DeviceLink profiles are calculated in order to avoid the problems associated with normal ICC conversion and to ensure optimal color conversion.

Basically, the SmartLink function is used in two ways in ZePrA:

- For "on-the-fly" conversion from document color space to target color space by choosing a source and target profile and a rendering intent (conversion methods).
- For "on-the-fly" conversion of profiles embedded in images and vectors to the document color space or target color space.

» Document color space

The document color space serves as a reference when it comes to creating a consistent printing color space for the colors of a PDF file. CMYK color spaces are mostly used as the document color spaces in the framework of print production, since printing is usually also done with CMYK inks. However, it is also perfectly possible that an RGB document color space is encountered in modern publications for mobile media. Additional colors are used in packaging printing or HiFi printing, where the document color space can also be represented by a Multicolor profile if PDF/X-5n is used. ZePrA supports the full range of color spaces.



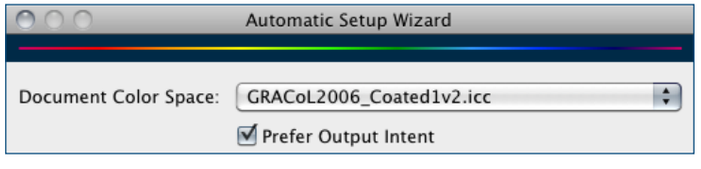
Note: To use Multicolor spaces, you must have the **Multicolor** license.

If a PDF file contains individual RGB or CMYK objects with embedded profiles, these are color-converted to the document color space.

For professional print production, data exchange should be based on the PDF/X standard.

» Prefer Output Intent

In addition to the ICC device profiles in the individual objects in the PDF file, the entire PDF document may also be tagged with an output intent (an ICC device profile that describes the document color space). The document color space is unequivocally defined as the output intent in PDF/X documents. If this function is enabled, PDF/X files with different output intents can be correctly color-converted in one queue because the respective output intent is taken into account instead of the document color space.



Note: Only use this function with caution and if you are sure that only PDF/X files are being processed.

Note: You can find out more about the ***target color space*** under Configuration – Define target/Select target color space.

» Rendering Intent

For conversion by means of ICC DeviceLink profiles, in addition to the four standard rendering intents, ZePrA also offers its own conversion methods when SmartLink is used. This calls for a brief introduction to the structure of ICC device profiles:

If you take a closer look at an ICC device profile using suitable tools, you will see that the rendering intents, such as ***perpetual*** or ***relative colorimetric***, are large tables that, in the case of CMYK profiles, convert either CMYK color values to Lab, or Lab color values to CMYK. Because of these two directions of color conversion, there are two tables for each rendering intent. These tables are calculated from the colorimetric data when generating a color profile. If different profiling software is used to calculate ICC device profiles from the same colorimetric data, the tables generated in the process differ substantially in some color areas.

This particularly applies to the two tables of the perceptual intent, the gray balance and also the areas of very high color saturation in the two tables of the relative colorimetric intent (also known as "out-of-gamut" colors).

To obtain optimum, harmonious color conversion, it is advisable to ensure that the source profile and the target profile were calculated using the same profiling software, particularly where CMYK-to-CMYK conversion is involved. In practice, however, it is often the case that profiles from different providers are used, e.g. from Adobe or the ECI, and this can lead to problems during color conversion with the perceptual rendering intent.

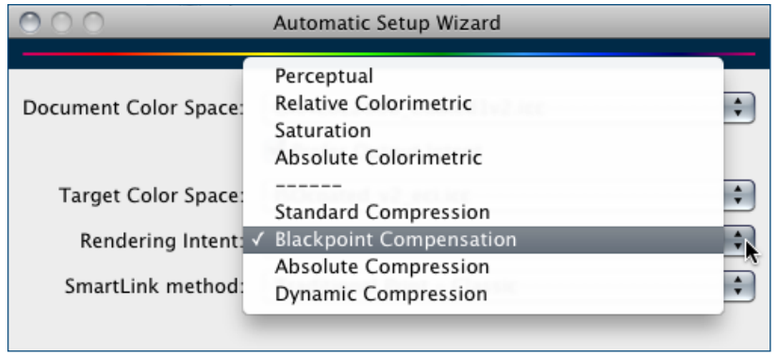
Extended ZePrA rendering intents

The extended rendering intents of ZePrA avoid incompatible color conversions that can result if the tables for the source and target profiles are calculated differently.

To achieve compatible color conversion, ZePrA completely recalculates the source and target profile tables "on-the-fly". When doing so, ZePrA uses the same algorithms as CoPrA, the high-end profiling software from ColorLogic.

Note: The extended rendering intents are only available with activated SmartLink function. If the ***Apply SmartLink*** checkbox is not enabled or if SmartLink has not been licensed, only the four standard rendering intents are available.

Using SmartLink, four additional rendering intents are available in total for an alternative perceptual rendering:



- **Standard Compression** calculates a perceptual rendering for the input and target profiles that is highly suitable for all kinds of gamuts in input and target profiles. In this context, the gray axis of the conversion is always relative to the paper white of the target profile. If CMYK data are converted to a very yellowish paper, the gray balance of the converted file is also yellowish. If you convert the same gray axis to a bluish paper, it will appear bluish. ***Standard Compression*** takes different gamut sizes into account. In the case of very small gamuts, e.g. in newspaper printing, the shadows are lightened slightly in order to get more definition in these areas.

- **Black Point Compensation** largely corresponds to the "relative colorimetric with black point compensation" option in Adobe applications, with additionally improved rendering of out-of-gamut colors. This version is very suitable if the gamut and contrast range of the input and the target are not too different, e.g. when converting printing data for offset printing on coated paper to web offset printing. As with ***Standard Compression***, the gray axis of the conversion is relative to the paper white of the target profile. Instead of cutting off out-of-gamut colors, as happens with Adobe black point compensation, ColorLogic Black Point Compensation applies out-of-gamut mapping, which leads to better definition in highly saturated colors and hue-accurate color reproduction.

  Note: The shadows are not lightened by ColorLogic ***Black Point Compensation***, meaning that it is not optimally suited to small gamuts. Should there be a major difference in contrast and gamut between the input and target profiles, it is better to use ***Standard*** or ***Dynamic Compression***.

- **Absolute Compression** is best suited to data where the gamut and contrast range of the input and the target are fairly similar, but the paper color differs substantially. In contrast to ***Standard Compression*** and ***Black Point Compensation***, the paper color is compensated in the gray balance. In this way, it can be ensured that the color appearance of the original file is optimally preserved on a target medium with a different paper color. Again, this method lightens the shadows if the gamut is small.

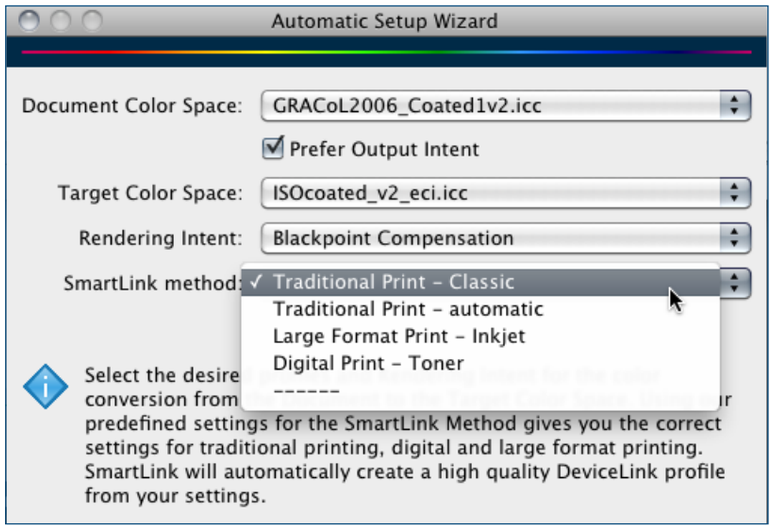
Note: Select ***Absolute Compression***, if the paper white of the input and target color spaces is significantly different, but you want to get the same color impression in both printing processes. After conversion using ***Absolute Compression***, the gray axis of the source color space will look largely identical on a yellowish and a bluish paper, for example.

- **Dynamic Compression** compares the input color space with the target color space and creates a compression for minimizing out-of-gamut areas. In this context, the brightness and thus the definition, of the original color space is preserved, as is the highest possible saturation. As with ***Standard Compression***, the gray axis of the conversion is relative to the paper white of the target profile. Use ***Dynamic Compression*** if the input and target profiles have a very large dynamic and contrast range, as with RGB-to-CMYK conversions, for example.

Note: To make sure that the rendering intent set in ZePrA under ***Images*** and ***Vectors*** is taken into account with PDF files too and used when creating a DeviceLink profile "on-the-fly" with SmartLink, the option ***Ignore PDF Rendering Intents*** should be selected.

» SmartLink methods

Via the ***SmartLink methods***, ZePrA takes into account the various requirements of different printing conditions, so that the printed color is correctly matched and optimally separated for the required printing process.



- **Traditional Print – Classic** is suitable for data you want to convert for offset, gravure or newspaper printing. With this preset, the DeviceLinks created ensure that black and gray as well as primary, secondary and tertiary hues of the source file are preserved. The presets also ensure that the separation structure of the source file is preserved. The total area coverage is taken from the target profile.

- If you want to use conventional printing, but the color and paper of the target color space differ significantly from the output intent or the document color space, you should choose the setting **Traditional Print with automatic**. This option also ensures that the separation is preserved, but the colors defined as exceptions, e.g. primary and secondary colors as well as gray and black, are automatically calculated on the basis of both profiles used.

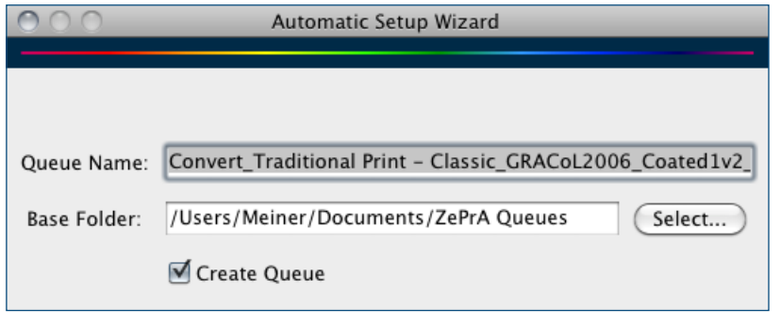
- If you print on a (large-format) ink system, you should select the method **Large Format Print – Inkjet**. In this case, the separation is structured with a strong GCR and delayed application of black. The black point and total area coverage are automatically calculated in order to guarantee the best color output. All other conversions conform to the ***Traditional Print with automatic*** method. If the colors vary between different inkjet printers or between the inkjet printing system and the source color space, such as ISOcoated V2 or GRACoI, preserving exceptions, such as primary and secondary colors, does not produce a satisfactory adaptation. In this case, the ***Large Format Print – Inkjet*** method automatically calculates the most appropriate exceptions.

- If you work with digital production machines or office printers, you should select the **Digital Print – Toner** method. This method uses the same DeviceLink presets for exceptions as the ***Large Format Print – Inkjet*** method. For the separation, this method ensures that a high percentage of black is used to achieve a stable printout and a neutral gray balance. The total area coverage is taken from the target profile.

Note: All methods with automatic color exceptions can result in the overprinting of primary and secondary colors as well as gray being lost during conversion. If you have not obtained a license for SmartLink, the Auto Setup wizard sets your configuration differently in order to guarantee the highest possible production reliability. Without a SmartLink license, CMYK objects with embedded profiles are treated like objects without profiles (i.e. like DeviceCMYK) and are converted using the DeviceLink profile you have selected. Read more about this in the chapter ZePrA and other programs/ZePrA and PDF preflighting/Ignoring CMYK objects with embedded profiles.

› Creating queues and configurations

In the last step in the wizard, specify a ***Queue Name*** which simultaneously matches the name of the configuration.
You can change the name later in the ***Queues*** dialog if necessary.



Underneath the queue name, you can specify the Base Folder in which you wish to create the queue.

If you want to create queues (hot folders) in the ***Base Folder***, you must select the option ***Create queue***. This way, you generate the required sub-folder with which the selected configuration is also linked.

When you send a PDF file to the ***Input*** folder of the created queue, ZePrA automatically converts it in accordance with your color management specifications and saves the converted file in the ***Output*** folder. The original file is moved to the ***Done*** folder. Faulty files are saved in the ***Error*** folder. You can use the queues immediately.

If you only need a new configuration and no new queues, deactivate the ***Create queue*** option.
This will allow you to assign the configuration created via Auto Setup to an existing queue.

JOBS AND QUEUES

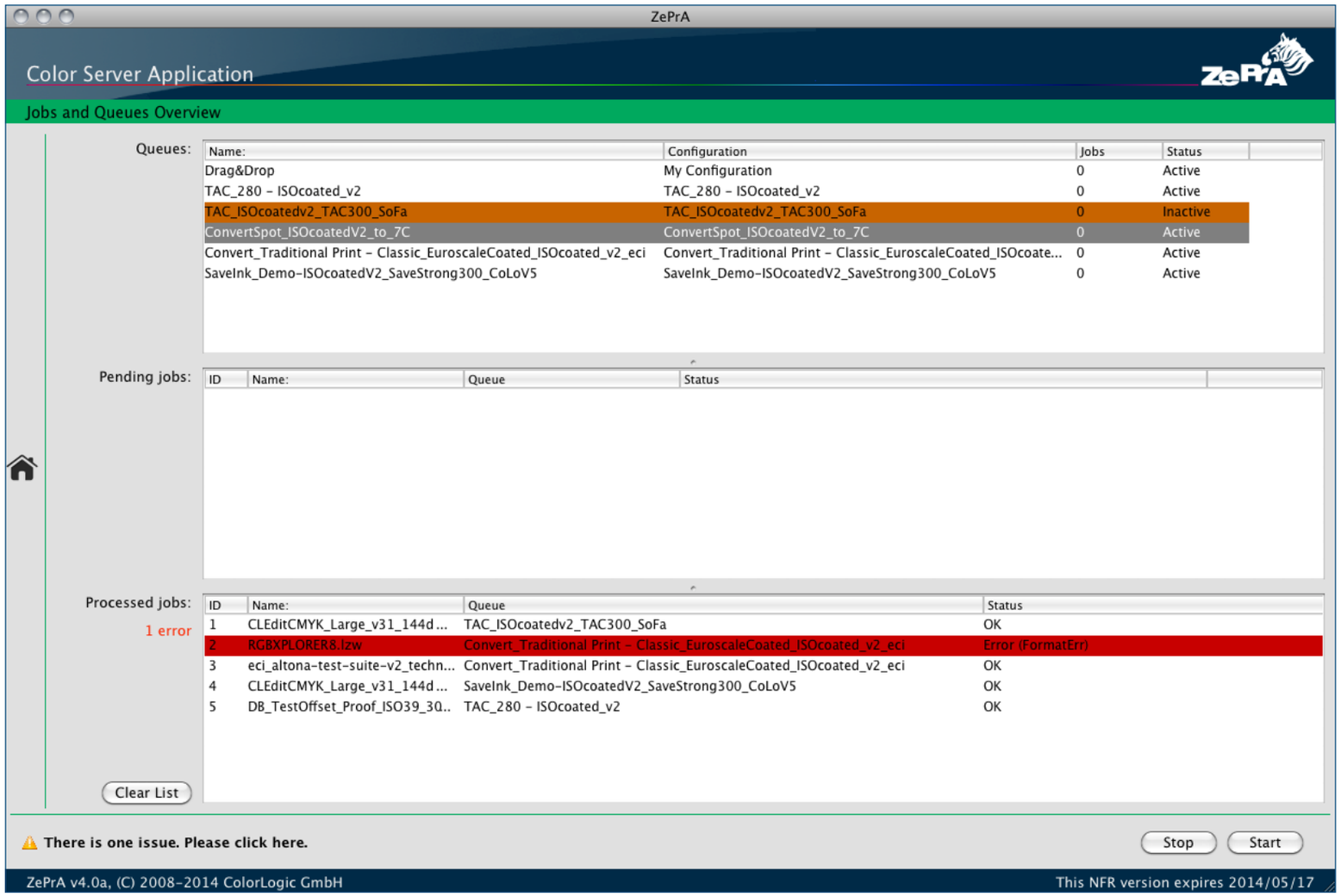
Jobs and Queues Overview

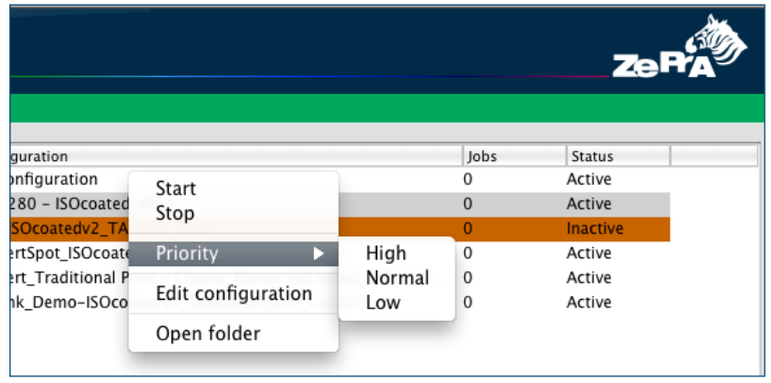
07 JOBS AND QUEUES OVERVIEW

The ***Jobs and Queues Overview*** window (button: ***Overview***) gives you an overview of the queues and the associated configurations in ZePrA. The queues (hot folders) created using the ***Auto Setup wizard*** usually have the same name as the associated configurations.

Although in ZePrA, configurations are associated with queues, the queue and its configuration are essentially managed separately from each other. The advantage of this is that a different configuration can be assigned to a queue at a later date. To learn how to assign a configuration to a queue, read the chapter Queues.

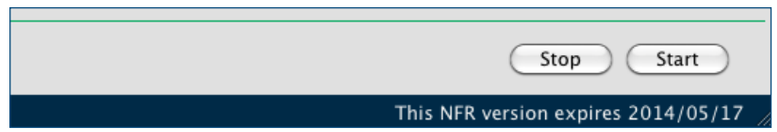
To quickly access queue folders and convert data, right-click a queue in the list and open the associate context menu.





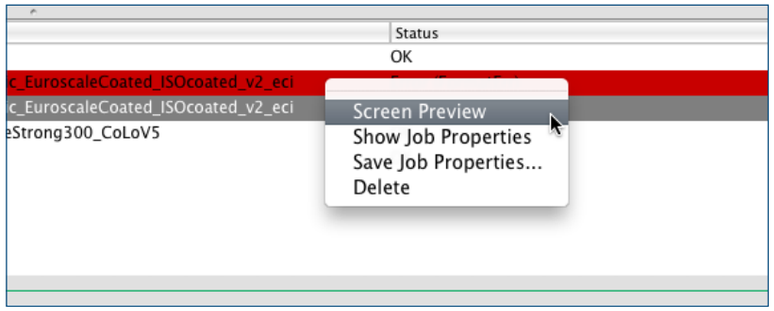
Using the context menu, you can start or stop each queue individually and open the hot folder associated with the queue.

- The order in which queues are processed can be controlled, allowing you to give specific queues higher or lower priority for file processing. In the ***Queues*** dialog, you can use the ***Priority*** option to change the default setting ***Normal*** to ***High*** or ***Low***. You can also change the priority for a queue by right-clicking on it in the Overview dialog. Any setting other than Normal is shown in the Overview.



- The ***Start*** and ***Stop*** buttons at the bottom right in the window enable all queues to be started or stopped directly.
- A queue that is inactive or invalid is highlighted in orange. Invalid queues may occur as a result of incomplete entries, for example, or missing profiles.
- The tables towards the bottom of the window show which jobs are still pending and which have already been processed.
- If errors occur when processing files, or if ZePrA detects non-supported file types, they are highlighted in red in the ***Processed jobs*** list.

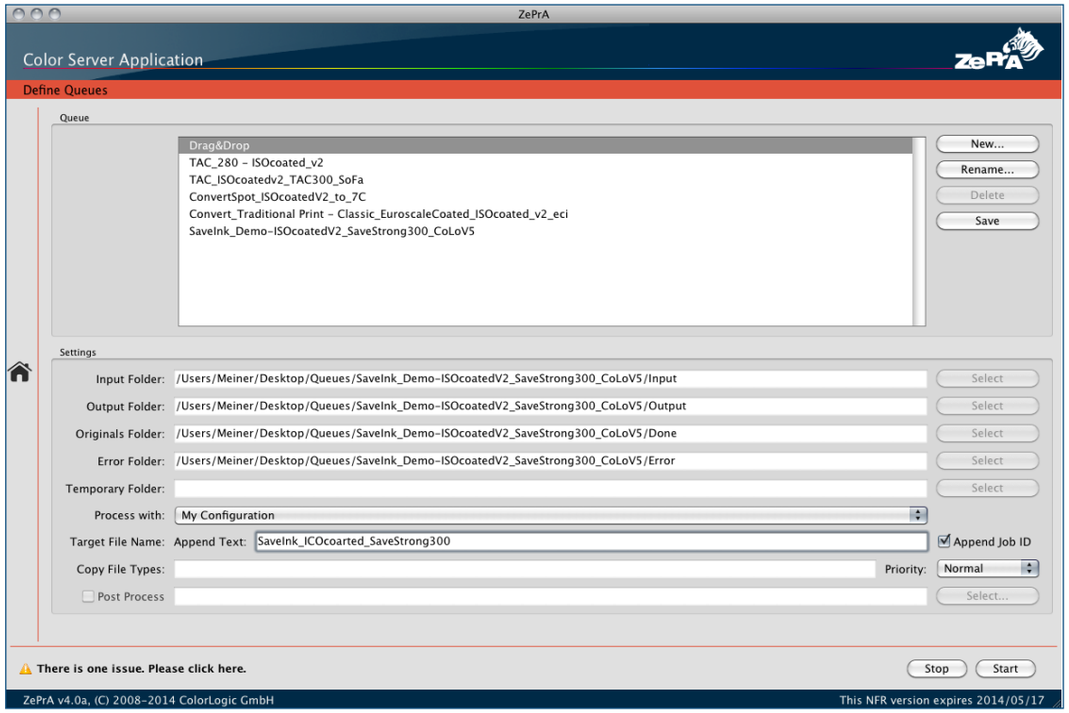
- If warnings occur during processing, the file is nevertheless processed, but highlighted in yellow and labeled with a warning. From the text of the warning, you can tell whether you yourself still need to perform any actions.
- Both the ***Pending jobs*** and ***Processed jobs*** lists can be sorted by ***ID, File Name, Queue*** and ***Status***. Clicking on the ID column places the most recently processed job at the top, while clicking on the ***Status*** column places the files with errors and/or warnings at the top.
- Right-clicking on a job under ***Processed jobs*** opens a context menu via which you can create a softproof, open a job report (***Show Job Properties***), save a job report (***Save Job Properties***) or delete the job. You can find more information on this subject in the chapter Special workflow options.



Typically the names of the queue and the associated configurations are the same. If, however, the name of the configuration is different to the name of the queue, e.g. because you have assigned another configuration manually, the configuration name is shown in brackets after the queue name.

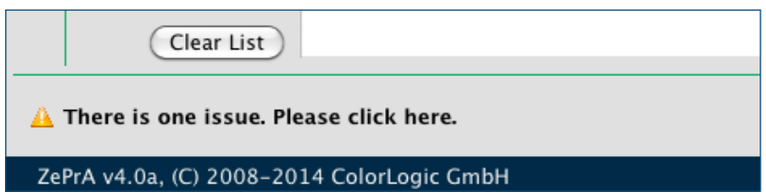
The queues are displayed in the Overview dialog according to the chronological order in which they were created, with the oldest at the top and the most recent at the bottom. However, you can change the display order by clicking on a queue and dragging it to another position.

Note: You can also simply Drag & Drop your data onto one of the configurations in the queues overview. Your file is then automatically processed using the settings in the configuration onto which you dragged it. Your converted file is subsequently saved to the same location as the original file. The Job ID is added to the file name. If you also want to have the name of the configuration added to the converted file, enter whatever text you like for the ***Drag & Drop*** queue under ***Append text*** in the ***Queues*** dialog. If no text is entered there, no configuration name is added.

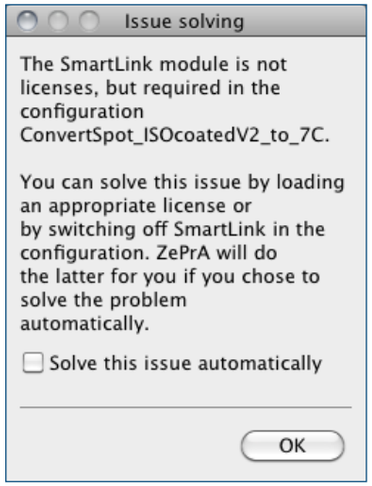


Double-clicking on a queue opens the dialog for the associated configuration.

If there are any errors or problems in your queues or configurations, ZePrA checks them and displays the number of faulty configurations next to a warning symbol at the bottom left in the ***Overview*** dialog.



Clicking on these warnings opens a list containing detailed error messages. You can select any of the entries by clicking on it and a dialog will appear for that entry with more detailed information. If ZePrA is able to automatically solve the problem, you can select the checkbox located in the dialog and confirm by clicking ***OK***. If you would prefer to perform the actions and change the configuration yourself, then you still confirm via ***OK***, but you do not select the checkbox Simply click OK and open the configuration yourself.



If there are errors that ZePrA cannot resolve because specific licenses or profiles are missing, you have to resolve them yourself, which you can do by installing the relevant profiles and loading/ purchasing the relevant licenses.

CONFIGURATION

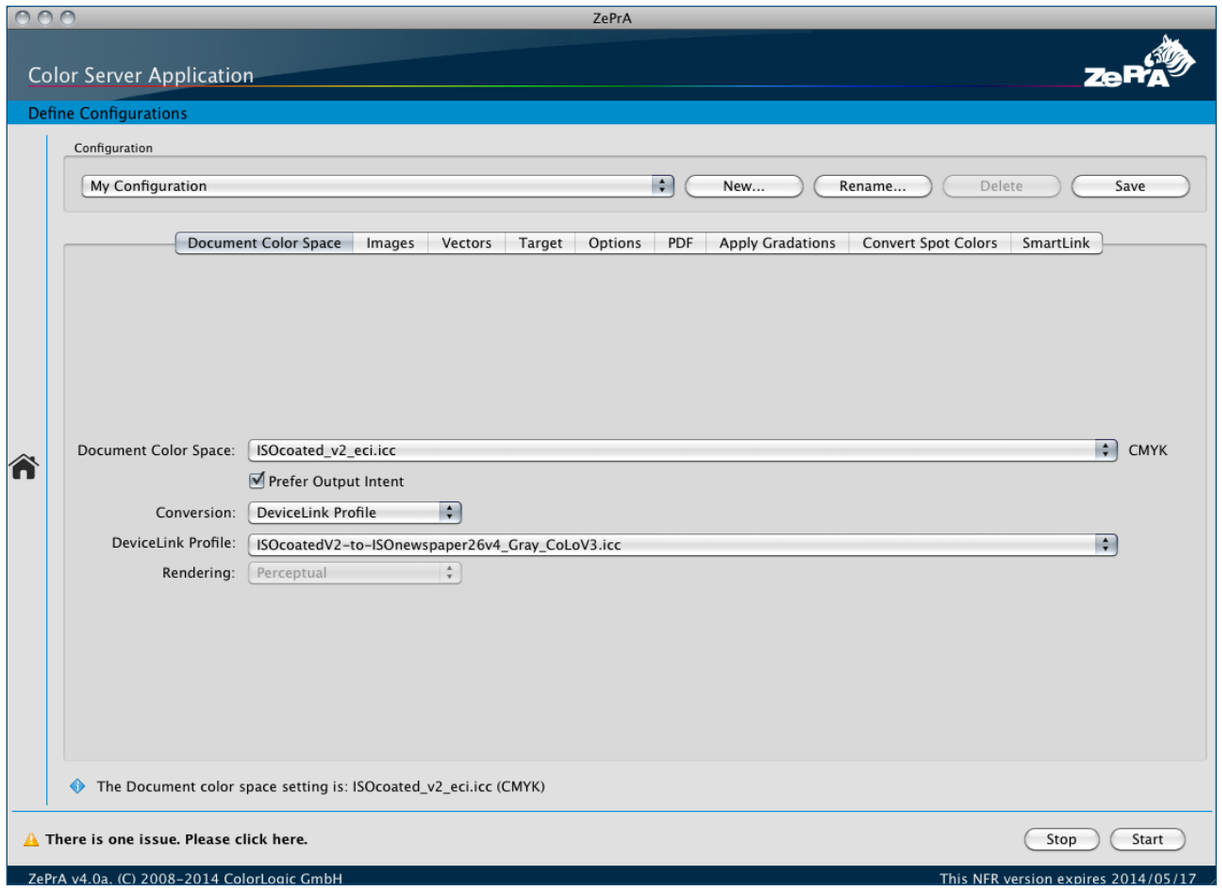
Defining configurations

08 DEFINING CONFIGURATIONS

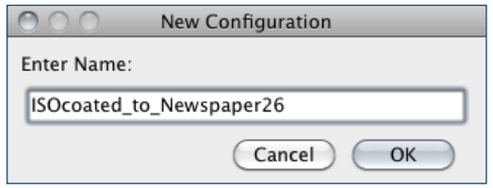
Define Configuration (button: ***Configurations***) is used to make all the settings relating to the handling of colors and PDF-specific parameters.

The upper area of the window allows you to select existing configurations, create new ones, or rename, delete and save any configurations.

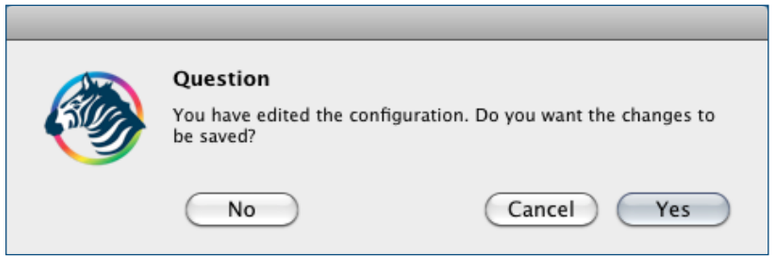
- If you have selected an existing configuration and would like to duplicate it, click on ***New***. Then enter a new name, make any necessary changes to the settings and click on ***Save***.



- A configuration can be renamed at any time. To do so, select the configuration in the dropdown list, click on the ***Rename*** button, change the name and confirm with ***OK***. Queues using this configuration are automatically updated.



- If you have made a modification in the Configurations window, you can ***Save*** it. Should you forget to save after changing the settings and then switch to a different dialog, e.g. to the Overview and Queues window, you are automatically asked whether you want to save the changes. That way, your changes are retained and existing settings are overwritten. If you select the ***No*** button in the warning dialog that appears, your changes are lost and the configuration remains as it was before you made the changes.



- As a guide and for reliable matching and setting of the configurations, the preset Document color space is always indicated at the bottom of the configuration window to the right of the ***Document Color Space*** line.

To link a configuration with a queue, select the ***Queues*** option from the navigation panel. You can find out more about this under Queues.

The settings in ***Define Configuration*** include, amongst others, color conversion using ICC device profiles or ICC DeviceLink profiles, definition of workflows for mixed PDF files (CMYK, RGB, Gray, spot colors in a single document) and individual application of gradations and spot colors. All of these are available with different presets and optimization options, resulting in a wide variety of possible combinations. To understand them, we need to go into a little more detail regarding color spaces in PDF files, which are explained in the next chapter of the manual.

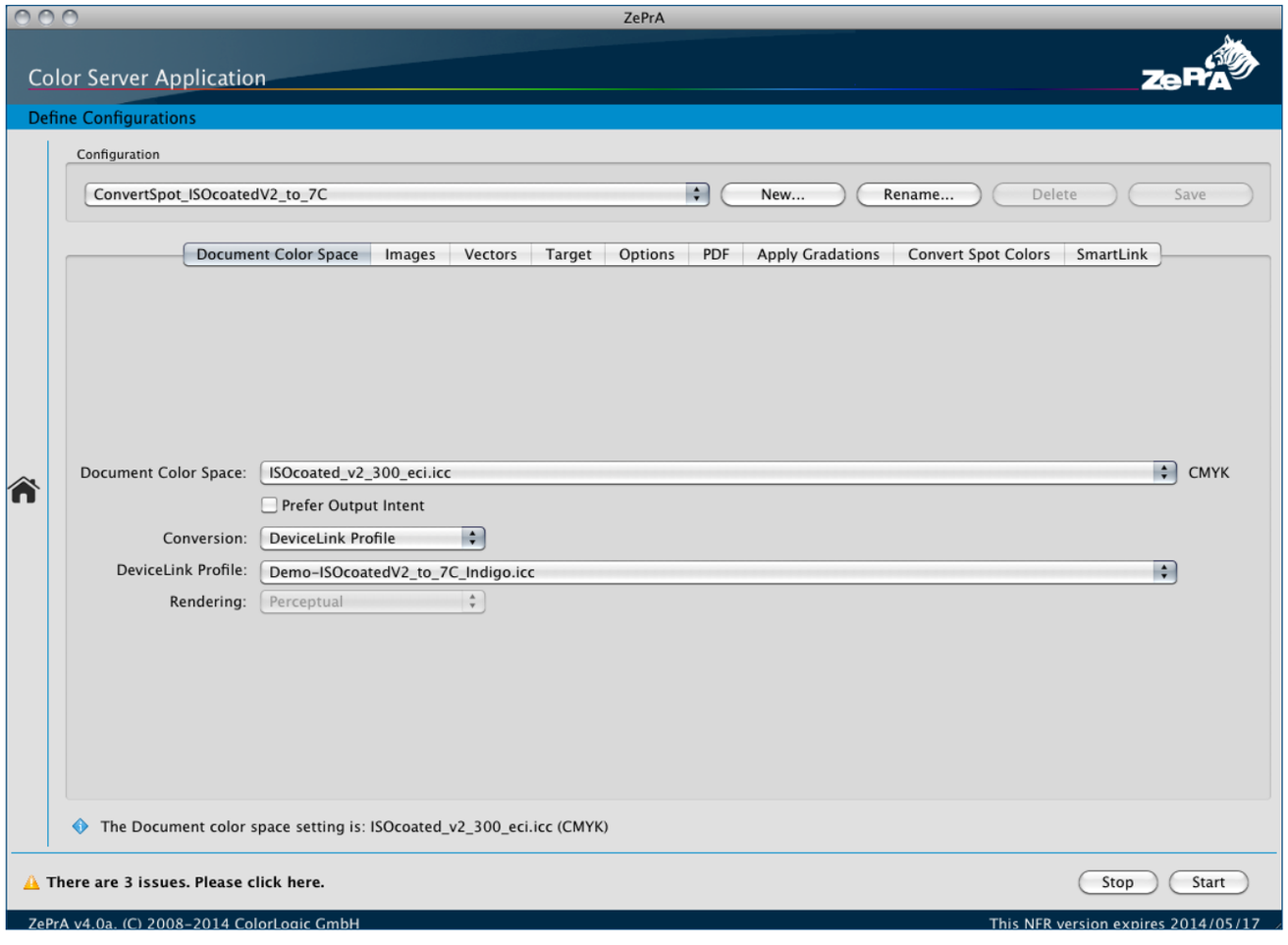
DOCUMENT COLOR SPACE

Defining configurations

09

CONFIGURATION
DOCUMENT COLOR SPACE

You can use ***Document Color Space*** to specify how you want the entire PDF document to be handled. To do so, you select the ICC device profile belonging to the PDF document. In addition, you can allow ZePrA to access the output intent (ICC device profile) that is always attached to PDF/X-compliant documents. ZePrA focuses on processing PDF files for printing. However, TIFF, JPEG, PSD and PSB images can also be processed using the same configuration. The PDF/X file can contain the Gray, RGB, CMYK or Multicolor color systems. Accordingly, the ***document color space*** can take on one of these color systems.

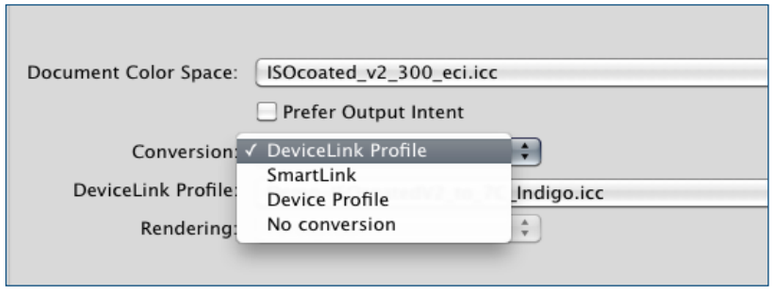


Note: For reasons of quality, we strongly recommend the DeviceLink conversion for full-page PDF conversion, using either an existing DeviceLink profile or the SmartLink technology. If the document color space is unknown and also cannot be interpreted as the output intent, you have to either assume a document color space, determine the output intent with the help of suitable tools (e.g. using ColorLogic DocBees ProfileTagger) or clarify the origin of the data with the supplier of the data.

- If the file does not have an output intent, select an ICC device profile under ***Document Color Space***. The color system of the selected ***Document Color Space*** is displayed alongside the dropdown menu.
- If the ***Prefer Output Intent*** option is enabled, the ICC device profile specified under Document Color Space is replaced with an output intent linked with the PDF file in the ZePrA workflow.

Note: For workflow reliability, we recommend that you specify the document color space and that you do not enable the ***Prefer Output Intent*** checkbox. This makes it possible, for example, to avoid unwanted color conversion resulting from the output intent in a PDF file accidentally being set incorrectly. The option should only be ticked in a standard queue for normalizing.

You have a choice of four conversion options:

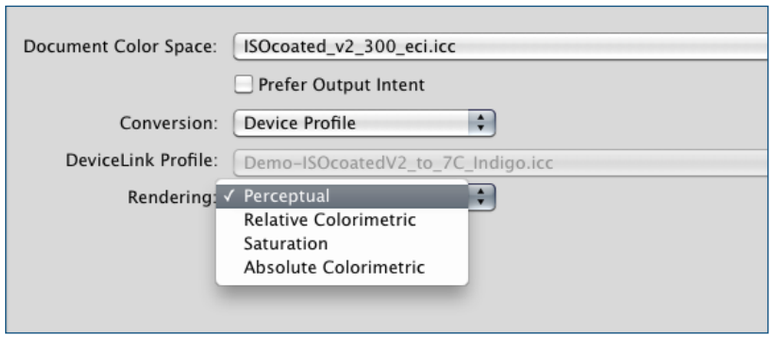


- Conversion of the complete PDF document via a ***DeviceLink profile***.
  A DeviceLink profile represents a tailor-made color conversion from a defined source (e.g. Gray, RGB or CMYK color space) to a target profile. Within the ICC standard, there is the possibility of using the "profile Sequence Identifier" – PSID Tag for short – in the DeviceLink profile to store information regarding the source and target color spaces for which a DeviceLink profile was calculated. ZePrA is capable of reading the PSID Tag and thus automatically setting the profiles under ***Document Color Space*** and ***Target*** when a DeviceLink profile is selected.

Starting from profile version ***CoLoV3***, all ColorLogic standard profiles contain the PSID Tag, which makes configuration work much easier. Furthermore, this is also how the output intent is set automatically in Auto Setup queues.

- If you have purchased the ***SmartLink*** option, then this is also displayed in the list. If you set ***SmartLink as the Conversion***, next to it on the right you will see the SmartLink methods that ZePrA uses to calculate a DeviceLink profile "on-the-fly" from the ***Document Color Space*** and the ***Target Color Space*** (Target tab). Make sure you set the desired color spaces under Document Color space and Target Color Space. This achieves, amongst other things, a comprehensive SmartLink workflow based on "on-the-fly" calculation of DeviceLink profiles, from images/vectors to the document color space through to the target color space. Set the desired Rendering Intent next to the profiles. When you do this, please also refer to the descriptions we provide under Configurations/SmartLink.
- Conversion of the PDF document via a ***device profile***, from the document color space to the ICC device profile selected under ***Target***. As soon as you decide to work with ICC device profiles, you have to select a corresponding Rendering Intent.
- ***No conversion*** of the entire PDF document.

  Note: If you set the conversion setting to ***No Conversion*** in the ***Document Color Space*** tab as well as in the ***Images*** and ***Vectors*** tabs, spot colors can still be converted to the target color space if necessary. This is useful if an otherwise print-ready PDF file still contains spot colors and these need to be converted into process colors.
- To select the ***Rendering Intent*** appropriate for your application, please read the chapter Automatic configuration wizard/Use SmartLink/Rendering intent.



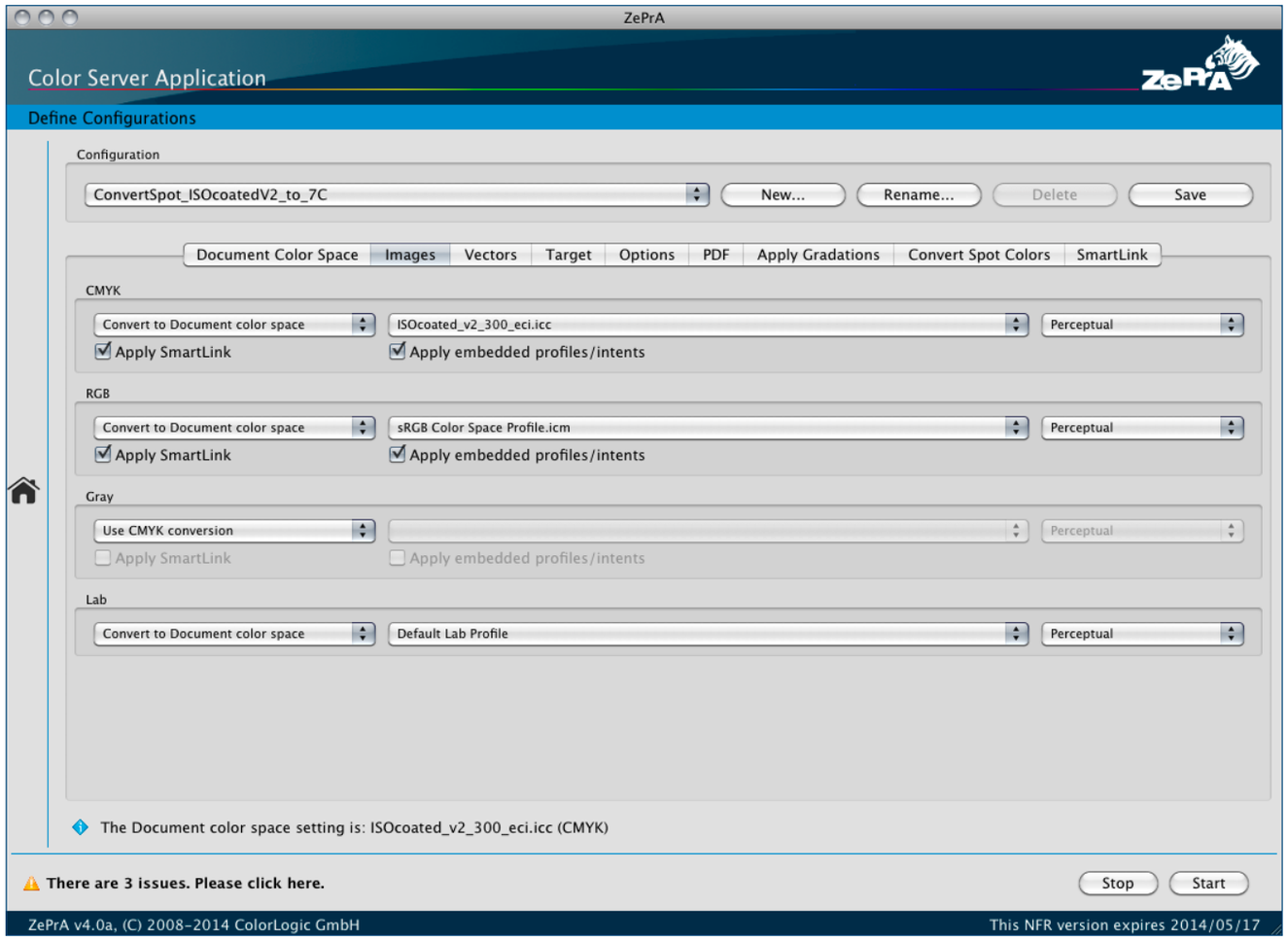
IMAGES

Defining configurations

10 CONFIGURATION
IMAGES

When converting colors in ZePrA, a distinction is made between the object (image, vectors, text), the document color space and the target color space.

A queue in ZePrA processes images as well as vectors/text in PDF files (see next chapter). By default, the same settings are used for converting both images and vectors. CMYK, RGB, Grayscale and Lab files are processed according to the configurations under the ***Images*** and ***Vectors*** tabs. By doing this, both a source profile and a DeviceLink profile can be assigned or embedded profiles can be read out, if there is one.

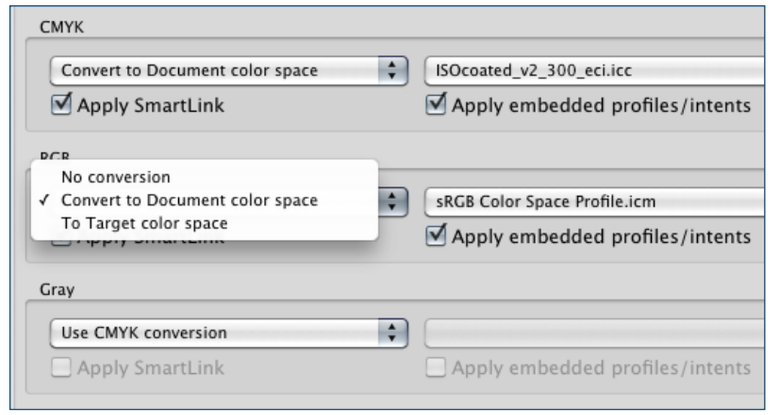


Furthermore, the ***SmartLink*** option available for selection under ***Images*** and ***Vectors*** gives you the ability to generate a high-quality DeviceLink profile "on-the-fly" or to use an already completed DeviceLink profile when converting from source color space to target/document color space.

› Handling image files

Under ***Images***, you define how individual image objects in a PDF file and how TIFF, JPEG, PSD and PSB image data are to be handled. You always have three conversion options for CMYK, RGB, Gray and Lab images:

- Generally ***No Conversion*** of image data.
- Convert the image data to the ICC device profile selected under ***Document Color Space***.
- Use ICC conversion to convert the image data from the source color space to the ICC device profile selected under Target (***To Target***).



Files composed of gray can also be converted with the ***Use CMYK conversion*** option. In this case, the gray components are converted with the same settings as for CMYK. If you have set a DeviceLink conversion under CMYK using SmartLink, images composed of gray also remain gray after conversion. You can find more detailed information under Handling of gray objects.

The ***Apply SmartLink*** checkbox allows you to select the use of DeviceLink profiles for data conversion. If a DeviceLink profile is used, the embedded CMYK profile for a PDF object is ignored, for example, the correct DeviceLink profile being directly used for conversion instead. If the DeviceLink profile was calculated with the option for preserving pure primary and secondary colors, this option ensures that pure colors remain pure in CMYK objects with embedded profiles.

If the ***Apply SmartLink*** option is left deactivated, direct ICC-based conversion to the target profile or document color space is performed. Pure CMYK colors are often contaminated in the process, leading to problems with overprinting elements. You can decide via ***Configuration/SmartLink*** which type of DeviceLink generation should be used with the ***Apply SmartLink*** option. You can use pre-configured methods or select individual settings. You can also define your own ***Profile Assignments*** under ***Special Settings***.

If embedded profiles are present in the image material, the ***Apply embedded profiles/intents*** option ensures that they are given preference over the selected profile. In PDF files, the embedded rendering intent is used at the same time as the profiles, whereas the rendering intent set in ZePrA is used for converting TIFF, JPEG and PSD images.

The rendering intent chosen is crucial for optimal conversion of your data. Besides the standard conversion methods, we provide you with four additional ZePrA Intents to choose from to ensure harmonious color conversion. The ZePrA Intents are described under Automatic configuration wizard/Use SmartLink/Rendering Intent.

Note: When using embedded ICC device profiles, the rendering intent specified in ZePrA is not applied. The rendering intent embedded in the PDF is applied instead. Since the embedded rendering intent in PDF files can be set to relative colorimetric, be sure to select ***Black Point Compensation*** in the ***Configurations/Options*** tab at the same time.

Note: If you want to specify the rendering intent in ZePrA for any reason (and thus ignore the PDF/X rules), enable the ***Ignore PDF rendering intents*** checkbox in the ***Options*** tab.

Whether the target profile is embedded after conversion has been completed depends on the settings in the ***Target*** and ***PDF*** tabs.

› Handling of ICC-based RGB objects in the PDF

In PDF files prepared in media-neutral fashion, the colors of RGB objects are usually converted directly to the target color space. However, if you use DeviceLink profiles to optimize PDF printing data, it may also make sense to first convert such objects to the document color space (i.e. normalize them) and then optimize all the objects in the PDF file by means of a DeviceLink profile. This working method can be preset in the ***Auto Setup wizard*** by selecting the ***Save ink*** or ***Optimize Total Area Coverage*** option.

Example: The PSO_Uncoated_ISO12647_eci.icc profile has a maximum total area coverage of 300%, whereas all ColorLogic DeviceLink profiles with PSOuncoated as the target color space limit the total area coverage to a maximum of 280% to be on the safe side. If you want to be certain that all the objects in the PDF file really do have a total area coverage of no more than 280% for printing on uncoated paper, it makes sense to first convert RGB objects in the PDF file to the ***Document color space*** PSO_Uncoated_ISO12647_eci.icc and then perform conversion with the **PSOuncoated_TAC280_CoLoV3**.icc ColorLogic DeviceLink profile to reduce the total area coverage. By doing this, select the Auto Setup mode ***Optimize Total Area Coverage*** and in the wizard, select the existing DeviceLink profile **PSOuncoated_TAC280_CoLoV3.icc**.

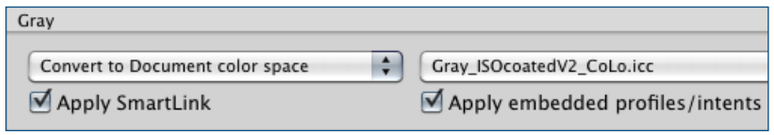
› Handling of gray objects

Correct handling of gray objects is of great importance when applying ICC color management. Gray objects are often wrongly excluded from color management, or they are composed of four colors after conversion. Alternatively, ZePrA offers options for adapting gray objects by color management and leaving them gray in the process, or also for explicit color space conversion to the target profile (RGB or CMYK).

Options where gray is preserved

The ***Use CMYK conversion*** option converts gray objects in accordance with the CMYK settings. This only makes sense if the ***Apply SmartLink*** option has been selected in the CMYK settings and thus the use of DeviceLink profiles. The DeviceLink profiles created via SmartLink map pure CMYK gray of the source to pure CMYK gray of the target. This is also the case with all ColorLogic standard DeviceLink profiles. If you select ***Use CMYK conversion***, any device profiles possibly embedded in gray objects are used for DeviceLink conversion, the ICC device profiles being removed from the file at the same time.

If DeviceGray objects in the PDF do not have embedded profiles, you are prompted to select a default profile as soon as you activate the ***Convert to Document color space*** option. At this point, you should select one of the Gray profiles supplied by ColorLogic or a CMYK profile that corresponds to the document color space. Also activate the ***Apply embedded profiles/intents*** option to give embedded profiles priority over the default profile. Selecting the ***Apply SmartLink*** option ensures that, in the event of Gray-to-CMYK conversion for example, a gray object always remains gray and is not converted into four colors.



As soon as you activate the ***To Target*** and SmartLink options, the ***SmartLink*** method selected in the ***SmartLink*** tab under Configuration is used for gray.

Note: While the SmartLink function is a chargeable supplementary option for the CMYK and RGB color spaces, it is free of charge for the ***Gray*** color space.

Converting Gray to CMYK or RGB

If gray objects are converted directly to the ***Document color space*** or the ***Target profile*** and the SmartLink function is not activated, the gray objects are subsequently composed of four colors in CMYK or three colors in RGB. The latter is the case if you specify an RGB profile under Target profile. Gray will only be kept pure during conversion to CMYK if you have either selected the SmartLink function or set the ***Use CMYK conversion*** in the CMYK settings that use the SmartLink function.

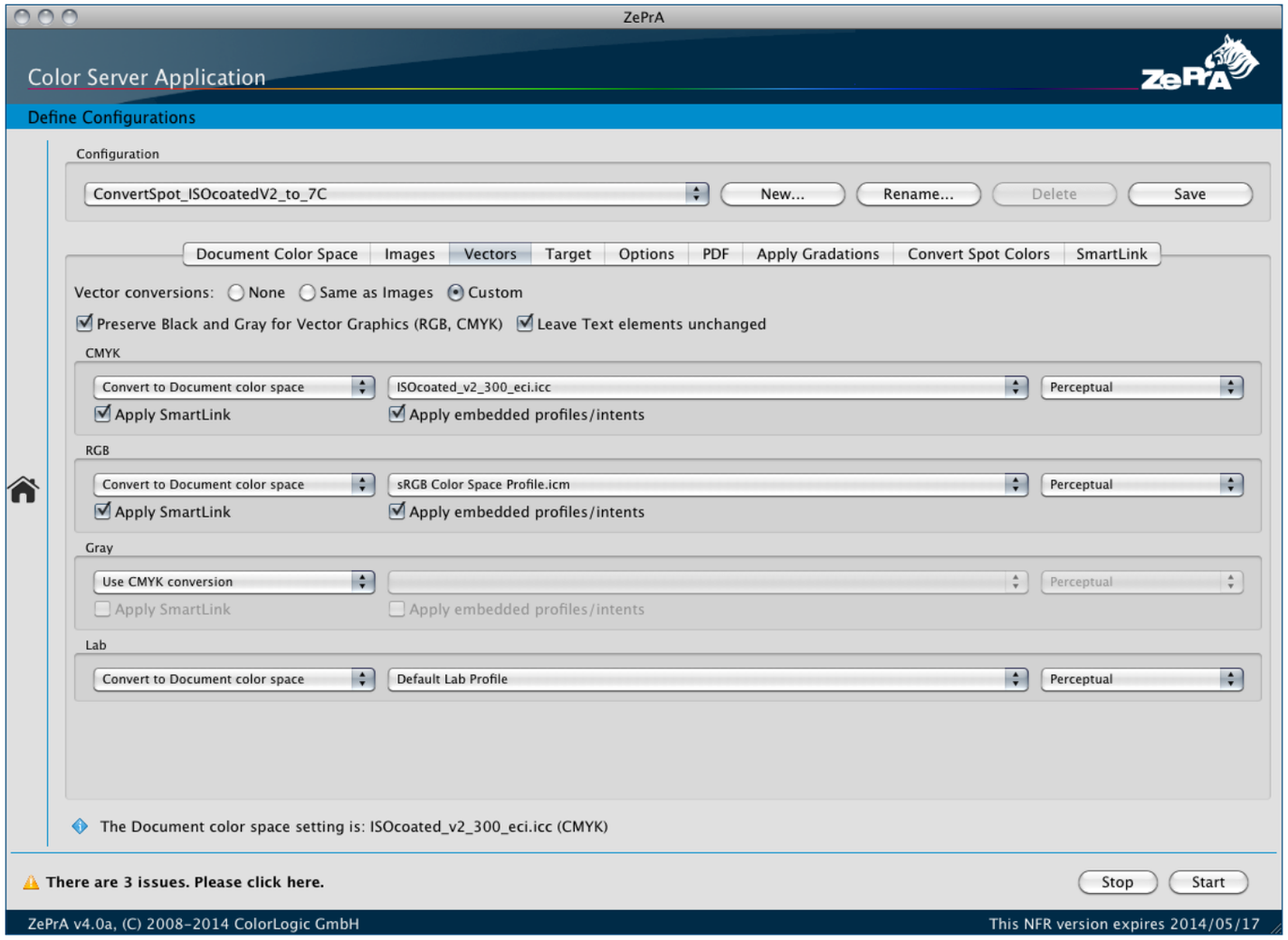
VECTORS

Defining configurations

11 CONFIGURATION
VECTORS

By default, the same settings are used for processing both ***images*** and ***vectors***. Please read the explanations covering this subject in the previous chapter.
Nevertheless, different profile settings are also possible. Moreover, you can influence the conversion of text and pure vector black and gray under ***Vectors***. To achieve high quality in your color conversion, you have to use DeviceLink profiles.

- In special cases, where CMYK conversion in ZePrA is performed by conversion with ICC source and target profiles, it is also possible to completely exclude vector graphics from color management by activating the ***Vector conversions: None*** option.
- If PDF files contain flattened transparencies, for example, it is often the case that pixel and vector data of the same color directly meet. Therefore, the basic setting in ZePrA always converts pixel images and vector graphics in the same way. Color differences between adjoining pixels and vector objects of the same color are avoidable. To this end, under ***Configuration/Vectors***, you will find the setting ***Vector conversions: Same as Images***.
- Needless to say, you can also make independent and individual settings for vectors to the same extent as for images. As soon as you select ***Vector conversions: Custom***, the dropdown lists and menu entries for configuration become available.



Text and vector graphics are independent objects within the PDF format. For both kinds of object, the ZePrA options offer possibilities for preventing black vector graphics or black text from being composed of four colors as a result of ICC conversion. These options are not necessary if you use the ColorLogic DeviceLink profiles, because the profiles are calculated in such a way that pure black always remains pure.

- If you are dealing with RGB PDF files, e.g. originating from Office programs, ***Preserve Black and Gray for Vector Graphics*** converts RGB black to pure CMYK black. The option also ensures that shades of gray created as vectors are preserved. A 50% K shade will therefore remain unchanged at 50% K. A medium gray RGB shade with RGB=128/128/128 will be set to 50% K after CMYK conversion.
- The ***Leave Text elements unchanged*** function in the ***Vectors*** tab clearly indicates that ZePrA makes a distinction between vectors and text. If you only want to convert vector graphics and leave text unchanged, simply activate this function.
- As already described in the ***Images*** section, the SmartLink function also offers the option of DeviceLink conversion from the source color space to the target or document color space when handling vectors.

TARGET

Defining configurations

- Selecting target color space
- Correcting target profile

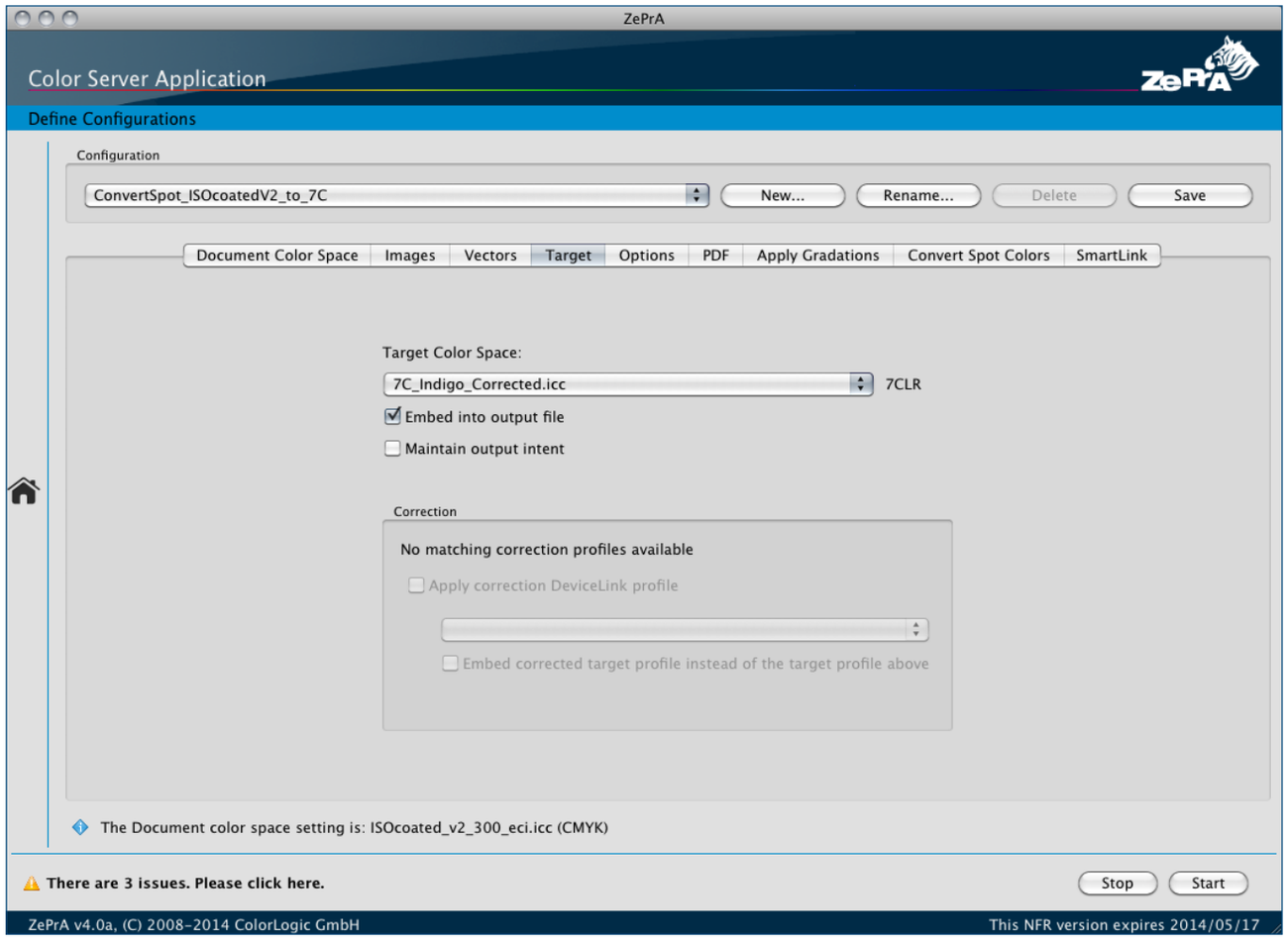
12 CONFIGURATION
DEFINE TARGET

› Select target color space

Under ***Target***, the target profile for the color conversion is selected.

It may well be the case that the document color space/output intent of a PDF/X file does not match the color space of the ultimate printing process. In this case, the entire PDF file needs to be converted from the document color space to the target color space. DeviceLink profiles or SmartLink, which you select under ***Document Color Space*** are particularly suitable for this purpose. This also applies to the TAC reduction or SaveInk application often used in practice.

ZePrA reads the profiles for ***Document Color Space*** and ***Target*** from the DeviceLink profile, if it contains a PSID Tag, automatically and sets them correctly.
In addition to the target selected, the ***color space*** of the target profile is also displayed. This is especially helpful with Multicolor target profiles for seeing whether it relates to a 5, 6 or 7-channel ICC profile.
Also in this window you specify, via ***Embed into output file***, whether the target profile will be embedded into the file after conversion – e.g. as the new output intent in the PDF/X file.



The ***Maintain output intent*** function is a special setting required for, amongst other things, the Auto Setup queue ***Normalize to Document color space or output intent***. With this function, the output intent of the original file is maintained even after conversion to the different target color space.

Note: Only use this option if no changes should ensue in the document color space, as is the case with pure normalization. In all other cases, please leave this option switched off.

› Correction of the target profile

The more reliable the color behavior of your printing machine is and the more accurately the corresponding ICC profile maps the printing process, the better the color conversion via ZePrA will be.
In practice, however, it is often very different. Variations between the batches of paper, other dot gains or fresh inks that differ from the last series used can result in tonal shifts and deviations in the distribution of tonal values.

Reprofiler SP* is integrated in the **SmartLink** module in order to compensate for these variations and deviations. Instead of having to generate a completely new printing machine profile and DeviceLink profiles for such deviations, the **Reprofiler** makes the required adjustments. To ensure your printing machine prints the same colors as before, just a few details are required, such as the spectral measurements of dot gain streaks or the Ugra/Fogra Media Wedge or, better still, the Reprofiler measuring strips that we provide with the **Reprofiler**.

So, you can continue to use your tried and tested DeviceLink profiles without having to replace them because of a change in the target color space of your printing machine.

Note: *SP = Serialized Profiles. The profiles created with Reprofiler SP are encoded with the serial no. of the ZePrA color server and can only be used there.

» Preparations for using the Reprofiler function

Make sure you use a control strip in your printing process that can be read by the Reprofiler.
Two types of control strips for different measuring instruments (X-Rite i1Pro and single-patch measuring instruments) are included in the scope of delivery for both CMYK and RGB-based printing systems.

The Reprofiler's own color control strips should preferably be used for creating optimized profiles. The Reprofiler control strips include the 100% values in the shadows and for overpinting patches that are important for profile creation.

The **small** control strip is available as a one-row and a two-row strip. The one-row strip can easily be integrated in the trim area of your printing machine.
The two-row strip is more suitable for digital printing or inkjet systems.

The same applies for the **large** control strip, which contains significantly more color patches and is thus more suitable for optimizing relatively large color deviations.

We recommend that the ColorLogic control strips always be used when optimizing digital printing systems since only they can ensure accurate determination limitation of the black point of the printing system.

Note: In principle, you can not only print and measure the ColorLogic control strips, but also other measuring strips, such as Ugra/Fogra, IDEAlliance Media Wedge, ECI GrayControl Strip, ECI bvdm TVI or UGRA UDKS Wedge, are supported too. Alternatively, you can use an existing measurement file that reproduces your current printing conditions. The measurement file must not contain more than 150 patches.

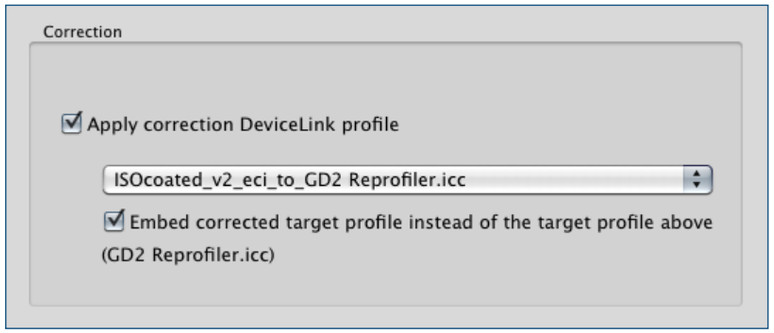
Once you have printed a control strip of your choice, you then measure it using a spectrophotometer.

Make sure the color management settings are deactivated upon output of the control strip, i.e. without simulation of a printing condition for example. This is especially the case for digital printing systems.

The Reprofiler optimizes the ICC profile of your output profile (= printer profile that was selected in ZePrA as the ***Target color space***).

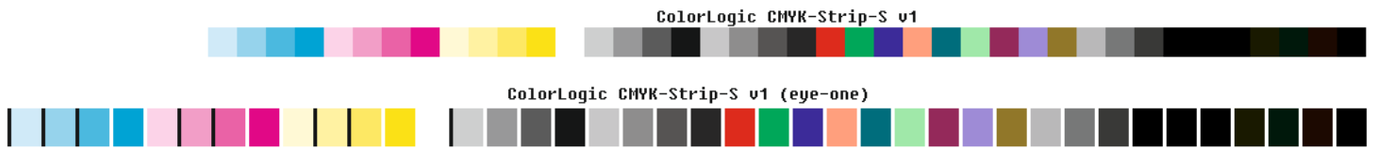
How to do it:

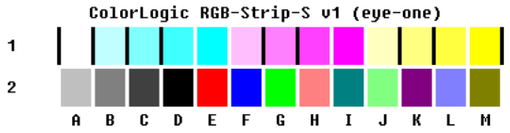
1. In ***Configuration***, select the ***Target*** tab.
2. In the ***Correction*** section, click on ***Apply correction DeviceLink profile*** and select an existing DeviceLink profile that was created earlier with the full version of Reprofiler.

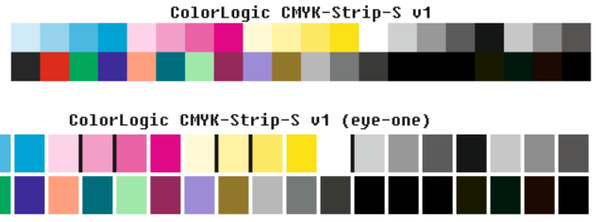


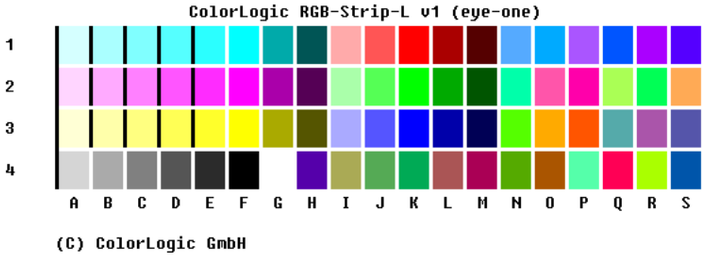
Note: ZePrA checks whether there are corresponding correction DeviceLink profiles and optimized printer profiles for the ***target color space*** selected under ***Target*** in ***Configuration***. These profiles will be shown and can be selected once the ***Apply correction DeviceLink profile*** has been enabled, but only if these corrected or optimized profiles exist. If there are no correction DeviceLink profiles, the option for ***Correction*** is completely grayed out.

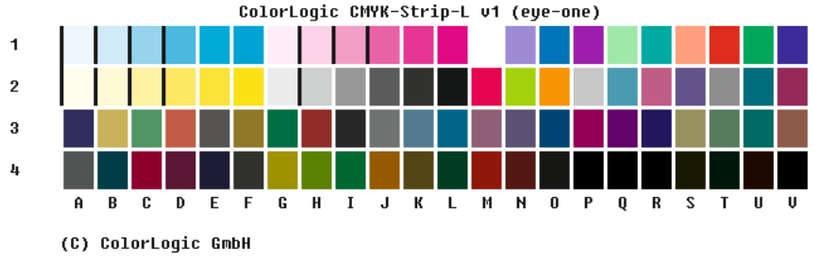
3. We recommend that you not only select the correction DeviceLink profile, but that you also embed the associated optimized target profile into the converted files (***Embed corrected target profile instead of the target profile above***).
When this option is enabled, this profile becomes the new output intent of a converted PDF file.
The corrected target profile is shown in brackets at the end of the option line.











OPTIONS

Defining configurations

- Rendering intents • Sharpening
- Image quality • Ink savings

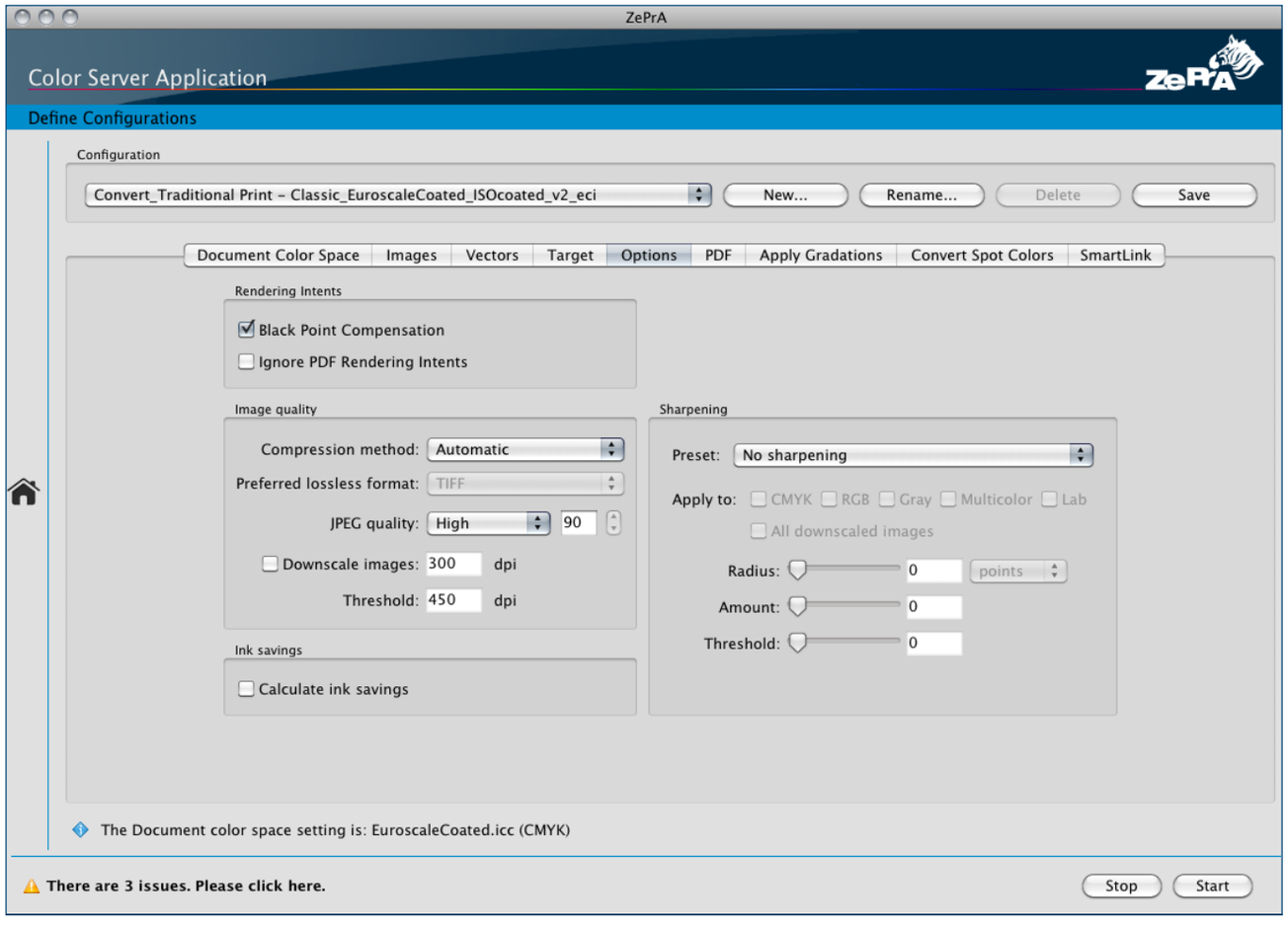
13 CONFIGURATION OPTIONS

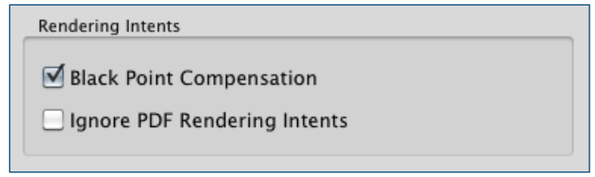
Options offer a variety of settings for conversion methods such as rendering intents, spot colors, image quality, sharpening and calculating ink savings when using SaveInk profiles.

› Rendering Intents

If the ***Apply embedded profiles/intents*** check box is enabled in the ***Images*** and/or ***Vectors*** tab in ZePrA for CMYK, RGB or Gray image or vector data, not only the ICC device profile is read out, but also the embedded rendering intent in PDF files. The rendering intents selected under Images and Vectors are ignored in the case of PDF files, but used when converting image data. To make sure that high-quality color conversion is performed without definition losses when using the embedded rendering intent, which is usually set to relative colorimetric in PDF files, you should always enable ***Black Point Compensation*** under ***Configurations/Options***.

Note: If a PDF preflight or other program does not offer the option of converting RGB to CMYK with black point compensation or of using DeviceLink profiles, you should always leave conversion to ZePrA for quality reasons.

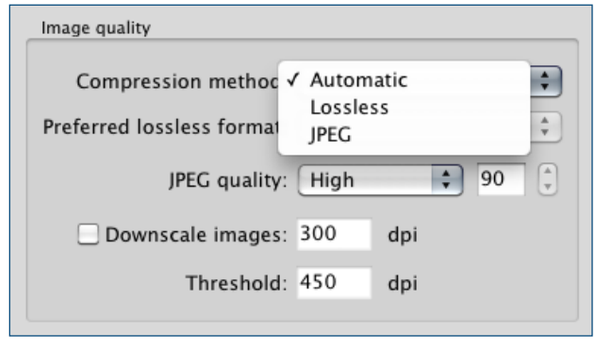




Selecting ***Configurations/Options – Ignore PDF Rendering Intents*** prevents the rendering intent of the PDF file from being read out, meaning that the rendering intent presets set in ZePrA under Images and Vectors have priority again. Please note in this respect that the setting is therefore no longer compliant with the PDF/X rules.

› Image quality

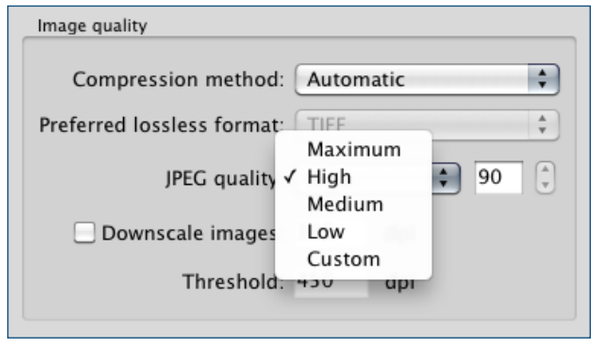
With ZePrA, you can specify three ***compression methods*** for color conversion.



- The ***Lossless*** option allows you to save the format of your image file in either the PSD or TIFF format.
  JPEG data compressed in PDF files are converted to ZIP.

  Note: Multicolor files cannot be saved as JPEG.
- We recommend the setting ***Automatic***, which ensures all image formats are preserved.
- ***JPEG*** compression causes TIFF and PSD files as well as compressed ZIP data contained in the PDF file to be converted to JPEG.

- The quality of compression of JPEG pixel images and of JPEG compressed images in PDF files can be influenced via ***JPEG quality***. The compression rate is set to high-quality by default in ZePrA, which results in larger file sizes after color conversion of highly compressed JPEG images.



Via ***JPEG quality***, you can choose from four predefined quality levels of the selected configuration and decide whether you prefer a small file size and a ***low*** image quality or a larger file size with a ***high*** image quality. You can set the percentage value for compression yourself under the ***custom*** setting.

Note: We recommend you use the default setting ***High 90%***.

- In the default setting ***Automatic***, ZePrA does not alter the color depth or the type and compression of the input data. You can, however, change this default setting and ***Downscale images***. Enter the resolution you require in the ***Downscale images*** line as a dpi value.
Use ***Threshold*** to specify the resolution from which downscaling should be performed, e.g. for the web or a desired resolution for printing.

Note: Using the threshold setting means you can prevent unnecessary resizing. It makes no sense to downscale images, e.g. to 72 dpi for the web, if they are already at a slightly higher resolution of, for example, 100 dpi.

To compensate for the lack of sharpness that can result from downsampling images, the Catmull bicubic interpolation method is used in the background.

Note: The interpolation method ***bicubic (sharper)*** that can be selected in Photoshop does produce sharper images than with ZePrA, but shows considerable artifacts, which is not the case with ZePrA. In ZePrA, you can combine downscaling with resharpening, as described in the chapter Sharpening.

Image data conversion to Multicolor

ZePrA distinguishes the following cases:

- If the channel designations of the Multicolor target profile are CMYK+X, a TIFF file is created provided ***Preferred lossless format*** is set to ***TIFF***.
- If the channel designations of the Multicolor target profile are not CMYK, then a PSD file is created.

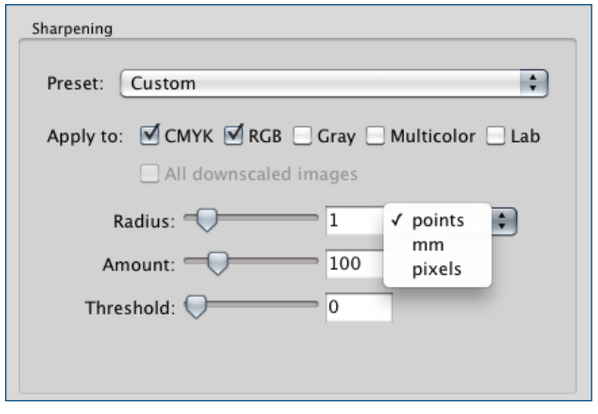
  Note: TIFF only supports CMYK+X.
- If the compression method is set to ***Automatic***, the system will try to preserve the format or create a TIFF file. In the case of a JPEG file or a non-CMYK Multicolor profile, however, a PSD file is created.

  Note: JPEG generally does not support Multicolor color spaces.

› Sharpening

Inadequacies in the sharpness of the image data during capture are typically rectified directly in the camera or the capture software. Sharpening as a stylistic device occurs mostly in image processing. Sharpening relating to a change in the image resolution or to compensate for inadequacies of printing processes can, depending on how the work is organized, be applied either in image editing or even workflow solutions such as ZePrA for example.

For sharpening images after color conversion, we offer unsharp masking under ***Define Configurations – Options***.



The integrated sharpening option means there is no need for external tools for resharpening.
In media production, there are several reasons for performing sharpening. The most important are:

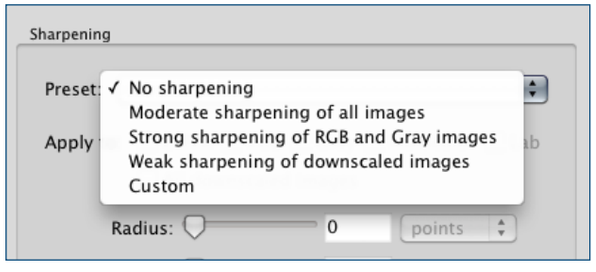
- To compensate for inadequacies of digitization (digital photo or scan)
- Sharpening as a motif-related stylistic device
- To compensate for loss of detail after changing the image resolution
- To compensate for inadequacies of printing processes (screening)

The last two points can be executed with ZePrA. You can apply sharpening of your image data to individual color formats (CMYK, RGB, Multicolor, Gray, Lab) or to all color formats simultaneously. This offers the advantage that with mixed documents, for example, images that are in RGB can be resharpened and converted to CMYK. Already sharpened CMYK data are not resharpened. Hence, a loss of sharpness of RGB data is automatically compensated for. Image scaling and sharpening can be combined if necessary.

Note: ZePrA generally performs sharpening after color conversion. This is not the case, however, if transparency reduction is to be performed simultaneously. If you enable transparency reduction in ZePrA, sharpening will be performed before color conversion and transparency reduction.

» Sharpening presets

You can sharpen your files in ZePrA in addition to or independently of color management. Generally, images may be sharpened according to color space, or only images scaled in ZePrA are sharpened. Choosing between these options depends on the respective task and is described in more detail below.



Generally, the procedure in this respect is as follows:

- **Moderate sharpening of all images** if peculiarities of the printing process need to be compensated for
- **Strong sharpening of RGB and Gray images** for a media-neutral workflow that involves working with high-resolution master images for RGB and Gray in the layout program.
- **Weak sharpening of downscaled images** in order to counteract the slight loss of sharpness due to scaling, for downscaled images only.
- **Custom sharpening** is described in more detail below.

Note: In general, you should be considerably more cautious about the sharpening in the sharpening configuration in ZePrA for PDF files that come from many different sources than for PDF files that are created in a controlled in-house workflow. For example, setting the ***Amount*** to 80% and the ***Threshold*** to 8 will usually deliver stability. In ZePrA, use the chooser to select the ***Preset: Moderate sharpening of all images***.

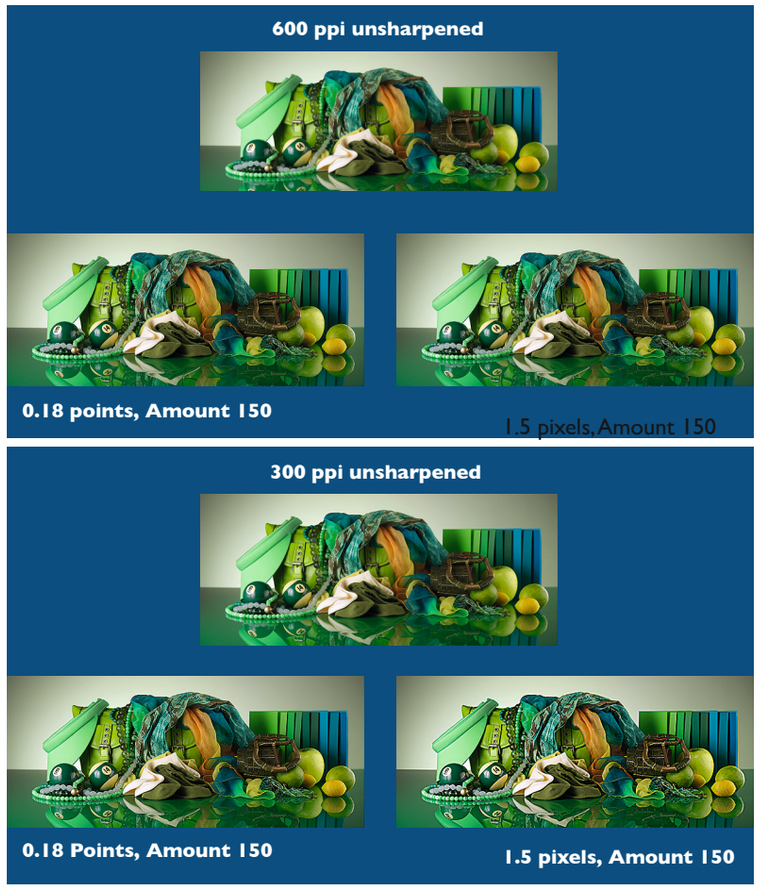
» Custom sharpening

You can use the ***Preset Custom*** to define your own sharpening parameters. Basically, image sharpening involves intensifying the differences in brightness or color between two adjacent pixels. Hence very strong sharpening can produce lines between the image areas with differences in brightness/color.

ZePrA uses the sharpness algorithm "unsharp masking" that is also available in, for example, Photoshop. It features the following three setting parameters:

- **Radius:** The bigger the radius, the wider the line produced during sharpening will be. Selecting the right radius depends on numerous parameters such as the normal viewing distance or the resolution of the printing process used. This point is discussed in detail under Correlation between scaling and image resolution. If the radius relates to image pixels, then the usual values are 0.5 to 1.5 pixels.

  Note: The points or millimeters units enable visually similar sharpening of images with different scalings and resolutions in PDF files. Please note that the radius is of key importance in sharpening. The example in the middle shows a similar impression of sharpness with a 600 and a 300 ppi image with the same points setting, while with the same pixel setting, the 300 ppi image is oversharpened.



- **Amount:** This defines the intensity of the sharpening based on the chosen radius. The choice of amount is influenced by, amongst other things, how sharp or unsharp the existing image material is and how much the peculiarities of the printing process might need to be compensated for. So for offset printing, for example, the images on the monitor should usually appear strongly sharpened so that they appear crisp in print. Here, the usual values are between 50% and 250%.
- **Threshold:** The threshold describes the difference in color or brightness starting from which the sharpness filter is applied. The lower the threshold is set, the more image areas will be included in the sharpening and the bigger the risk that unwanted image artifacts will also be sharpened. Here, the usual values are from 2 to 10.

  Note: Sharpening that is too strong due to a radius that is too big and an amount that is too high can result in an unnatural looking image. So, depending on the sharpness settings, artifacts that were not previously visible may become visible or overemphasized because of the sharpening. This applies especially to the square pattern of the JPEG compression or the image noise in dark areas of digital photos. You can find more information about this in the chapter Special Workflow options/Flattened transparencies and sharpening.

» Image-based versus output-based sharpening radius

ZePrA offers two different ways of defining the sharpening radius: image-based and output-based sharpening. In image-based sharpening, the radius is given in image pixels. If a radius of 2 pixels is entered, the effective width of the sharpness effect will be 2 pixels wide. This corresponds to the methodology of the "unsharp masking" filter in Photoshop.
If a sharpened image is put in a layout program, then the visually perceived effective width or the sharpening radius depends on the image resolution in pixels per inch (ppi) and the scaling in the layout program. If, for example, you put an image with a 288 ppi resolution and a sharpness radius of 2 pixels entered in ZePrA with 100% scaling in the layout program, then the visually perceived sharpening radius is 0.5 points (0.18 mm).
This follows from the fact that 72 points amount to one inch. For an image with 288 pixels per inch, one pixel is 0.25 points (0.09 mm) wide.

In output-based sharpening, the sharpness radius remains the same in points or in mm for images at different resolutions or sizes in the layout program. Output-based sharpening primarily compensates for loss of detail of the output system (e.g. by screening) so it ensures that the sharpening radius for all images in the document similarly counteracts the loss of detail of the output.

» Correlations between scaling and image resolution

For example, reducing the image of the previous example with 288 ppi in the layout program to 50%, then the image resolution changes to 576 ppi. Hence, with regard to the image pixel, output-based sharpening with 0.5 points results in a doubled radius of 4 pixels.

Typical image-based sharpness radii in 300 dpi images with 100% scaling in the layout program correspond to the following data for output-based sharpening in points.

0.8 pixels = 0.19 points:
0.9 pixels = 0.22 points
1.0 pixels = 0.24 points
1.1 pixels = 0.26 points
1.2 pixels = 0.29 points
1.3 pixels = 0.31 points
1.4 pixels = 0.34 points
1.5 pixels = 0.36 points
1.6 pixels = 0.38 points

If you want to convert the width of an image pixel with any resolution into points, the formula for this is:
Radius in points = 72 / image resolution in ppi.

Note: Instead of ppi (pixels per inch), Adobe Photoshop uses dpi (dots per inch).

If you relate the sharpening radius to the screen ruling used for printing, then the sharpness radius should not be greater than the screen ruling. For help in this respect, you can consult the following table which shows the screen ruling and the sharpness radius in mm in the ratio 1 to 1:

60 l/cm	=	0.17 mm	(0.48 points)
70 l/cm	=	0.14 mm	(0.40 points)
80 l/cm	=	0.13 mm	(0.37 points)
90 l/cm	=	0.11 mm	(0.31 points)
100 l/cm	=	0.10 mm	(0.28 points)
110 l/cm	=	0.09 mm	(0.26 points)
120 l/cm	=	0.08 mm	(0.23 points)
200 l/cm	=	0.05 mm	(0.14 points)

If you print with a screen ruling of 70 l/cm, then the radius should be 0.14 mm or smaller.

To calculate a sharpness radius in mm, corresponding to a give screen ruling, use the following formula:

Radius in mm = 10 / screen ruling in lines per centimeter

» Sharpening and image resolution in relation to the viewing distance, printing process and screen ruling

One way to determine the sharpening radius is to base it on the viewing distance, the printing process and the screen ruling used for printing. A book in which historical maps are to be reproduced in the FM screening will need a different sharpening in comparison to the stand that is to be produced using an ink-jet plotter.

The maximum resolving power of the eye, depending on the contrast of the structures and position in the field of view, is approx. 0.2 mm and 127 pixels per inch for a viewing distance of 1 m or approx. 0.05 mm and 508 pixels per inch for a viewing distance of 25 cm.

You should only adjust the image resolution and the effective width/ sharpening radius to this print resolution if the printing process chosen for the job is capable of reproducing details in the resolution of the eye for the respective viewing distance. To be on the safe side, the image resolution should have a reserve of approx. 1.5 times the print resolution or the presumed viewing distance.

Hence for the example involving the reproduction of historical maps, you should set the image resolution at 508 ppi, or 762 ppi with 1.5 times reserve. The sharpening radius would then be 0.05 mm.

For offset printing with a screen ruling of 70 l/cm (178 lpi), details down to 0.14 mm wide can be reliably reproduced, which also defines the maximum sharpening radius. With a 1.5 times reserve, the image resolution should be at least 267 ppi.

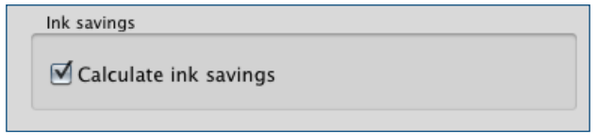
For an exhibition stand that will be viewed from a distance of 1 m, the normal-sighted eye can make out details down to approx. 0.2 mm, which is used to determine the sharpening radius. With a 1.5 times reserve, an image resolution of 191 ppi is sufficient here.

Our examples give the following image resolution and sharpness combinations:

Area of application	Printing process/Screening	Recom-mended image resolution	Sharpening radius
	Reproduction of historic maps **Viewing distance ≤ 25 cm applicable for sharpening**		
	Offset, coated paper, FM screening	762 ppi	0.05 mm or 0.14 pt
	Job printing flyer **Viewing distance 40-50 cm**		
	Offset, coated paper, 70 lpcm screen ruling **Applicable for sharpening**	267 ppi	0.14 - 0.1 mm or 0.4 - 0.28 pt
	Exhibition stand **1 m viewing distance applicable for sharpening**		
	Inkjet printing	191 ppi	0.2 - 0.13 mm or 0.57 - 0.37 pt

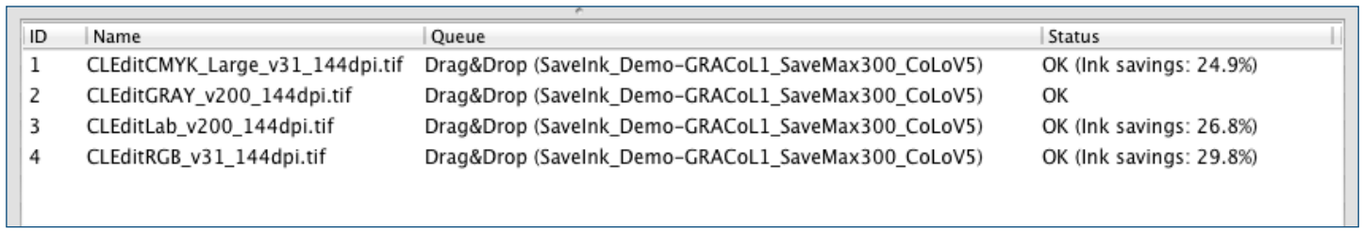
› Ink savings

The ***Calculate ink savings*** option calculates the overall amount of CMYK ink saved when applying SaveInk profiles to each individual file.



Note: The automatic calculation of ink savings can be selected via the option ***Calculate ink savings*** or is automatically activated for the SaveInk queue created using the Auto Setup wizard.

The savings in percent are indicated directly in the ***Processed jobs*** table in the ***Overview*** window and in the Job Properties window (see also ***Menu bar/Tools/Show and Save Job Properties***). The ink savings are displayed separately for each calculated file. To view the ***Job Properties***, right-click on a file in the main ***Overview/Processed jobs*** window and select ***Show Job Properties***.



ID	Name	Queue	Status
1	CLEditCMYK_Large_v31_144dpi.tif	Drag&Drop (SaveInk_Demo-GRACoL1_SaveMax300_CoLoV5)	OK (Ink savings: 24.9%)
2	CLEditGRAY_v200_144dpi.tif	Drag&Drop (SaveInk_Demo-GRACoL1_SaveMax300_CoLoV5)	OK
3	CLEditLab_v200_144dpi.tif	Drag&Drop (SaveInk_Demo-GRACoL1_SaveMax300_CoLoV5)	OK (Ink savings: 26.8%)
4	CLEditRGB_v31_144dpi.tif	Drag&Drop (SaveInk_Demo-GRACoL1_SaveMax300_CoLoV5)	OK (Ink savings: 29.8%)

You can also call up a ***SaveInk Report*** via the ***Tools*** menu (see also User interface/Tools menu bar/Create SaveInk Report). This report generates a detailed overview of all the SaveInk queues you have set up and their processed jobs. The overview lists the overall ink savings across all queues, the savings per queue and the savings per job. The overview lists are helpful when calculating prices and costs. The report can be created as a PDF, TXT, HTML or XML file.

Note: To calculate the ink savings, a PDF file has to be flattened. Since reduction requires additional processing time, the file processing speed slows down in ZePrA. Consequently, you should only activate the option for SaveInk applications where you want to know the ink savings for every file. In SaveInk queues generated via the Auto Setup wizard, the option to calculate the ink savings is automatically enabled. If you want to speed up color conversion for SaveInk applications, then switch the option back off in Configuration.

Note: If you want to convert spot colors to CMYK and simultaneously apply a SaveInk DeviceLink, however, no correct percentage values are calculated because the spot colors are not converted until after the SaveInk conversion. In this case, we always recommend that you convert the spot colors first in a separate queue and then apply the SaveInk DeviceLink afterwards in a second queue.

ZePrA SaveInk Report 2014-03-26

Summary

Queue	Jobs	Pages	Ink savings
SaveInk_ISOnews26_SaveMax180	2	2	16.3%
Drag&Drop	5	28	22.2%
SaveInk_Japan2001Coated_SaveMax300	4	4	13.9%
SaveInk_ISOnews26_TAC240_CoLoV3_Loop1	2	2	1.5%
SaveInk_ISOnews26_TAC240_CoLoV5	8	9	4.1%
SaveInk_ISOcoatedV2_SaveMax300	446	2365	17.9%
TAC-ISOcoatedv2_TAC300	2	2	9.6%
Spot-ISOcoatedV2	9	9	13.3%
SaveInk_ISOcoatedV2_SaveNeutral300	1	1	13.1%
SaveInk_ISOcoatedV2_SaveStrong300	1	1	18.3%
SaveInk_SaveMax	8	8	25.1%
SaveInk_SaveNeutral	1	1	13.1%
SaveInk_SaveStrong	14	14	20.1%
TAC ISOcoatedv2_TAC300	1	1	9.6%
Spot ISO Coated V2	1	1	5.6%
SaveInk_test	2	2	28.2%
SaveInk_ISOnewspaper26_SaveMax200_v2	1	1	15.3%
SaveInk_ISOnews_SaveStrong200	2	2	27.1%
All queues	510	2453	17.8%

Ink saving per queue and job

SaveInk_ISOnews26_SaveMax180

Job	Date	Pages	Ink savings
e1411x03xxxxxxxxx.pdf	2012-11-21 17:58:10	1	9.5%
Graff.pdf	2012-11-21 17:58:16	1	18.9%

Drag&Drop

Job	Date	Pages	Ink savings
SpotColorSC6-Test_noX.pdf	2012-11-23 15:54:22	1	2.1%
9632 arbeidsbog F29.pdf	2013-2-19 09:56:53	24	-1.3%
Tattoo-ISOcoatedV2.pdf	2013-2-21 10:23:23	1	28.2%
SpotColorSC6-TestV5_X4.pdf	2013-3-21 15:31:37	1	5.6%
SpotColorSC6-TestV5_X4.pdf	2013-3-21 17:06:27	1	9.6%

SaveInk_Japan2001Coated_SaveMax300

Job	Date	Pages	Ink savings
184714_001_A.PDF	2012-11-28 10:20:54	1	17.0%
184714_001_B.PDF	2012-11-28 10:21:38	1	13.5%
185246_001_A.PDF	2012-11-28 10:22:46	1	10.4%
182961_600K_001_B.PDF	2012-11-28 11:22:38	1	14.5%

PDF

Defining configurations

- Transparency flattening
- Overprinting • PDF/X output intent

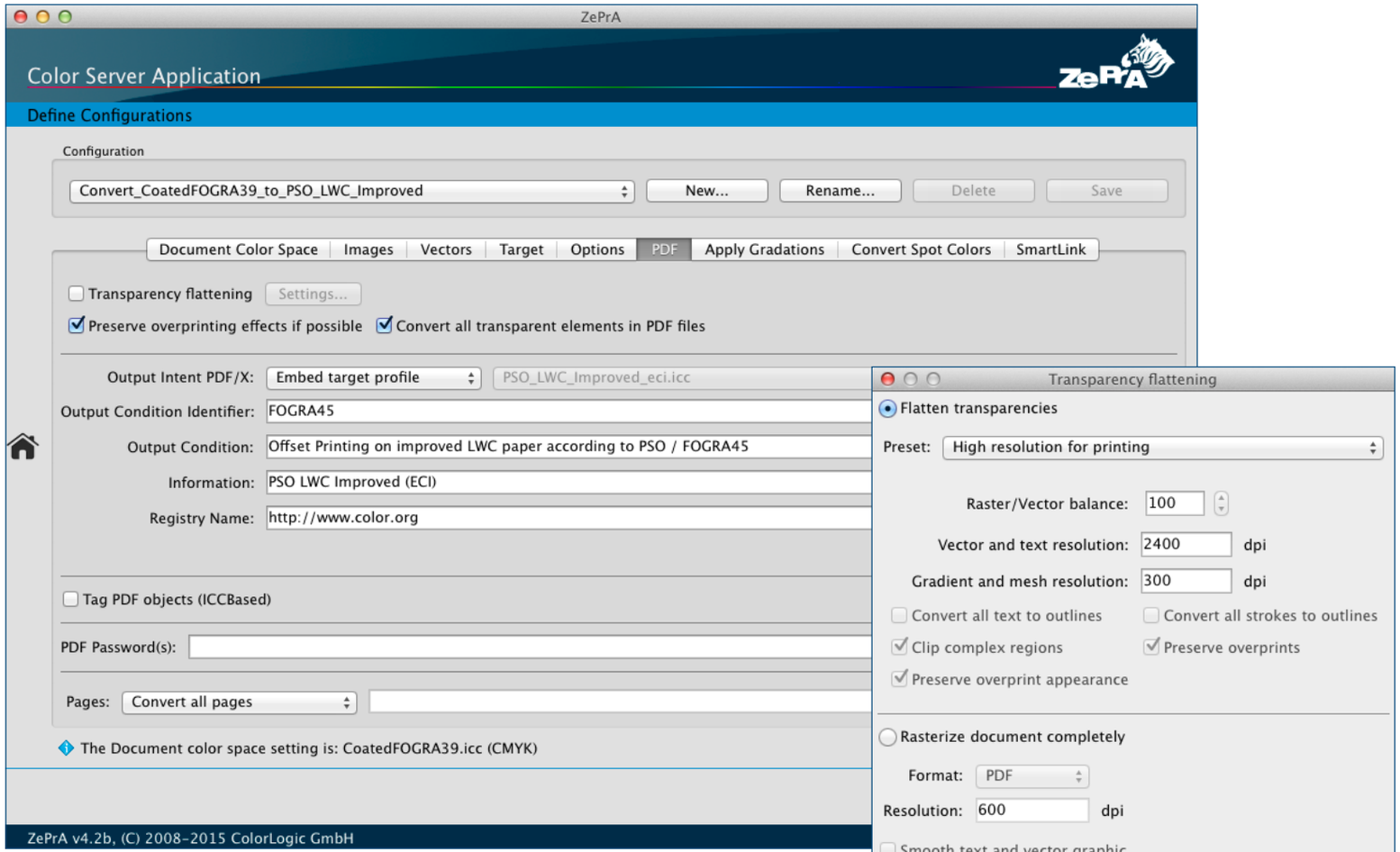
14 CONFIGURATION PDF

In the ***Configurations/PDF*** tab, you can influence the overprinting properties and transparent elements and you can also give the optimized or color-converted PDF files PDF/X-specific information.

The PDF/X-specific information is useful if ZePrA is used for generating printing data. The PDF/X entries tell the print shop receiving the PDF/X data which printing standard the PDF/X files supplied were optimized for.

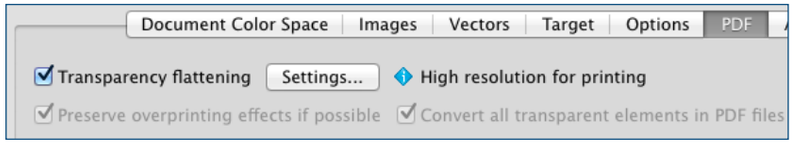
ZePrA supports the following PDF/X standards:

- PDF/X-1a
- PDF/X-3
- PDF/X-4
- PDF/X-5n



› Transparency flattening

As a result of the expanding use of PDF/X-4 files and the general trend towards working with transparencies in the creative sector, the number of PDF files with transparencies in circulation is increasing all the time. However, there may occasionally be some conflict between color conversion and transparencies. In such cases, ZePrA gives you the ability to achieve the desired results through ***Transparency flattening***.



For flattening, we offer logical ***Presets*** for typical printing tasks so you can access the desired results with just a few click. The settings used are grayed out and cannot be changed. Of course you can set your own resolutions and options instead by selecting the ***Custom*** preset.

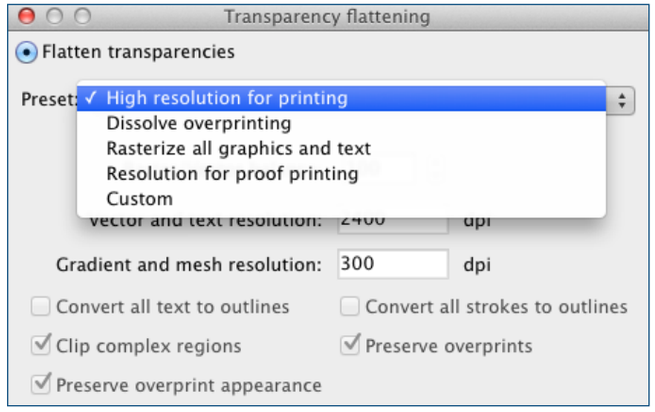
The presets are offered to enable you to quickly achieve the results you want. You can also use the presets as the basis for your custom setting, e.g. for the resolution of your imagesetter. The detailed options for transparency flattening are akin to those used in the Callas PdfToolbox and Acrobat Pro, which means the different options in ZePrA will look very familiar to you.

Since ZePrA 4.5 the new option ***Preserve overprint appearance*** has been added. It is an efficient technology to solve overprinting issues in general without rasterizing the complete file. This technology may be used in case of overprint issues with or without transparencies in the file. Starting with ZePrA 4.5 this technology will be activated by default in all ***Presets*** within our ***Transparency flattening*** feature. Especially during conversion of spot colors to process colors, the preset ***Dissolve overprinting*** should be used to ensure the best possible conversion of colors and vector objects.

» Presets for transparency flattening

In the ***Transparency flattening*** settings, you can decide between two options - either flattening or rasterizing the entire file:

1. If your file contains transparencies that you wish to flatten, we recommend using the ***Transparency flattening*** option in the ***PDF*** tab. By using the preset ***Dissolve overprinting*** you are also able to solve critical overprinting issues. There are production-proven presets you can chose from:



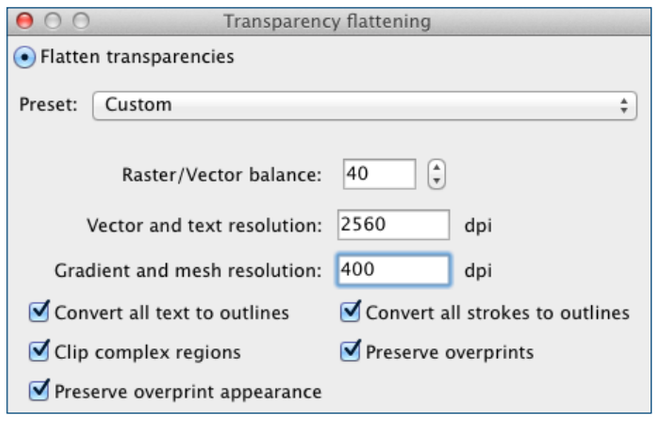
- **High resolution for printing** – use this preset for print production, for example with a conventional printing machine. The most possible vector objects are preserved. In screening, a typical imagesetter resolution of 2,400 dpi is used for vectors and texts. The preset ***High resolution for printing*** is the default setting when you enable transparency reduction in ZePrA.

- **Dissolve overprinting** – even without transparencies and despite reduction of the total area coverage or use of a SaveInk DeviceLink, overprinting elements may lead to undesirably high amounts of ink when printing. You may also face situations where spot colors overprint with combination of other process or spot colors, but should be converted into process colors. With this preset, overprinting elements are dissolved into individual vector objects and, if necessary, rasterized so that the resulting color impression is identical to the original. The difference in comparison to the preset ***High resolution for printing***, is that the ***Preserve overprints*** checkbox is deactivated. Use this option if you observe problems with overprinting elements after color conversion or the total area coverage is too high. This preset may be the best solution to get rid of overprinting issues, especially for the combination of spot color conversion and transparency flattening.
  Note: Please consider that the two options ***Preserve overprints*** and ***Preserve overprint appearance*** are independent from each other. If the checkbox ***Preserve overprints*** is deactivated, all overprinting objects will be flattened in the same way as transparent objects. In both cases (overprinting objects and/or transparency flattening), if spot colors are involved, a downstream spot color conversion may lead to unwanted results. This issue can be solved by simply using ***Preserve overprint appearance***.

- **Rasterize all graphics and text** – If the ***Pixel/Vector balance*** is set to zero, all vectors and text are rasterized. The resolution of the rasterized elements then corresponds to the ***Resolution for vector and text***. Please note, images are also converted to this resolution and thus may be enlarged in resolution and more blurred in print. The resulting PDF files may be much larger through application of this preset.

- **Resolution for proof printing** – Unlike with the preset for print production, the resolution of a typical inkjet printing system comes as preset for proof printing. Overprinting elements are dissolved in order to correct color impression of overprinting elements can be rendered.

As soon as you select the ***Custom*** preset, the detailed options become available for you to set your own options for resolution and overprinting:



- The **Pixel/Vector balance** determines the amount of vector information to be preserved. A higher setting means more vector objects are preserved and a lower setting means more vector objects are rasterized. Intermediate settings preserve simple regions in vector format and rasterize complex ones. Select the lowest setting to rasterize all graphics with transparency.

  Note: The conversion to pixel images performed depends on the complexity of the page and the types of overlapping objects.

- With the option **Resolution for vector and text**, all objects with the specified resolution are rasterized, including images, vector graphics, text and gradients. The resolution affects the accuracy of the intersections during conversion to pixel images. According to Adobe, the resolution of vector graphics and text should be set somewhere between 600 and 1,200 ppi in order to achieve high-quality screening, especially with serif fonts and small fonts.

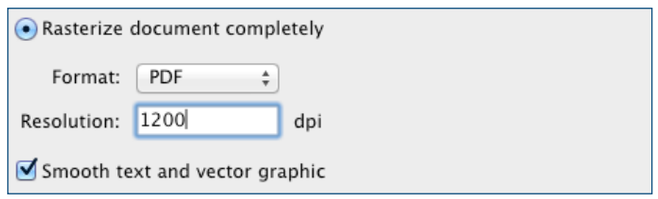
- With **Resolution for shading and grid**, you can specify a resolution of between 72 and 2,400 ppi for gradients and illustrator grid objects that were rasterized as a result of reduction. The resolution affects the accuracy of the intersections during conversion to pixel images. According to Adobe, the resolution for gradients and grid objects should be set somewhere between 150 and 300 ppi because the quality of gradients, drop shadows and soft edges does not improve with higher resolutions. On the other hand, higher resolutions prolong the printing time and increase the file size unnecessarily.

- **Convert text to outlines** converts all text objects (point text, area text and path text) to outlines and ignores all type glyph information on pages with transparency. This option ensures that the width of text remains unchanged during reduction. Please note, this option makes small fonts appear slightly wider if the file is opened in Acrobat or printed on desktop printers with low resolution. It bears no influence on the quality of the text if the file is output on printers with high resolution or imagesetters.

- **Convert strokes to outlines** converts all strokes on pages with transparency to simple filled outlines. This option ensures that the width of strokes remains unchanged during reduction. Please note, thin strokes appear slightly thicker and reduction performance may be impaired if this option is selected.

- Via **Clip complex regions**, you can ensure that the boundaries between vector and rasterized graphics fall along object paths. This option prevents visible transitions with graphics when one part of an object is converted to a pixel image while another part of the object remains in vector form. However, selecting this option may result in paths that are too complex for the printer to handle.

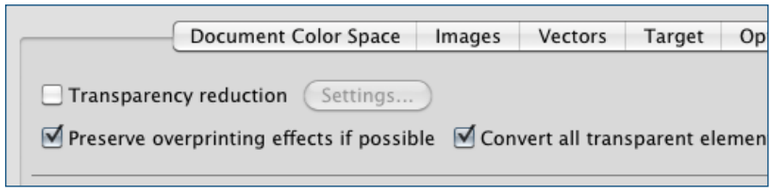
2. **Rasterize document completely** – This is a special option that completely rasterizes your PDF file using the ***Resolution*** you specify. Vectors, text, images and the white paper background, for example, is also rasterized in the process. This setting can be helpful in certain circumstances if there are complex transparent elements with combined process and spot colors and both, transparency flattening and conversion of spot colors, shall be performed in ZePrA. It is also helpful if printing shall be done with an older RIP not supporting transparencies. Under ***Format*** select if the rasterized file should still be a PDF or converted to a ***Pixel file***. If you select ***Pixel file*** you can specify in the ***Options*** tab under ***Image quality*** if you want a TIFF or PSD or JPEG file. Using the ***automatic*** mode for the ***Compression method*** as image quality typically a TIFF file will be generated. Please note that for a multipage PDF file as many pixel files will be created as many pages the document has. With the option ***Smooth text and vector graphics*** anti aliasing will be performed on text and vector elements avoiding nasty step artifacts in case a low ***Resolution*** has been selected. But of course anti aliasing will produce a slight unsharpness, too.



Note: The font is also rasterized with this option. Make sure to select a high enough resolution (minimum 600 dpi) in order for rasterized text and vector lines still look reasonable good.

› Preserve overprinting effects

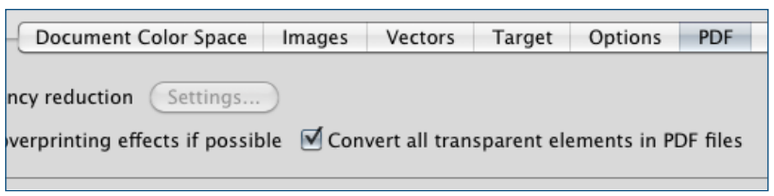
The ***Preserve overprinting effects if possible*** checkbox causes automatic adjustment of overprinting properties. Some overprinting effects may be lost when changing the color space, e.g. in the case of CMYK-to-N Channel or ICC-based CMYK conversions. This option ensures correct conversion of colors (particularly vector colors) to the greatest possible extent. Hence the ***Preserve overprinting effects*** option is enabled by default if you do not perform transparency reduction.



Note: If you reduce transparencies, both the option to preserve overprinting effects and the option to convert transparent elements will be unavailable.

› Convert all transparent elements in PDF files

Transparent objects in PDF files have not only the actual transparency effect, but also a color space and color values. As standard, ZePrA converts all transparent objects in just the same way as all other color objects, even if you do not apply transparency reduction. However, this can lead to visual errors in the case of some transparency effects. In such instances, you should repeat color conversion after deactivating the checkbox or perform transparency reduction. If the checkbox is deactivated, the color of transparencies continues to be converted correctly, but individual effects having no color relevance are excluded.

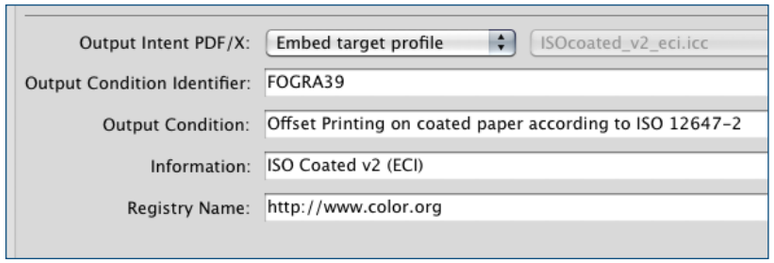


You can find out more about this subject in the chapter Special workflow options/Handling transparencies.

› PDF/X output intent

The output intent is a color profile describing the printing color space for which the PDF file was created. The ***Embed target profile*** option automatically embeds the target profile of the configuration as the output intent. Alternatively, a different profile can also be defined manually.

There are four options for setting the output intent of a configuration:



- By default, the target profile is embedded as the output intent
- You can embed a profile ***other*** than the ***target profile and specify which one from a dropdown menu***
- ***You can remove the output intent using the No Output Intent*** option
- You can retain the entry as it is in the PDF file (***Do not change*** option)
- If have selected a Reprofiler correction DeviceLink profile in the ***Target*** tab and enabled the ***Embed corrected target profile instead of the target profile above*** option, then this corrected target profile will be embedded as output intent

» Output Condition Identifier

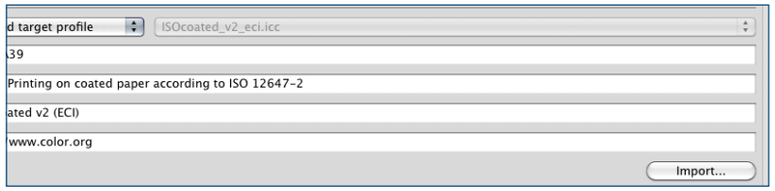
The identifier stands for the colorimetric data on which the color profile of the output intent is based. This information is important because, for example, different suppliers offer profiles with occasionally very different names for the FOGRA39/ISO Coated v2 or FOGRA47/PSO Uncoated ISO12647 printing standards.
If a printer receives PDF/X data from users who work with different profiles, s/he can use the registered name to see whether the profile in question is a profile for an industry standard or a highly specific, custom profile.

» Output Condition
Plain-language description of the printing standard for which the PDF/X data were optimized.

» Information
You can additionally make customer, job, printing process or file-specific entries under ***Information***.

» Registry Name
At www.color.org, the ICC keeps a rather neglected registry for colorimetric data/Output Conditions representing international printing standards. If a printer works with numerous different suppliers, it makes sense to agree on a name/Output Condition Identifier registered with the ICC.

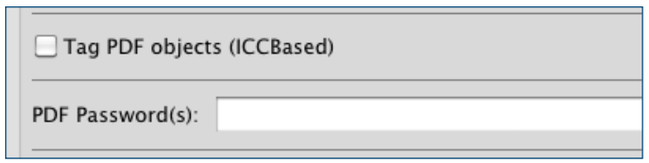
» Importing PDF/X information
If you use the ***Import*** button to load a PDF/X file, ZePrA extracts the PDF/X information. There is then no longer any need to enter the information manually.



Note: If you use the ColorLogic DeviceLink profile sets with the endings ***CoLoV3/V4/V5***, they contain information that is automatically entered in the corresponding fields for PDF/X information in ZePrA. In this case, no manual entries in the PDF/X information are necessary when creating queues via the ***Auto Setup wizard*** and using ColorLogic DeviceLinks. Similarly, no manual entries are necessary if you work with a target profile that ZePrA recognizes as a standard output profile.

Note: If you create your own DeviceLink profiles, you can use ColorLogic ***ProfileManager***, which is part of the CoPrA profiling, to very easily make the entries in the ***Workflow*** tab needed for automatic adoption of the PDF/X information in ZePrA.

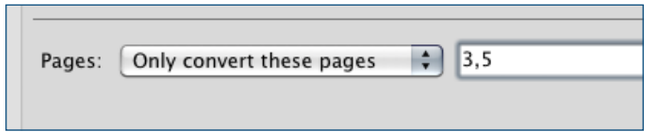
› Tagging PDF objects (ICC-based)
When ***Tag PDF objects***, is selected, the target profile is assigned to each object of the PDF file following color conversion. Use this option if PDF files are not PDF/X files, but you want to ensure that the color information for images and vectors are correctly defined with the target profile. By default, ***Tag PDF objects*** is disabled. We recommend to leave this option disabled and to only use it in certain cases.



› PDF passwords
Passwords in PDF files prevent PDF data from being color-converted. To remove this protection and be able to perform color conversion, you have to enter the ***PDF passwords***.

› Selecting pages to be converted
For PDF files with numerous pages (multipage PDFs), you can specify which pages should be color-converted and which should not. This means you can specify that different pages of the same PDF file be color-converted differently. This is a very useful function when a multipage PDF is used for a variety of printing tasks or display outputs.

- The ***Convert all pages*** is selected by default.
- If you want to just convert certain pages of your multipage PDF document, select ***Only convert these pages*** and enter the relevant page numbers – Example: 3,5, if only pages 3 and 5 should be converted.



If you want to convert pages 3 to 5, then enter 3-5.

- If you want to convert all pages except 3 and 5, select ***Do not convert these pages***: 3,5.

APPLYING GRADATIONS

Defining configurations

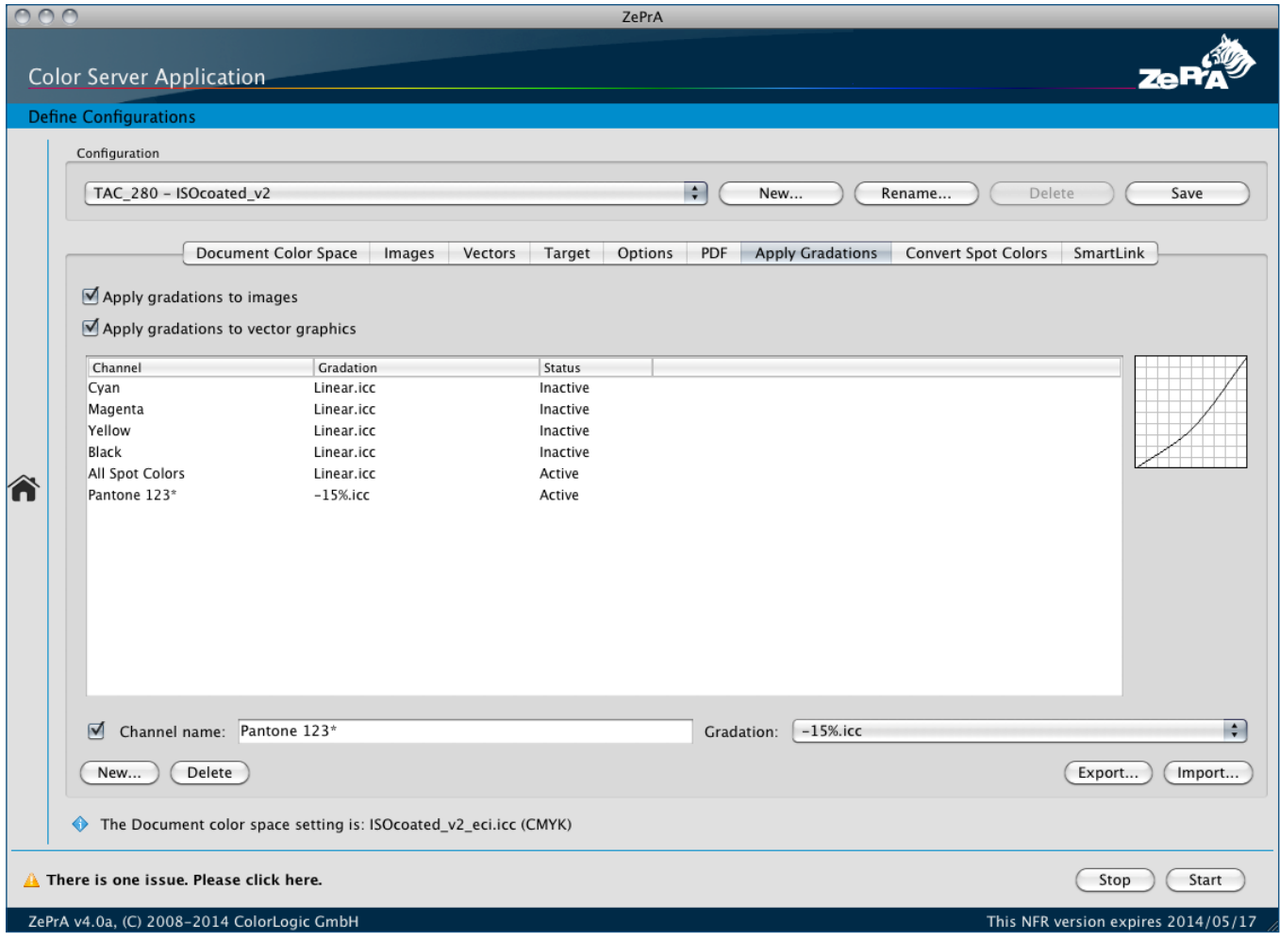
- CTP compensation curves
- Application with spot colors

15 CONFIGURATION
APPLY GRADATIONS

Gradations are curves that you can apply to the individual channels of your data at the end of the conversion operation. The procedure is similar to that for controlling the curves when exposing printing plates. With the help of the gradations, you can apply tone value corrections both to CMYK channels and to spot-color channels. Gradations can be activated either after or instead of color conversion.

If you only want to apply gradation curves to otherwise print-ready data, with ZePrA, you can create corresponding configurations using the ***Auto Setup wizard*** (this requires a license for the Gradation module). In this case, the document color space is not changed. It is best to apply pure gradation corrections to print-ready PDF/X 1a files that are comprised of only CMYK and possibly spot colors. Read more about this under Special Settings/Create Gradations and Automatic configuration wizard/Selecting setup modes/Apply gradation curves only.

Via the ***Configurations*** option on the navigation panel you can access the ***Define Configuration*** window and the ***Apply Gradations*** tab. There, not only can you apply gradation adjustments in the form of predefined gradation curves, you can also import gradation adjustments from an external file and automatically apply them to process and spot colors. This is also possible without any prior color management on process and/or spot colors. If you update the curves in this external file, the gradation curves are automatically adopted in the ZePrA configuration and applied to your printing data to be processed. This enables short-term adjustments of the printing data without having to change the CTP curves in the RIP. This means that with ZePrA, automatic color and printing control is possible not only for standard printing processes, but also for digital printing machines. You can apply the gradation curves to both the CMYK and the spot-color channels of your file to be converted.



- At the top edge of the window, there are checkboxes that allow you to specify whether the gradations are to be applied only to ***image data*** or also to ***vector data***.
- The basic colors ***Cyan, Magenta, Yellow, Black*** as well as the entry ***All Spot Colors*** appear as fixed values at the top of the list and cannot be deleted or renamed.
- With the ***All Spot Colors*** entry, you can adjust many spot colors in your document quickly and in the same way. If you activate ***All Spot Colors*** and assign a gradation, all DeviceN spot colors will be adjusted using the same gradation curve.
- You can make further entries for adjusting the gradation of spot colors at the bottom edge of the window by creating a new spot color via ***New***, enabling the checkbox, entering the ***Channel name*** and selecting the required gradation curve.

Note: If you have enabled ***All Spot Colors*** and you manually add another spot color with a different gradation adjustment, it will receive preferential treatment.

› Applying gradation curves to spot-color channels

To be able to apply the gradation curves to spot-color channels, click on ***New*** and enter the exact name of the spot color. The name of the spot-color channel must match the name used for the spot color in the file. Since it may well be that the spot color names in the file have different naming conventions, you can work with wildcard characters when entering the channel name:

For example, to process a spot color Pantone 123C or Pantone 123CVC with the same curve, you can use the (***?***) wildcard to replace exactly one number/letter combination behind the wildcard or the (*******) wildcard to replace all combinations. If you call a spot color ***Pantone 123**** in ZePrA, this allows you to apply the set curve to spot colors in your documents that are called either "Pantone 123C" or "Pantone 123CVC".

Note: ZePrA differentiates between upper and lower case. Only if agreement of the spelling of names is not applicable, the upper and lower case spelling of manually entered spot colors will be handled tolerantly. This means a spot color created in the document as "PANTONE 123" will still be adjusted using the set gradation curve even if it was written as "pantone 123" in ZePrA.

In the ***Apply gradations*** tab you can choose from three options to perform a gradation correction for spot colors:

- You can import existing CTP compensation curves or curves you have created yourself for gradation correction (read more about this in the chapter Special Settings/Create Gradation Curves). Gradation corrections from an external file may contain more than 16 spot colors and a corresponding number of curves. This is possible because the XML file format is now supported. We would be happy to provide information about the structure of the XML file on request.

  Note: If changes are made to the gradation corrections in the external file, ZePrA incorporates them "on-the-fly". However, at present, newly added spot colors with gradation curves are not automatically added in ZePrA. To do this, the file has to be re-imported.

- Select the ***Cyan, Magenta, Yellow*** or ***Black gradation*** under the Gradation option. That way, gradation corrections for spot-colors are performed with the same dot gains as for the color channels Cyan, Magenta, Yellow or Black during conversion from document color space to target color space.

  Note: If spot colors are to be preserved and printed as additional channels, then the dot gain must also be balanced out for the spot colors for color conversion from, for example, coated to uncoated paper. If no dot gain measurements are available spot colors, many users use the Black channel as an approximation of the dot gain curve for the spot color.

- Also at your disposal are standard curves with an average tone value increase of -20% to +20% in 5% increments and all Gray ICC DeviceLinks present on your system. The Gray-to-Gray DeviceLinks permit very accurate mapping of a tone value correction curve.

Note: If you want to apply the set spot colors and gradation corrections of one configuration to a different configuration, the ***Export*** button enables you to export all the channel names and settings of a configuration. The ***Import*** button can be used to adopt an exported setting in a different configuration. Identical channel names are overwritten when importing. The following section also deals with this subject.

› Importing CTP compensation curves

If you want to take advantage of the abilities of ZePrA to automate your workflow using external gradation files and if you want to import existing CTP compensation curves or correction gradations into ZePrA, then you will need a separate tool that calculates the respective correction curves based on measurements on printed sheets and saves these in the following form as text files and/or as XML files:

```
BEGIN_DATA_FORMAT
GRAY   CMYK_C   CMYK_M   CMYK_Y   CMYK_K
END_DATA_FORMAT
BEGIN_DATA
0.00      0.00      0.00      0.00      0.00
1.00      0.69      0.58      0.53      0.65
3.00      2.02      1.76      1.62      1.92
5.00      3.23      2.60      2.38      3.28
10.00     6.95      5.92      5.52      7.41
15.00     10.80     9.64      9.02      11.93
20.00     15.10     13.29     12.43     16.68
25.00     19.53     17.19     16.06     21.52
30.00     24.07     21.88     20.37     26.37
35.00     29.08     26.91     24.94     31.26
40.00     34.12     31.50     28.69     36.24
45.00     39.33     36.43     32.94     41.68
50.00     43.80     41.84     37.96     46.59
55.00     49.20     47.98     43.81     51.42
60.00     55.37     54.01     50.29     57.48
65.00     61.91     60.59     57.36     63.44
70.00     68.46     66.28     63.78     69.11
75.00     74.90     72.54     70.73     74.58
80.00     79.24     78.89     77.66     79.52
85.00     85.08     83.09     82.28     84.93
90.00     89.42     87.13     86.64     89.33
95.00     93.74     92.60     92.40     94.02
97.00     95.66     95.25     95.13     96.03
99.00     98.18     98.01     97.98     98.31
100.00    100.00    100.00    100.00    100.00
END_DAT
```

Here, ***Gray*** stands for the input values in percent (0-100%) and ***CMYK_C*** stands for the output values of the Cyan channel in percent (0- 100%). The example shows a step wedge with 25 gradations of the process colors in CMYK. The number of levels is arbitrary and depends on your measuring wedge.

If you would also like to adjust the gradation of spot colors using an external file, please contact us for details regarding the syntax.

Note: The curves created using ZePrA or curves duplicated from imported text files are stored as one-channel ICC DeviceLink profiles in the profiles folder of your operating system. The dropdown menu shows not only the curves supplied with ZePrA for tone value corrections from -20% to +20%, but all Gray-to-Gray DeviceLink profiles contained in the profiles folder of your operating system. Please note that only the curves created in ZePrA can be edited in ZePrA. Imported text files are stored internally and temporarily, but not as DeviceLink profiles. Hence these curves cannot be edited in ZePrA.

A separate license is necessary in order to be able to use the Gradation functions. Read-only gradation curves can be duplicated in curve management and these duplicates can be edited.

› Automatic gradation correction of an existing configuration

You can even furnish existing configurations with the required gradation adjustments using an external file and hence automate the workflow.

How to do it:

1. Open the ***Apply Gradations*** tab in the ***Define Configurations*** window.
2. Click the Import button and select the external text file (the text file must have a specific syntax) with the required gradation adjustments.

Note: Under certain circumstances you have to change the format in the Import dialog from configuration file (****.ccf***) to text file (****.txt***) to be able to import the gradation file.

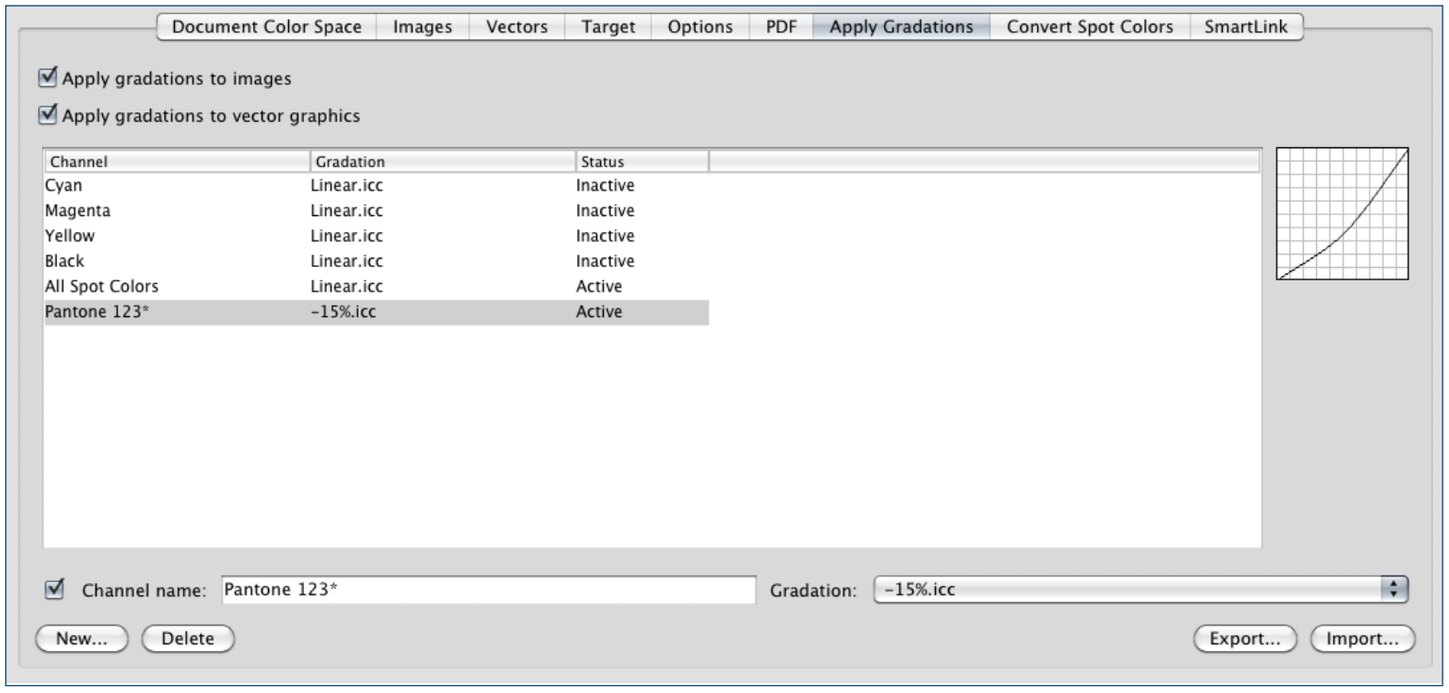
3. ZePrA assigns the gradation curves found in the file automatically to the right process colors. If spot-color curves are also stored in the external gradation file, ZePrA creates the corresponding spot-color channel names in the configuration and assigns the appropriate curve to each color.

The curve loaded for the selected channel is displayed in a small overview chart. This makes it easy for you to check the assignment of channels and curves.

Note: If the curves are not displayed immediately after updating the external file, you can force the chart to refresh by briefly switching to another configuration tab and back.

Your configuration is now linked with the external gradation file. If the file is updated because of new measurements on the printed sheet and needs to be overwritten with new gradation curves, ZePrA recognizes the changes and automatically adopts the updated curves.

Note: Gradation curves that have come from loaded text files can be deleted using the ***Create Gradations*** dialog. If you are about to delete gradations that are still being used in configurations, a warning will appear. If you ignore this warning, the gradations in the respective configuration will be deleted and replaced with a linear gradation. Basically, when you delete a curve, not only the one curve, but all curves linked with the file will be deleted.



SPOT COLORS

Defining configurations

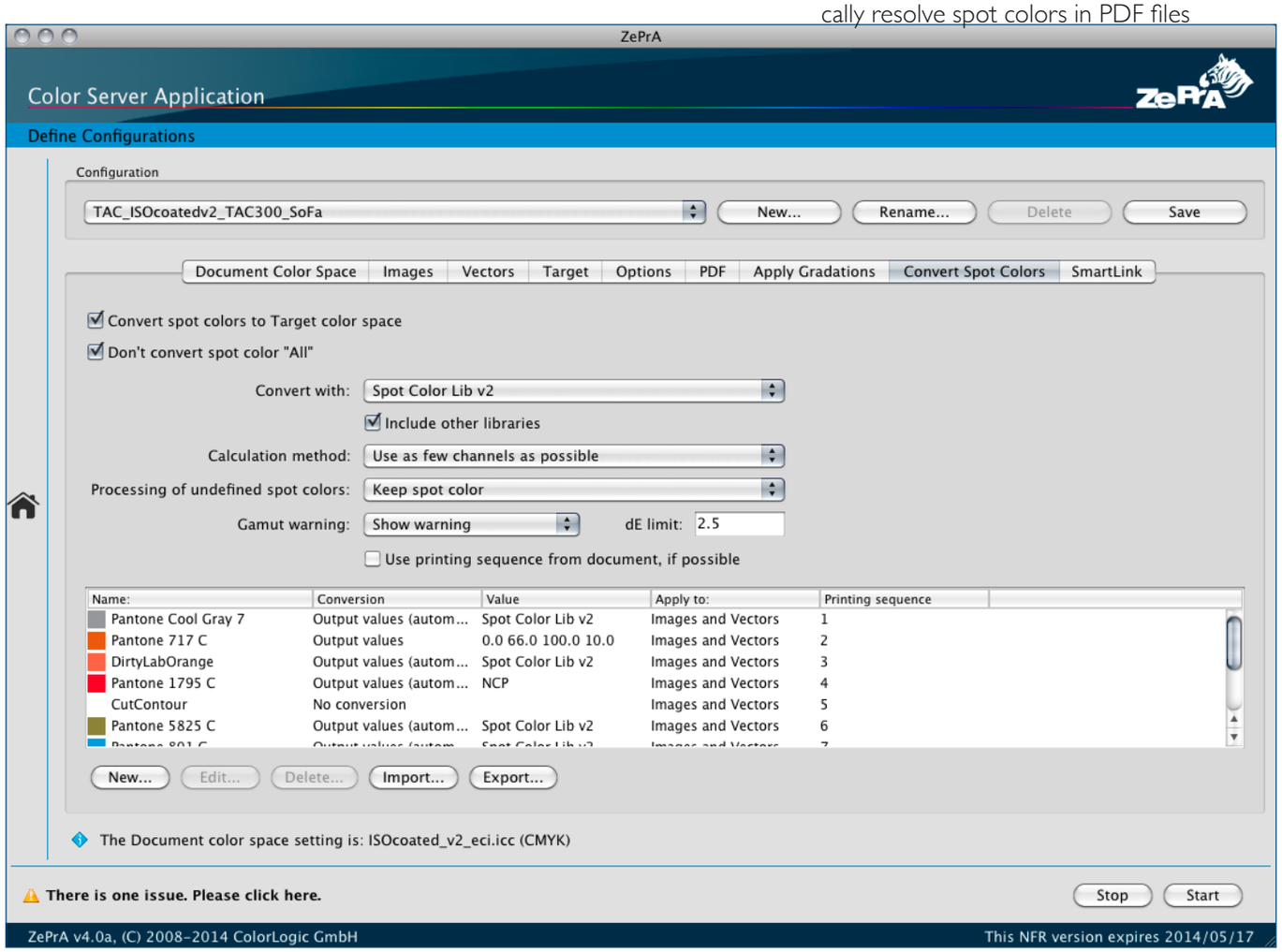
- Converting spot colors

16 CONFIGURATION
CONVERTING SPOT COLORS

For the best results when converting spot colors in PDF files to CMYK or also to Multicolor color spaces if you have a Multicolor license, we recommend you use the Spot Color module.

The **Spot Color** module can be obtained:

- as an integral part of ZePrA XL, including Multicolor license
- as a chargeable additional module for ZePrA
- as part of the chargeable additional Multicolor module



If you have loaded a spot color license, you will have access to all the functions of the spot color solution in ZePrA.

To get the best possible printing results, you now need to perform two steps:

1. Use caution when creating your libraries. For best results, try to match and measure color values of spot colors as closely as possible based on either your printing process or the requirements of your customers. This will allow ZePrA to automatically resolve spot colors in PDF files and color-convert them to the target color space. The spot color libraries to be created contain fundamental descriptions of the spot colors, e.g. measured values of the solid tone and gradations, information as to whether they are non-printing channels, such as cutting marks, register marks or the like. You can read about this under Special Settings/Spot Colors.
2. Apply the spot color libraries in the desired configuration to your PDF files. Via ***Set spot color configuration***, specify how spot colors are to be converted to the target color space. All configurations access these fundamental descriptions in the spot color libraries to determine the necessary Lab or spectral values. You can read more about the application of spot colors to PDF files over the next few pages.

Background and further information about spot color processing in ZePrA is provided in the chapter Special workflow options/Spot color processing.

Note: The description in this document is based on the assumption that you primarily want to convert spot colors in PDF files. You can, however, equally convert spot colors in image files (ZePrA supports TIFF, PSD and PSB pixel formats). To do so, you have to create the spot colors as alpha channels and with the spot color attribute.

Without the Spot Color module, the alternate color space colors indicated in the PDF file are used for converting spot colors to the target color space. I

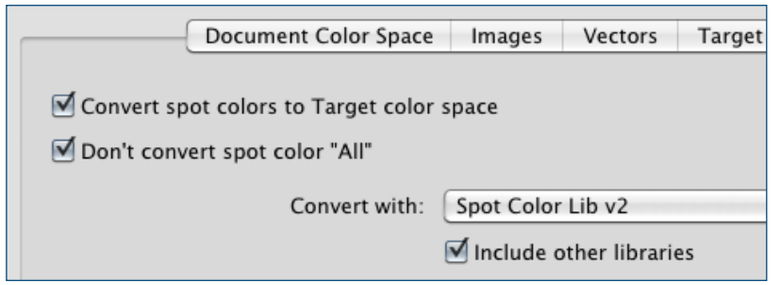
In addition you can specify that certain freely definable spot colors must be preserved. This is required in packaging printing, for example, when areas for punch marks, Braille characters or coating forms are marked with spot colors.

Note: Please be aware that in many cases, standard conversion without using a custom spot color libary does not result in sufficiently good rendering of the spot color, nor does it produce a substitute process color that prints well.

› Convert spot colors to Target color space

Under ***Define configurations/Convert spot colors to Target color space*** spot-color objects are converted into, for example, CMYK objects if the target profile is a CMYK profile. You should use the ***Convert spot colors to Target color space*** option if spot colors are not wanted in the final print job.

If the ***Convert spot colors to Target color space*** option is not activated, all spot-color objects remain unchanged. If necessary, you can use the ***Gradations*** function to make additional tone value corrections to spot-color gradients.
The details of what then happens are largely dependent on whether or not you have activated the Spot Color module.



» Don't convert spot color "All"

Register marks and other black printer marks are often created with the specific spot color "All". In order to avoid conversion of this specific spot color to the target color space, as soon as the ***Convert spot colors to Target color space*** option is activated, the checkbox for ***Don't convert spot color "All"*** is enabled by default.

» Convert with spot color library

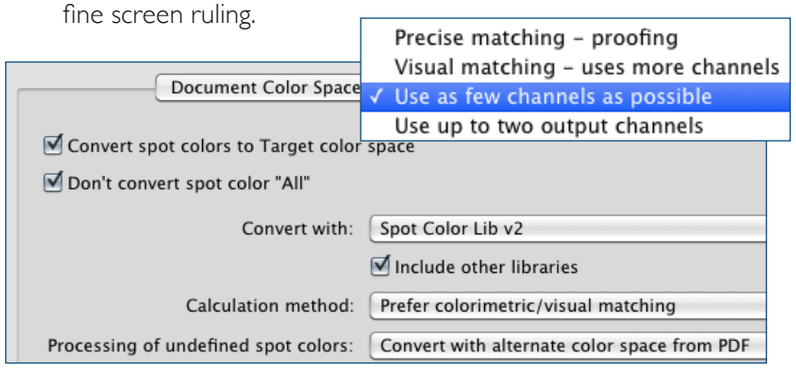
Under ***Convert with***, select the spot color library that should primarily be used to perform conversion. If you have further spot color names in libraries other than the primary library and want to use these as well, you must also enable the ***Include other libraries*** checkbox.

» Calculation method

Use the ***Calculation method*** to select the way in which ZePrA is to convert spot colors, combinations of spot colors and process colors, or several spot colors to the target color space.

Four options are available:

- Use ***Precise matching - proofing*** if you want to reproduce your spot colors on your proofing printer as precisely as possible. Please be aware that this method is not meant to be used in production as it may use all process colors to achieve the closest match (based on DeltaE 2000). The full tone will be calculated in a way that it will result in the lowest possible DeltaE 2000 value. No channel minimizing and print optimization will be applied.
- By choosing ***Visual matching - use more channels***, you opt for the visually best conversion with high colorimetric accuracy and yet still with good printability. With this method, solid tones and gradients of the spot colors are converted with a minimum of channels and still colorimetrically accurately. However, spot colors that are present in combination with process colors or other spot colors may consist of several process colors after conversion. This option is suitable for digital printing, large-format inkjet printing, proof printing or offset printing with a fine screen ruling.



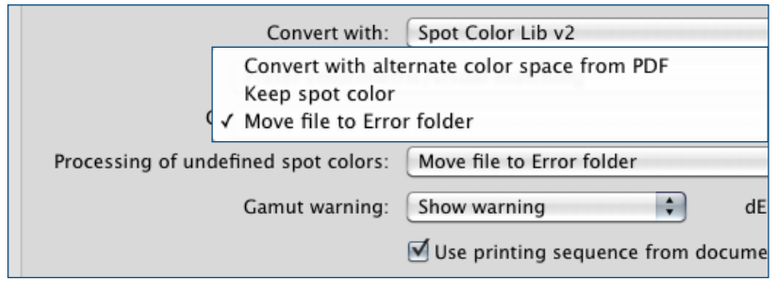
- Like the second method, the ***Use as few channels as possible*** option converts solid tones and gradients of the spot color with a minimum of channels and colorimetrically accurately. However, after conversion, overprinting spot colors are composed of as few process colors as possible from the target color space. Choose this method for packaging printing, where the purest possible colors are to be produced. Single-color and two-color combinations are also included in the search for the best color combination.
- You should only opt for the ***Use up to two output channels*** option in exceptional circumstances. In this case, one or two process colors providing the best colorimetric match are automatically selected for each spot color. Consequently, this method results in very pure separations that are easily printed, but not necessarily very exact in colorimetric terms.

  Note: We recommend that you only use this function for individual, manually created spot colors.

Note: ZePrA converts spot colors automatically visual and print (channel minimizing) optimized. A visual optimized conversion will priorize the lowest visual color difference based on DeltaE 2000. This may lead to the fact that more process colors are used to simulate the spot color. With a channel minimizing method we priorize the usage of less possible channels while maintaining a low DeltaE 2000 value. Obviously, channels will only not be used if the resulting color is still close enough to the original spot color. Spot color shades will only be printed with those process colors, which you defined for the full tone either manually or with the help of the Auto function. In addition, color combinations of spot colors with process colors or other spot colors in your files are analyzed and converted to the target color space by one of the four calculation methods.

» Processing of undefined spot colors

Under ***Processing of undefined spot colors***, you specify what is to be done with spot colors that are not listed in your color libraries and the table below.

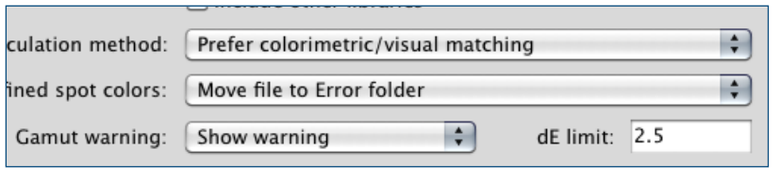


If they are not to be converted, but preserved as spot colors, select ***Keep spot color***.

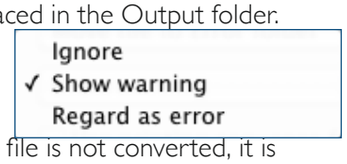
- If spot colors are always to be resolved, and converted with the possibly inaccurate PDF alternate color space if necessary, then select ***Convert with alternate color space from PDF***.
- Or, if you want to retain control of the conversions, and would prefer to get an error message if spot colors cannot be found and cannot convert the PDF file, then choose ***Move file to Error folder*** option. In this case, an error message appears on the ZePrA overview page for the respective job, indicating the first undefined spot color. You can subsequently find the file in the ***Error*** folder of the queue. Please note that files of this kind may well contain several undefined spot colors, even if only one is listed.

» Gamut warning

The Spot Color module delivers extremely accurate color rendering in the conversion of spot colors to process colors. However, there are always spot colors that lie outside the printable gamut of the target profile and thus preclude precision rendering. You can configure ZePrA so that with a ***deltaE threshold*** (dE 2000) specified by you, issues a ***Gamut warning*** indicating what color would result in what color deviation.



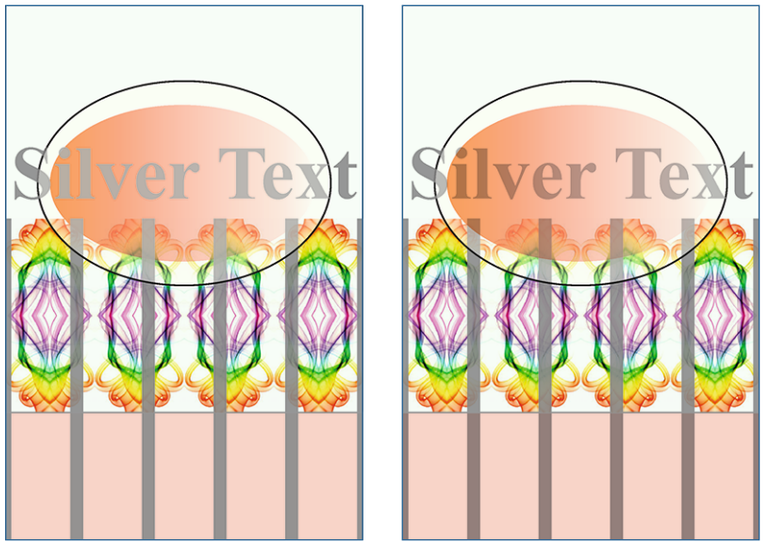
- Select ***Ignore*** if you do not want to receive a warning or error message during conversion of spot colors to their target color space.
- With ***Show warning*** enabled, a warning is generated during conversion of spot colors (the processed file highlighted in yellow in the ***Jobs and Queues Overview***) as soon as the dE threshold you specified is exceeded during conversion of spot colors to their target color space. The file is nevertheless converted and placed in the Output folder.

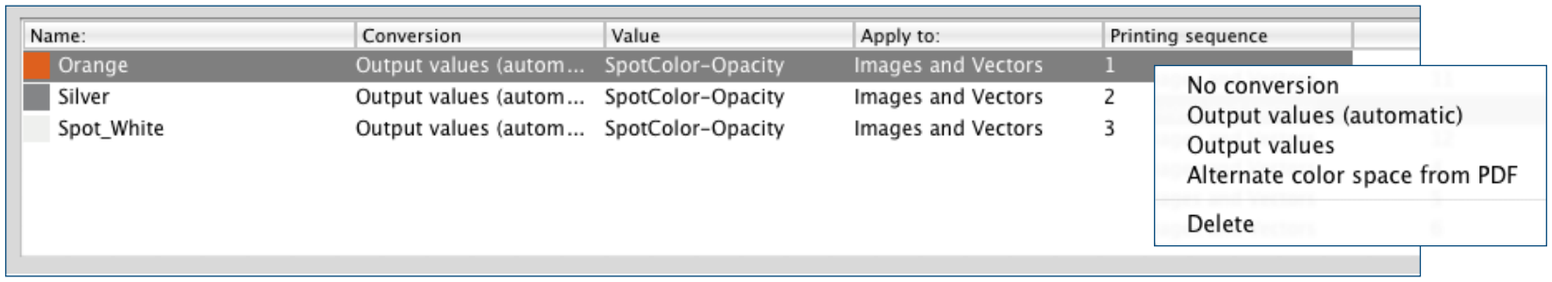


- If you select ***Regard as error***, the file is not converted, it is highlighted in red under ***Processed jobs*** in the ***Jobs and Queues Overview*** and is moved to the ***Error*** folder.

» Printing sequence for spot colors

Another aspect that plays a role in connection with the opacity (see also Special Settings/Spot Colors/Create spot color libraries), is the ***Printing sequence*** for transparent spot colors. There is a difference in the color reproduction depending on whether the spot color Silver is on top of or underneath the spot color Orange as shown in the two examples below (left: Silver over Orange, right: Orange over Silver).





If transparent spot colors are to be converted into process colors, ZePrA takes into account the opacity and the printing sequence of spot colors in the sequence in which you manually created the spot colors in the configuration.

You can change the sequence later on if you want: in the ***Configuration*** tab under ***Convert spot colors***, click and hold any spot color you have created in the table and drag it to the desired point in the sequence.

Note: The PDF specification allows the printing color sequence to be saved. If the printing sequence is correctly defined in your PDF files and the checkbox ***Use printing sequence from document, if possible*** is enabled, ZePrA can apply it without you having to create all the spot colors in the right order in the table. However, this important feature is rarely set or used by PDF-creation programs.

For ZePrA to correctly interpret the printing sequence, several spot colors in PDF files have to be created together in one DeviceN object.

» List of spot colors

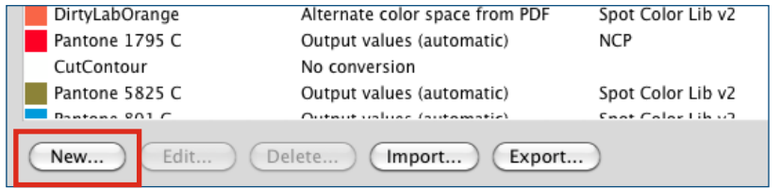
You only need the list of spot colors if you are checking specific spot colors or want to define their conversion independently of the automatic processing in ZePrA, or if you want to define the printing sequence for spot colors. There are various ways to add relevant spot colors to the list in the ***Convert spot colors*** tab.

You can add previously ***Exported*** spot colors (.ccf file) to the list again via ***Import*** or you can open the ***Processing options for spot colors*** window via ***New*** and read out spot colors from the spot color libraries already saved. You can also define new spot colors.

- Right-click on one of the spot colors to bring up a menu which you can use to change the processing mode individually for selected spot colors without switching to the processing options window.
- In addition, the table for loaded spot colors shows whether the target values are automatically calculated or have been manually set. Where target values have been manually defined, they are shown as numeric values in the Value column.
- In the ***Apply to*** column, you can see whether the spot color is applied to ***Images*** only or ***Vectors*** only, or to both ***Images and Vectors*** according to the presets in the processing options.

You can access the Processing options for spot colors by:

- clicking on ***New***



- selecting and double-clicking on a spot color in the table
- enabling ***Edit***

You can find out more about the processing options in the following pages.

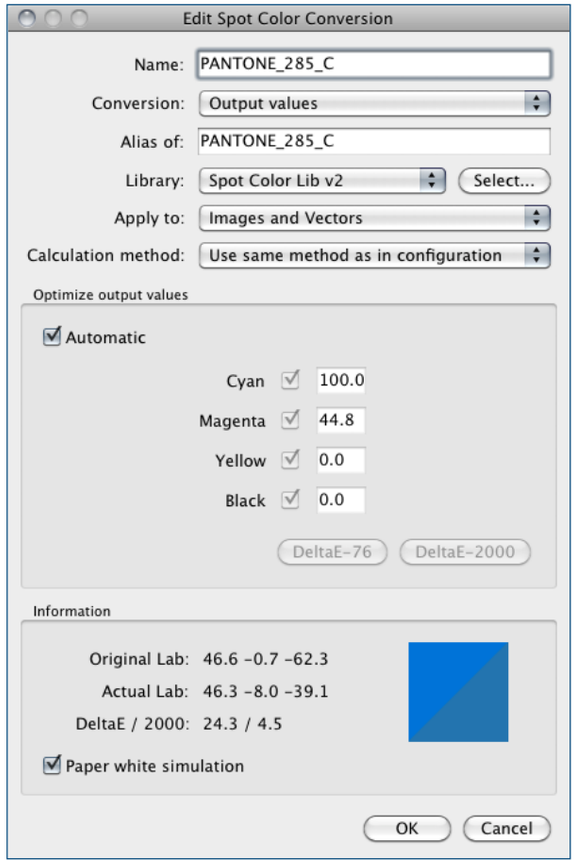
› Specific control of spot color conversions

If you would like to see more information about the conversion of individual spot colors in your PDF files or if you want to influence specific spot colors, you can access the processing options for each individual spot color.

To define the ***Processing options for spot colors***, click on the ***New*** button under the table in the ***Convert spot colors*** tab.

» Processing options for spot colors

1. First, select the spot color you want by entering the ***Name*** of the spot color.



- **Your spot color is displayed:**
  If the spot color is available in your color libraries under the name you have entered, the names of the libraries are displayed next to the option ***Library***, and the Lab color value together with a true-color preview of the spot color are displayed in the ***Information*** section underneath.

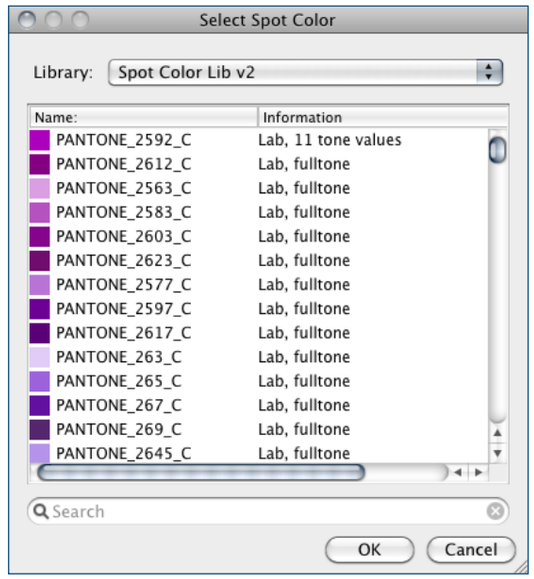
  If several libraries are shown, the same spot color name exists more than once, and you have to decide on the right ***Library*** for this configuration.

- **If your spot color is not displayed:**
  If the spot color is not available in your color libraries, the ***Library*** option remains blank.

  Note: Check the spelling. Upper- and lower-case characters, and also the use of wildcards, work in the same way as for ***Gradations*** (see the chapter Configuration – Apply Gradations/Applying gradation curves to spot color channels). Underscores in name elements are interpreted as spaces.

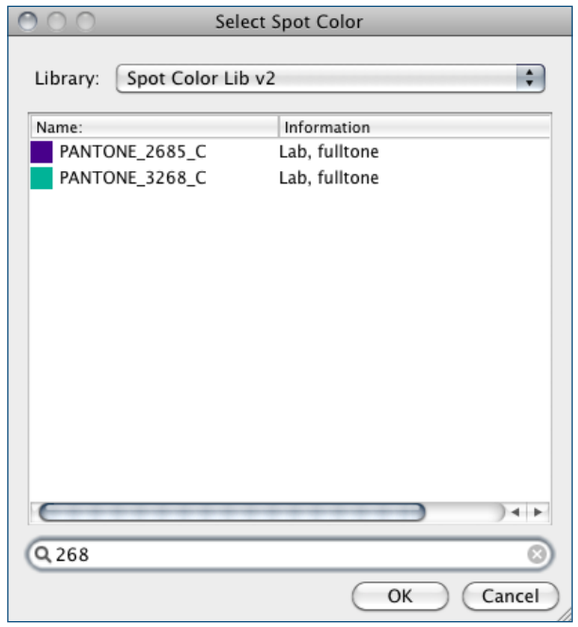
  a. If the spot color name was not found, you can specify an ***Alias***. To do so, select the ***Select*** button next to the ***Library*** option.

  b. The ***Select Spot Color*** dialog opens. Select the desired ***Library*** in this dialog and all the spot colors in that library will be displayed.

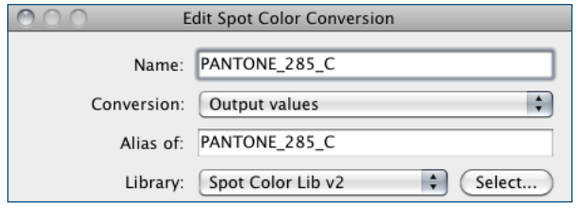


  c. Select the name of the spot color you want, then click ***OK***.

  Note: To simplify the search, you can also type in part of the name in the field below the table. All spot colors with names that include this character string are then displayed instantly. Click on the ***X*** icon to delete your search entry.

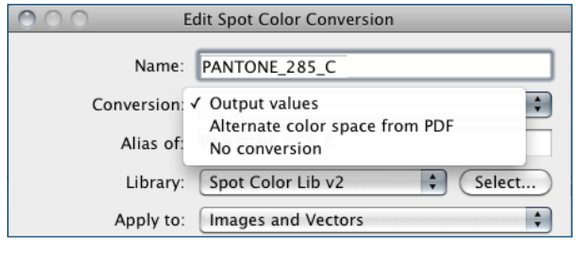


d. Back in the ***Processing options for spot colors*** dialog, the alias name of the spot color is now displayed and used for further processing.



Note: If the color selected as the alias has already been created in the table, the color conversion that was set up in the table is used. This ensures that identical colors are always processed in the same way.

2. The ***Conversion*** field directly below the name of the spot color offers you a choice of three options for defining how ZePrA is to process the spot color:

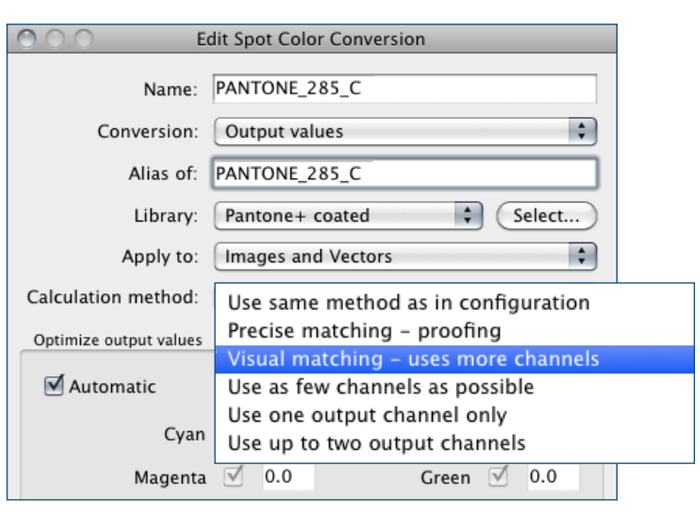


- **No conversion** leaves the spot color untouched.
- **Alternate color space from PDF** ignores the library and instead uses the alternate color value (alternate color space) defined for the full tone of the spot color in the PDF file. This option is available for reasons of compatibility with standard conversions in other tools. However, the high-end ColorLogic technology is used for calculating overprinting colors.
- The ***Output values*** option makes it possible to display the output values automatically calculated by ZePrA. The calculated output values are grayed out in the ***Optimize output values*** field.

3. Under the option ***Apply to***, you specify whether the color conversion should apply to ***Images*** only or ***Vectors*** only, or both. The default selection is ***Images*** and ***Vectors***.

   Note: In this way, you can create the same spot color twice and perform different conversions for images and vectors.

4. Under ***Calculation method***, you have six options to choose from. The calculation method has an impact both on automatic output value optimization and, in particular, on overprinting spot colors.



Note: If you change the calculation method and the ***Automatic*** checkbox under ***Optimize output values*** is enabled, the color values will be updated automatically.

Use same method as in configuration is selected as the default setting. Manually selected spot colors can also be calculated differently from the global method used in the ***Convert spot colors*** configuration.

Four of the options are identical to the options described above for configuration. The following options are avialable:

- ***Precise matching - proofing***
- ***Visual matching - uses more channels***
- ***Use as few channels as possible***
- ***Use up to two output channels***
- ***Use one output channel only***

Note: In packaging printing, the spot colors used for texts and bar codes should preferably be converted using just one or a maximum of two process colors. For these kinds of spot colors, you should use the ***Use one output channel only*** method or the ***Use up to two output channels*** method, while other spot colors can be converted visually more accurately using one of the other two methods.

» Optimize output values

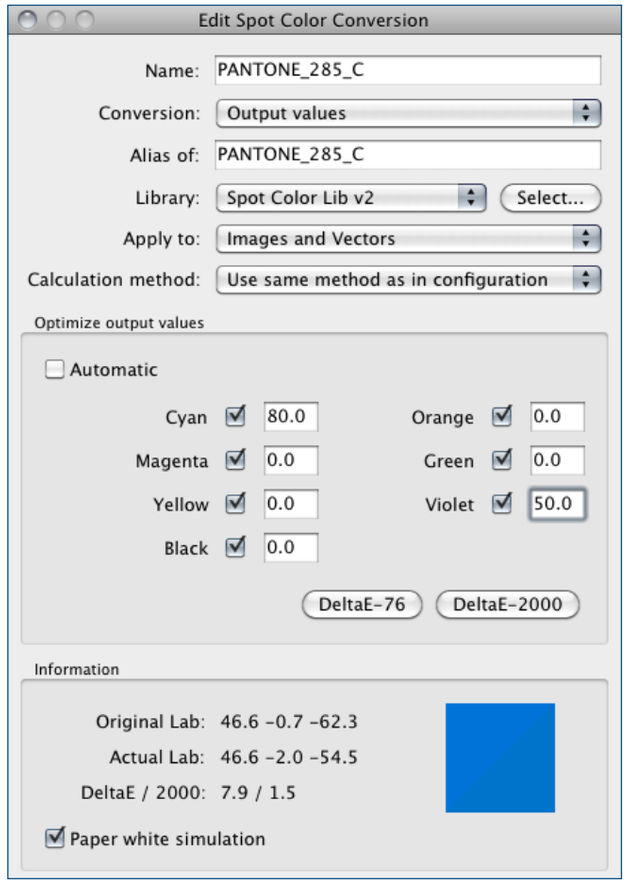
The ***output values*** processing option offers you numerous possibilities for controlling how the solid tone of your spot color is to be converted to the target color space. The color channels displayed correspond exactly to the channel names used in the target color space and later in the converted PDF file.

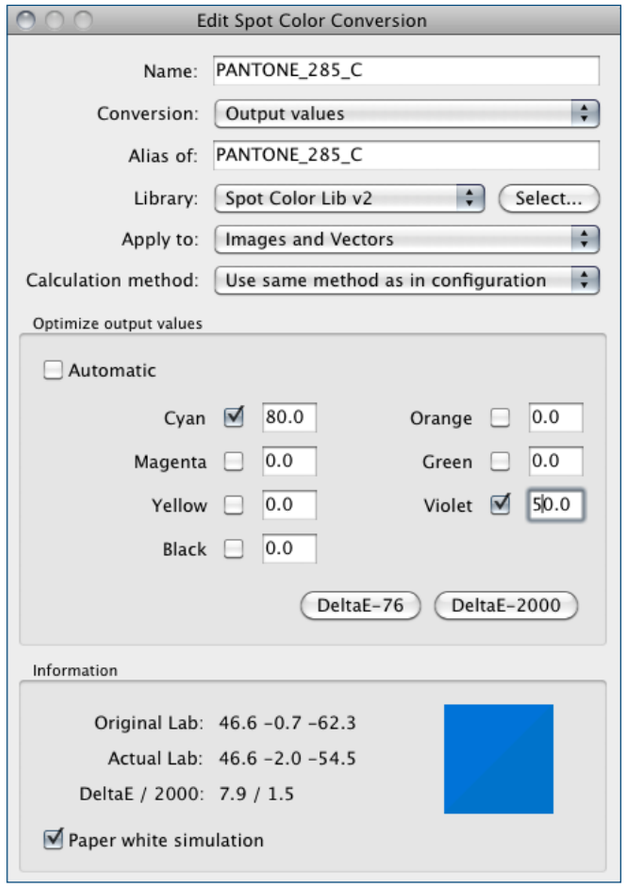
The ***Automatic*** checkbox below ***Optimize output values*** is activated as the default setting, ensuring the best possible optimization of the conversion in terms of printing and color in accordance with the selected calculation method. The calculated process colors are grayed out in the value fields, as is the ***Actual Lab*** calculated via the ***Target color space*** in ***Define Configuration***.

As soon as you deactivate the ***Automatic*** checkbox:

1. You can enter your own process color values in the fields for the process colors.
   The color impression to be expected with these color values is displayed as the ***Actual Lab*** and in the color preview. In this way, you can specify different values in order to check what color results could be obtained.

   Note: You can also specifically map a spot color onto a process color channel by entering a value in the required channel and setting the other channels to zero.

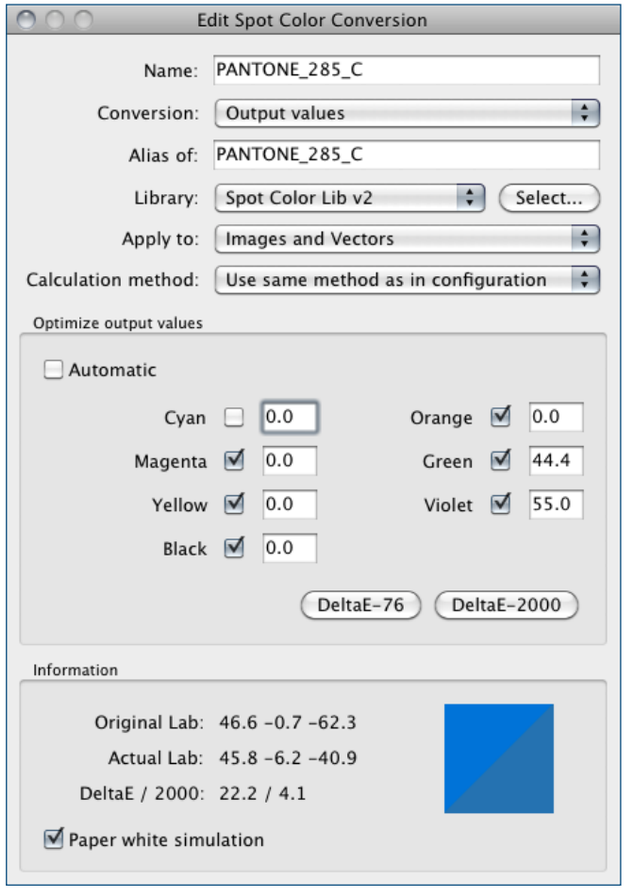




2. You can use the ***DeltaE-76*** or ***DeltaE-2000*** button to perform the best possible color calculation based on your specified values for the channels of the target profile.
   Again, the Lab color value is calculated and displayed under ***Information***, as is the expected color difference compared to the original color in ***Delta E*** (76)/***2000***. Here, the calculation is performed strictly according to the colorimetric rules and does not take into account any technical printing aspects, as would be the case with the ***Automatic*** function where channel minimization takes place.

   Note: Your manually entered process color values are taken into consideration during calculation after clicking on the ***DeltaE-76*** or ***DeltaE-2000*** button. However, it may well be that the calculated color value does not correspond to the smallest possible Delta E. You will get the smallest possible Delta E if you start with the values calculated with the ***Automatic*** function.

3. When minimizing Delta E, you can use the checkboxes for the process colors to influence the calculation.
   Only the activated channels are changed during calculation.



Note: If, for example, you do not want to use individual channels, enter a value of zero for these channels and deactivate them. In just the same way, you can, for example, make sure that a channel with 100% coverage (or any other value) is not changed by entering 100% in the value field and deactivating the checkbox. When calculating the minimum Delta E with one of the two buttons, the 100% value of this channel is then taken into account for calculation, but not changed.

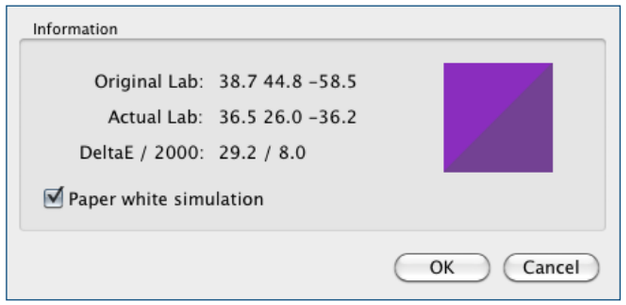
» Information

In the ***Information*** area, you can see the measured value from the library under ***Original Lab*** and the color value calculated with the selected process colors of the target profile under ***Actual Lab***.

In addition, the color difference to be expected is displayed, both in ***DeltaE*** (76) and ***DeltaE 2000***.

With ***Paper white simulation*** enabled, the coloration of the substrate, which represents the target color space, is taken into account. Calculation of the ***Original Lab***, ***Actual Lab*** value and color distances (***DeltaE***) is performed accordingly.

Note: We recommend that you switch on ***Paper white simulation***.



The split color preview shows you what the original color (top, left-hand triangle) and the calculated color (bottom, right-hand triangle) will look like when printed.

Note: The color preview is in true color on a calibrated and profiled monitor.

› Working without a spot color license

Without spot color license, you can neither create nor use color libraries. Accordingly, the ***Special Setting*** for creating ***Spot Colors*** is not available on the navigation panel.

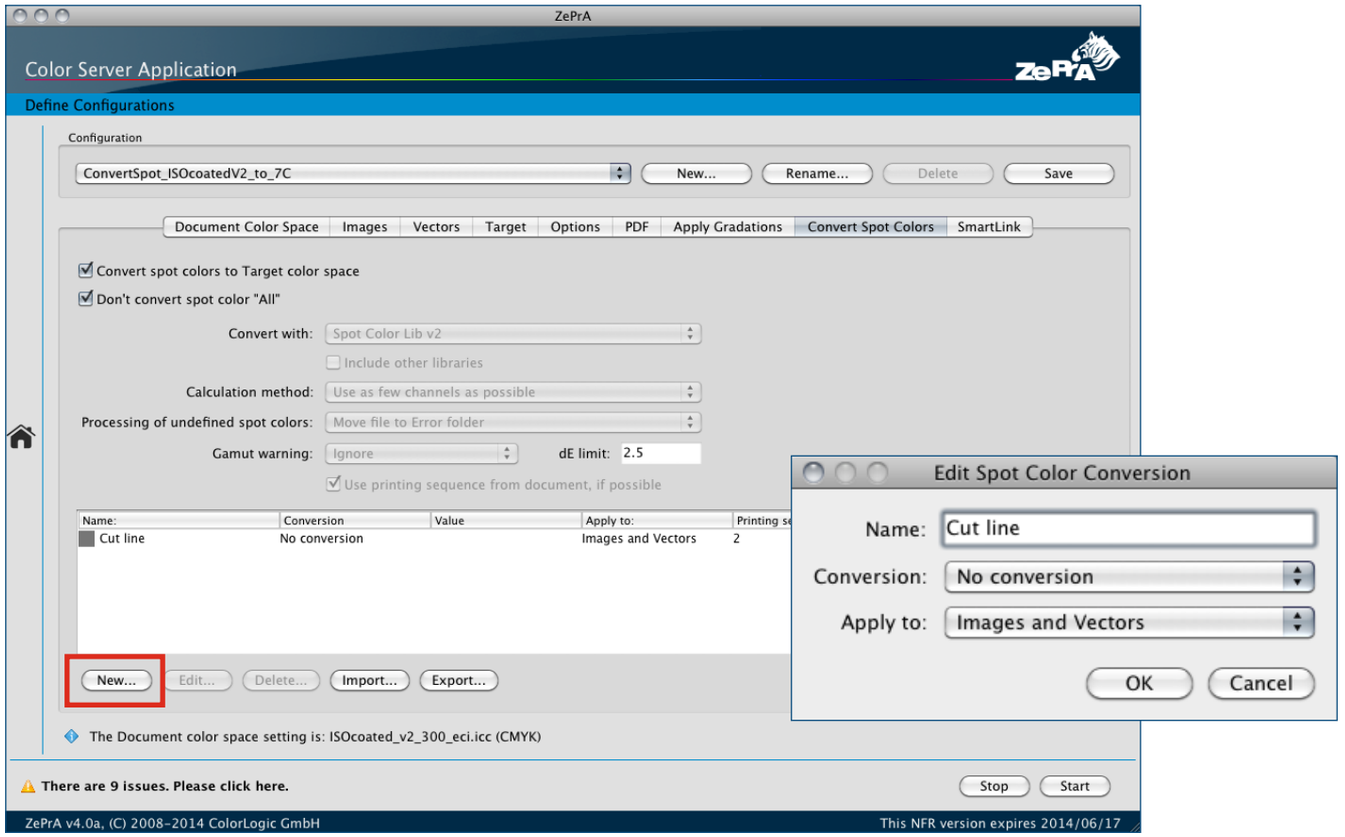
In the ***Convert spot colors*** tab under ***Define Configuration*** in ZePrA, you can use the ***Convert spot colors to Target color space*** checkbox to resolve and convert all spot colors created as DeviceN colors. However, only the alternate color value stored in the PDF is used for the conversion. This alternate color value may be indicated as CMYK, RGB or Lab color definitions.
Depending on the color space of the Alternate ColorSpace, colors are processed with the CMYK, RGB or Lab settings made under ***Images*** and ***Vectors*** in ZePrA. Conversion via the alternate color space is very limited compared to using spot color libraries you have created yourself and, for quality reasons, is not recommended.

The ***Don't convert spot color "All"*** option is automatically activated to prevent unwanted conversion of register marks and other printer's marks.

Without a spot color license, the options for selecting ***color libraries*** and ***calculation methods*** are grayed out and cannot be used, as are the options for determining what should happen with ***undefined spot colors***. In the table below, you can use the ***New*** button to enter the name of a spot color that you want to exclude from conversion.

- In the ***Processing options for spot colors*** window, enter the exact name of the spot color as indicated in the PDF. The use of upper- and lower-case letters is unimportant in this context and is automatically recognized by ZePrA.
- Select the ***No conversion*** option in the ***Processing*** area.
- Other spot colors to be resolved with the PDF substitute color (alternate color space) do not need to be explicitly specified because the PDF alternate color space is always used automatically. The other attractive processing options are not available without a spot color license.

Note: You can purchase the additional module for processing spot colors at any time.



SMARTLINK

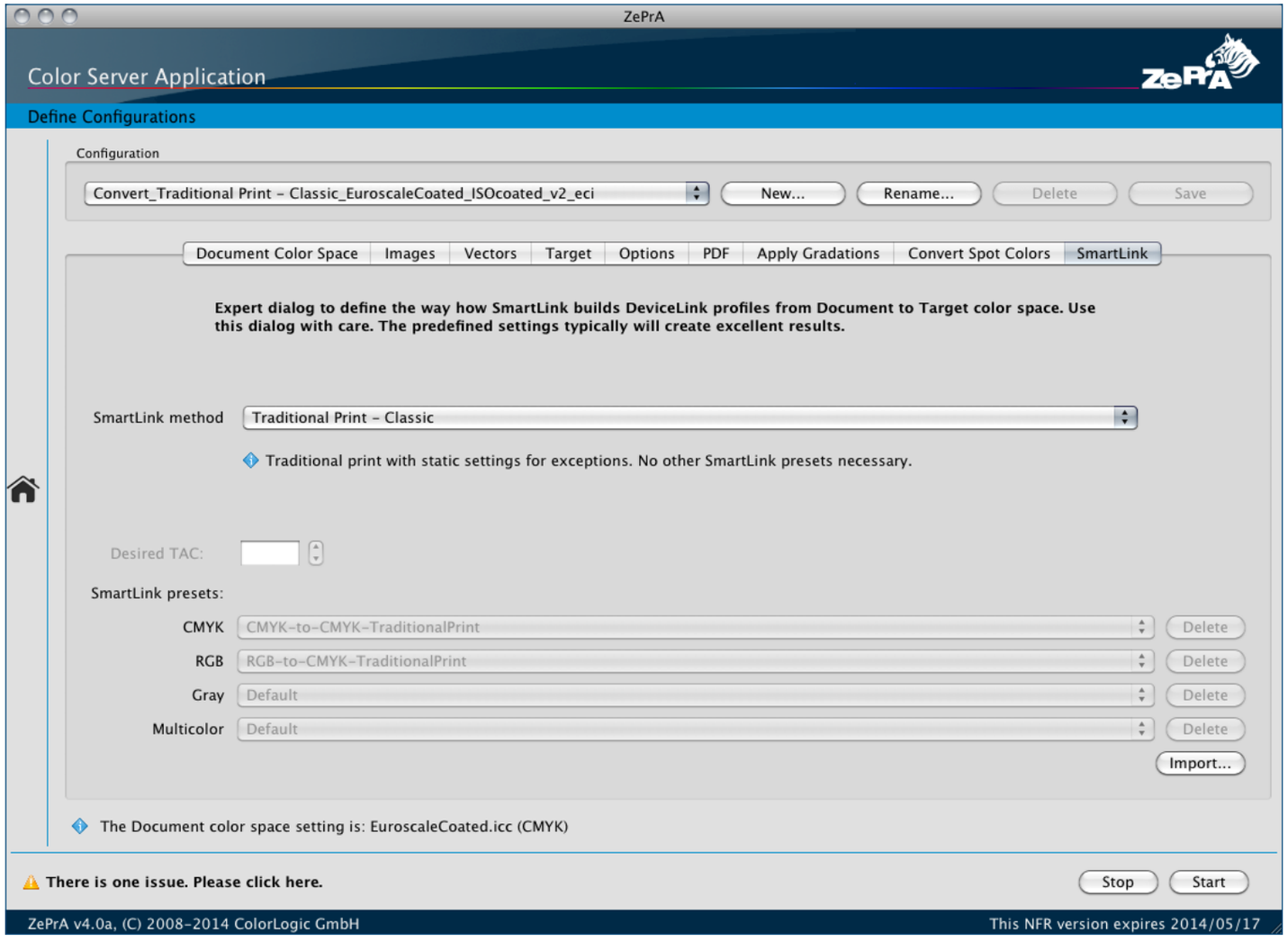
Defining configurations

17 CONFIGURATION
SMARTLINK

The ***SmartLink*** function ensures that you can fall back on high-quality DeviceLink profiles instead of normal ICC conversion for every possible profile combination for images and vectors with embedded profiles when converting to the target profile or the document color space. This means that you can perform all conversion steps via DeviceLink profiles, without exception.

The ***SmartLink*** function is our name for the use of dynamically calculated DeviceLink profiles. Dynamic DeviceLinks are calculated on-the-fly and in the background from predefined or embedded ICC device profiles.

ZePrA uses dynamic DeviceLink profiles not only for RGB-to-CMYK conversion, but also for CMYK-to-CMYK, CMYK-to-RGB, Gray-to-Gray, Gray-to-RGB, Gray-to-CMYK, CMYK-to-Gray, CMYK-to-Multicolor and RGB-to-Multicolor conversions.
In the ***SmartLink*** tab under ***Define Configurations***, you set which method should be used at various points for DeviceLink conversion controlled via SmartLink (see also Apply SmartLink) in ZePrA based on your specific production requirements.



Note: The SmartLink special setting is available in ZePrA in the L version and above or can be purchased as an additional option. In the comprehensive XL package, you can also implement automatic ink savings. Choose from one of the three preset saving options (***SaveNeutral***, ***SaveStrong*** or ***SaveMax***) or use **CoPrA SP** to make your own specifications and apply them directly in ZePrA.

Example: A PDF/X document contains CMYK objects with embedded ICC device profiles and is to be converted from ISO Coated v2 to PSO Uncoated. Normally, the embedded ICC device profiles perform ICC-based color conversion to either the document or the target color space. In the case of CMYK-to-CMYK color conversions, however, this leads to a number of problems on the press. In contrast, DeviceLink conversion via SmartLink guarantees that the color composition of the source data and also pure colors are optimally preserved.

In the ***SmartLink*** tab under ***Define Configurations***, you set which method should be used for DeviceLink conversion controlled via SmartLink (see also Apply SmartLink) at various points in ZePrA based on your specific production requirements.

Configuring SmartLink via ***Auto Setup*** is even easier. If in Auto Setup, you choose the setup mode ***Normalize and convert colors to new output condition*** and via ***SmartLink***, you select the two device profiles you want (source and target), then under the ***SmartLink method: Traditional Print – Classic***, a "clean" conversion of CMYK, RGB, Gray and Black objects is performed – all fully automatically.

Note: As a result of using the SmartLink function, you do not need any additional DeviceLink generation software for the above-mentioned color space combinations, except for special requirements.

› Calculating SmartLink

For SmartLink calculation, you can rely on:

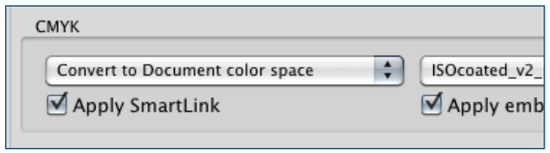
- Standard ICC source and target profile, which you define for dynamic DeviceLink generation "on-the-fly" via ***Special Setting/Profile Assignments*** (see also Special Setting/Define Profile Assignments).
- Optimum ***SmartLink methods*** (which can be selected in ***Auto Setup*** or ***Configuration/SmartLink***) for traditional printing, such as offset, gravure and newspaper printing, as well as modern inkjet and digital printing. If you have the XL version of ZePrA or use ZePrA in conjunction with the ***SaveInk*** module, there is also a preset for saving ink. You can read more about this in the next chapter.
- Your own, custom presets for generating DeviceLink profiles via the SmartLink technology by using **CoPrA SP**, which is part of the SmartLink package. You can learn more about this under Configuration – SmartLink/SmartLink with individual CoPrA settings.
- The **Reprofiler** technology. With just a few clicks, you can create optimized, high-quality printer and DeviceLink profiles that compensate for potential deviations, e.g. deviations from your in-house standard or the required printing standard.The innovative **Reprofiler** is also part of the SmartLink package and profiles you generate using this technology which can be easily integrated into ZePrA. Read more about his under Configuration – Define target/Correction of target profile.

› Applying SmartLink

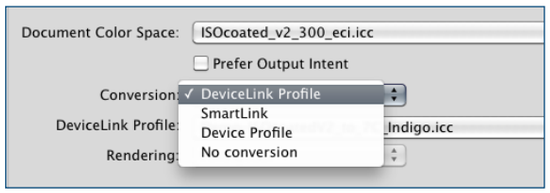
Single application of SmartLink

You can use the SmartLink function in various areas of ZePrA.

- In the main ***Configurations/Images*** and/or ***Vectors*** windows, you can activate the ***Apply SmartLink*** option to specify the use of DeviceLink when converting images and/or vectors from the source color space to the target or document color space.



- Again in ***Configurations***, but under the ***Document Color Space*** tab, it is possible to calculate a DeviceLink profile from the document color space to the target color space via SmartLink "on-the-fly" ***Conversion***.



Double application of SmartLink

Thanks to this option, you can also perform two SmartLink calculations consecutively.

- To do this, under ***Images/Vectors,*** enable ***Apply SmartLink*** for conversion to the ***Document Color Space*** and then under ***Document Color Space***, enable SmartLink for calculation to the ***Target Color Space***.

SmartLink in Auto Setup

In addition, when generating your queues via Auto Setup, you can fall directly back on the SmartLink function for the

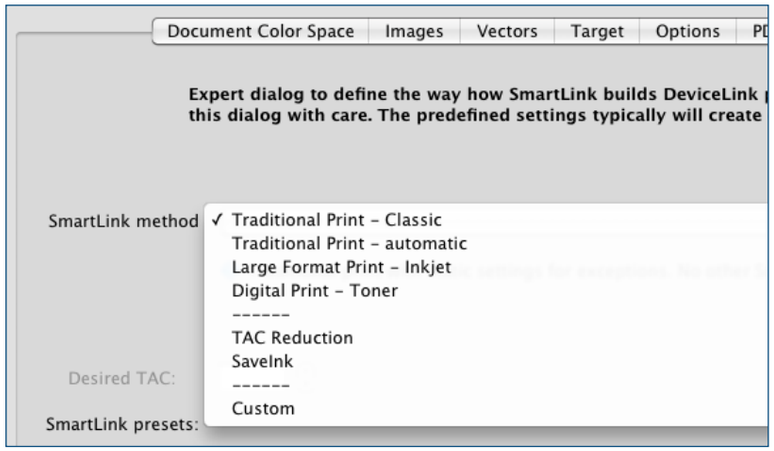
- ***Normalize and convert colors to new output condition***
- ***Save inks***
- ***Optimize Total Area Coverage***
- ***Direct color conversion to new output condition***

options. Read more about this under Automatic configuration wizard.

› Defining SmartLink conversion

The ***SmartLink*** tab under ***Define Configurations*** is one of the expert dialogs. In the SmartLink tab, you can define how conversion from ***document color space*** to ***target color space*** should be calculated. These specifications produce excellent results, but they need to be made with care.

You can read about how the following SmartLink methods work under Automatic configuration wizard/Use SmartLink/ SmartLink methods:



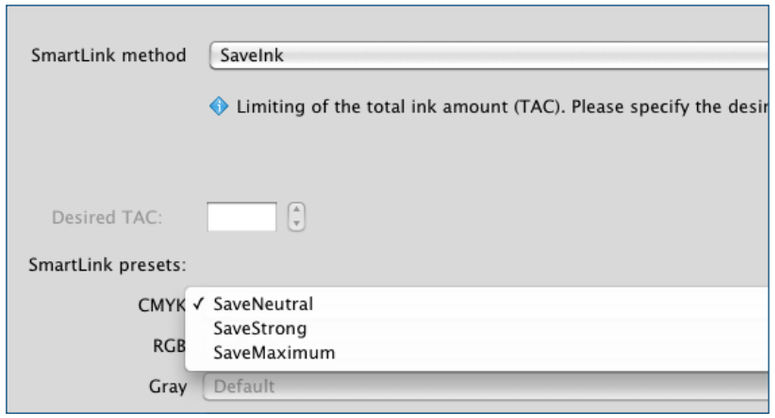
- ***Traditional Print – Classic***
- ***Traditional Print – automatic***
- ***Large Format Print – Inkjet***
- ***Digital Print – Toner***

If you select one of the default settings offered, no further SmartLink presets are required.

If you have **ZePrA L/XL** or the **SmartLink** module, you can custom set the ink amount for TAC reduction. This ensures data interference is minimal and the total area coverage is limited while the color appearance of the data is preserved. To do this, select the ***TAC Reduction*** option as the ***SmartLink method***.

Also, if you have **ZePrA XL** or the additional **SmartLink** option and **SaveInk**, you will find the ink saving method.
By selecting the ***SaveInk*** option as the ***SmartLink method***, you can save ink while preserving the color appearance of your data.

ZePrA offers you different intensities for ink savings in the SmartLink presets for CMYK conversion.

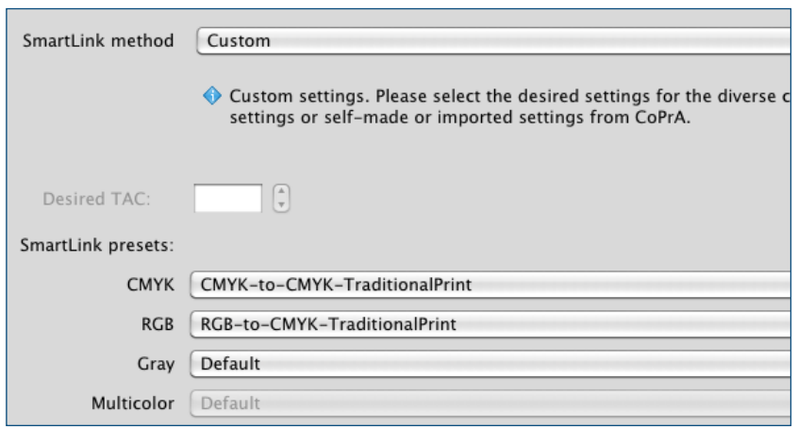


- ***Save Neutral***
- ***Save Maximum***
- ***Save Strong***

Please note that the two SmartLink methods for TAC reduction and ink saving are only available if the CMYK profile selected for the document color space and the target profile are identical.

Read more about these settings under ColorLogic DeviceLink profile sets/DeviceLink profiles for saving printing ink.

With the ***SmartLink method Custom***, you have access to all the options in the ***SmartLink*** tab for customized definition.
You can apply different presets for conversion of ***CMYK, RGB, Gray*** and ***Multicolor*** color spaces (requires a Multicolor license) so that other calculation methods can be implemented depending on the color space.



Again here, SmartLink settings created using CoPrA can be automatically displayed or imported and used in ZePrA.

Note: If you select the ***SmartLink*** conversion option in the ***Document Color Space*** tab, the preset ***SmartLink-method*** is displayed.

Via the ***Import*** option, you can import presets exported from ColorLogic **CoPrA**. You can find out in the next chapter when this is necessary and logical, and what prerequisites must be in place.

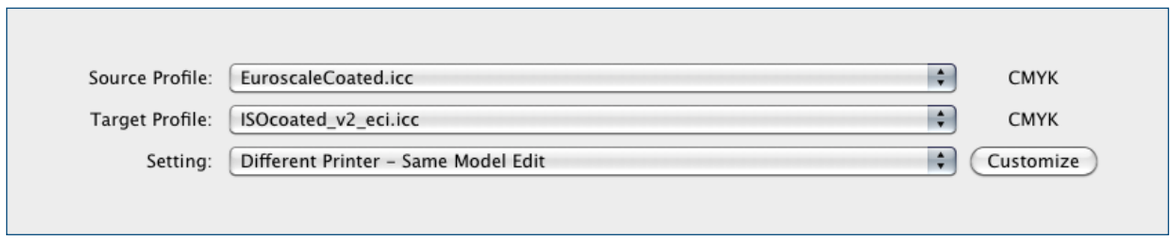
› SmartLink with custom CoPrA settings

If you have licensed the SmartLink module for ZePrA or if you use ZePrA L/XL, you can define your own presets with ColorLogic CoPrA which ZePrA can then use for calculating DeviceLink profiles "on-the-fly".
Read more about this under ZePrA and other programs/ZePrA in combination with CoPrA.

How to do it:

1. Activate ***DeviceLink*** Profiling in CoPrA via the navigation panel.

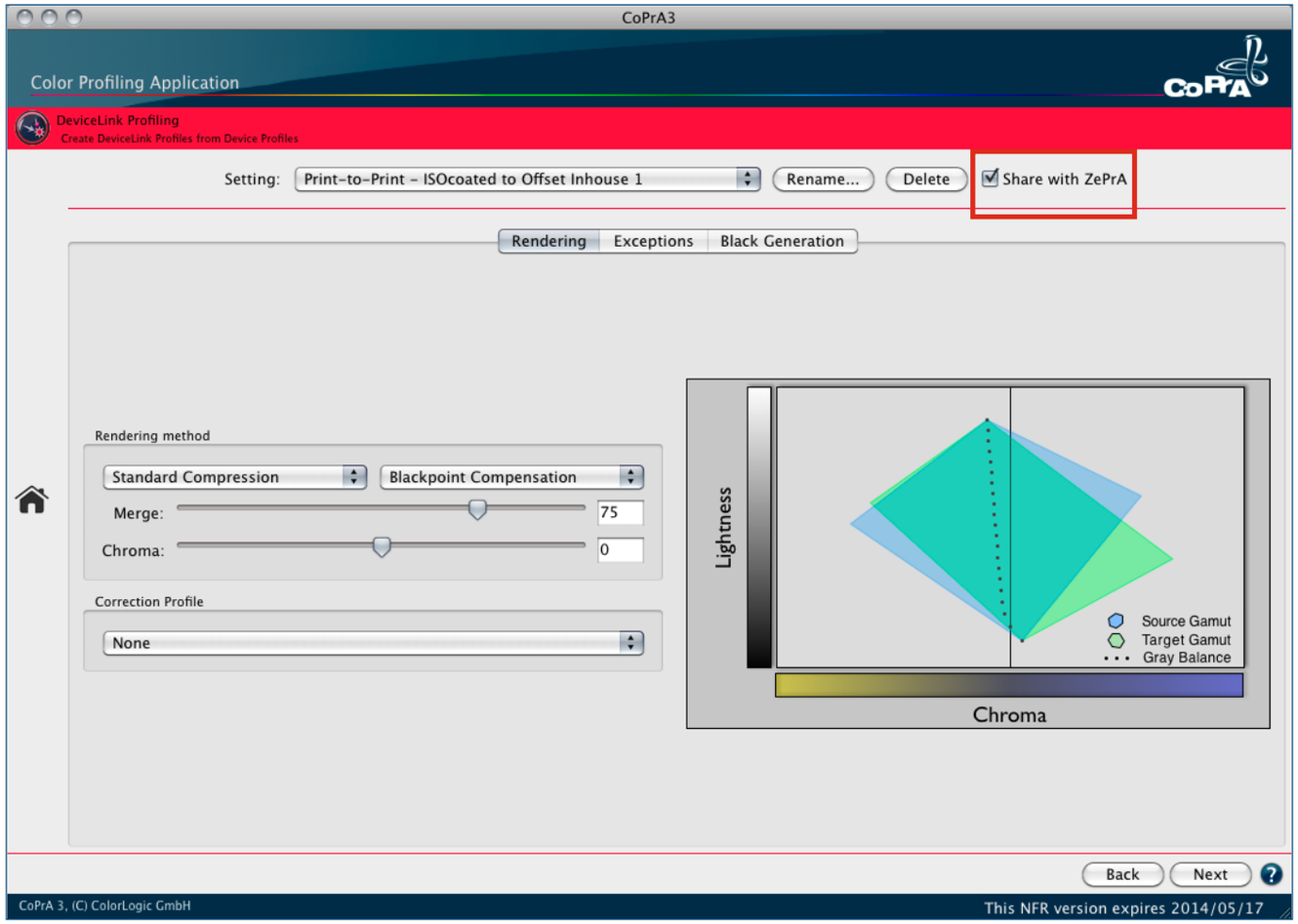
2. Select a CMYK ***source profile*** and CMYK ***target profile*** appropriate for your requirements and, if desired, a ***Setting*** that you would like to build on.
3. Click on ***Customize***.



1. Define your own conversion options under ***Rendering, Exceptions*** and ***Black Generation***.
2. When you change the presets, ***(edited)*** is added to the name of the setting. However, you can give the ***setting*** another name via the ***Save as*** button.
3. For the settings to be available immediately in ZePrA, you have to enable the ***Share with ZePrA*** checkbox next to the ***Delete*** button in CoPrA.

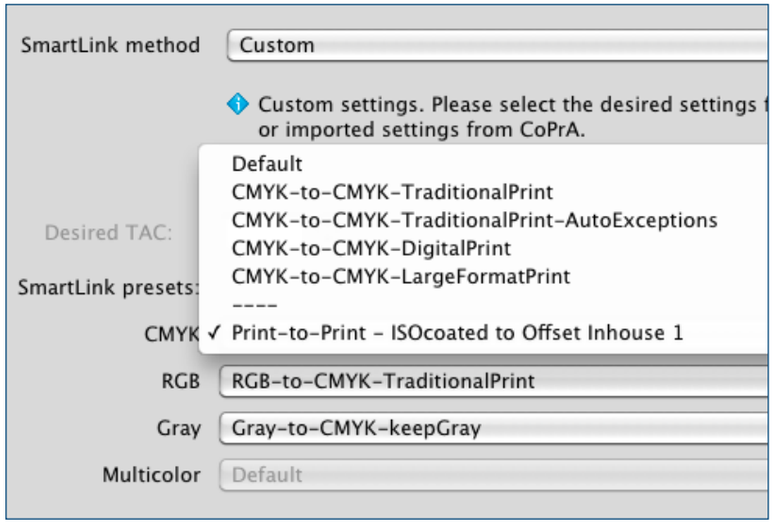
Note: If ZePrA and CoPrA are not installed on the same computer, the CoPrA presets cannot be automatically shared with ZePrA. In this case, export the presets from CoPrA and use the ***Import*** option to load them to ZePrA.

Note: The CoPrA presets only apply to the color space combination for which they were created. Therefore, while in ***Configuration*** you make a CMYK-to-Gray conversion, then in the dropdown menu for CMYK, you will only find CoPrA presets for CMYK-to-Gray while any CMYK-to-CMYK presets you may have are not shown at all.



4. Switch to ZePrA and set the ***Conversion*** to ***SmartLink*** under the ***Document Color Space*** tab in ***Configurations***.
5. In the ***SmartLink*** tab, select the ***SmartLink method Custom***.
6. Now you can select the new ***SmartLink preset*** in the corresponding dropdown menu of the color space.

Note: Please also note that there are fixed and dynamic components in the CoPrA presets. For example, the rendering intent that you set in ZePrA always overwrites the one that you selected in the CoPrA presets. Likewise, if you select the option ***Target profile*** as the ***Black point*** in CoPrA, the total area coverage is recalculated depending on the target profile selected in ZePrA, and then used. However, if you set a fixed total area coverage via ***Neutral CMY*** or ***Custom*** in CoPrA, this can, depending on the target profile, lead to incorrect amounts of ink in printing. Similarly, you should always bear in mind that in a configuration, in addition to CMYK, any RGB, Gray and, where applicable, Multicolor objects should also be converted in the same way. For instance, it makes no sense to use a total area coverage for CMYK-to-CMYK that is different to the one for converting RGB objects to the same CMYK. Therefore we recommend you only deviate from the sound ***SmartLink methods*** supplied with ZePrA if these methods do not suffice.



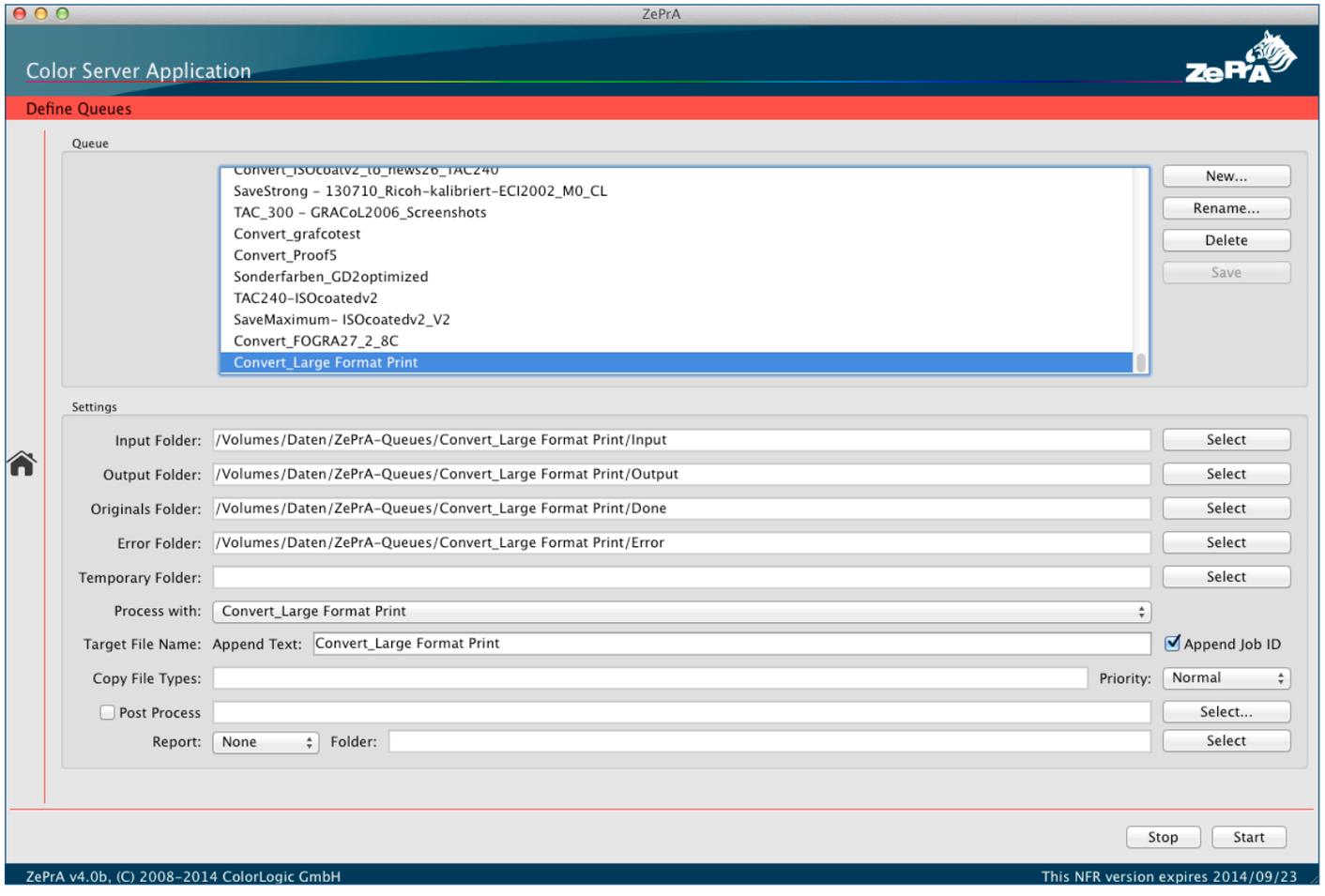
QUEUES

Define queues

18 QUEUES

This window is used to define queues. To do so, you create folders (hot folders), assign a configuration to the queue and specify whether and how files are to be renamed after processing. The ***New*** button can be used to manually create a new queue, comprising the queue name and the sub-folders.
To configure the newly created queue, first select the queue and then the configuration from the dropdown list under ***Settings/ Process with***.

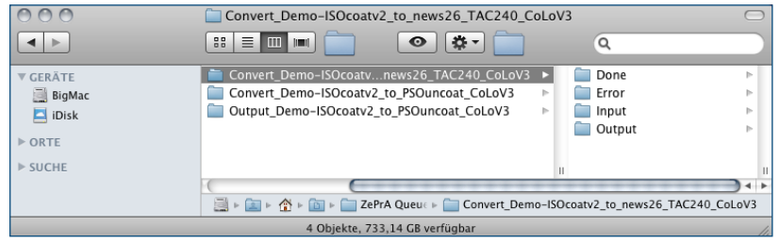
Note: ZePrA checks whether hot folders exist or are write-protected. If files cannot be written into the hot folder, the processed file will be given an error status and a message regarding the location of the hot folder will be displayed in the Overview window. At the same time, the queue will be stopped. This is the case if, for example, the server has been inactive for a long period of time and therefore no files can be written into the folder created in the network.



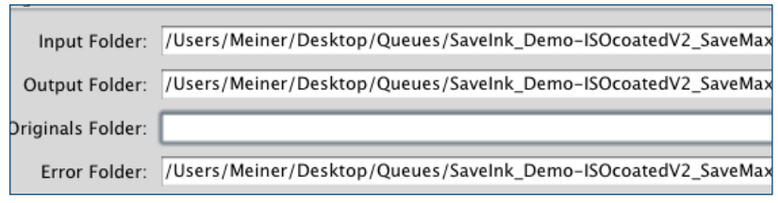
In the case of a short, temporary network failure, the queue will automatically restart as soon as the network folders are available again. Thus, automatic production is not stopped unnecessarily.

Note: We recommend you use the ***Auto Setup wizard*** to create the queues for all typical, standard-compliant processes since this is much faster. You only need the ***Queues*** dialog if you want to specifically modify the way files are processed.

Place the files to be converted in the ***Input*** folder of the defined queue. After conversion, the original files can be found in the ***Done*** folder. The color-converted files are stored in the ***Output*** folder. File types that cannot be processed by ZePrA and erroneously converted files can be found in the ***Error*** folder.



If you want to prevent the original file from being moved from the ***Input*** folder to the ***Done*** folder, simply delete the path data of the ***Done*** folder.



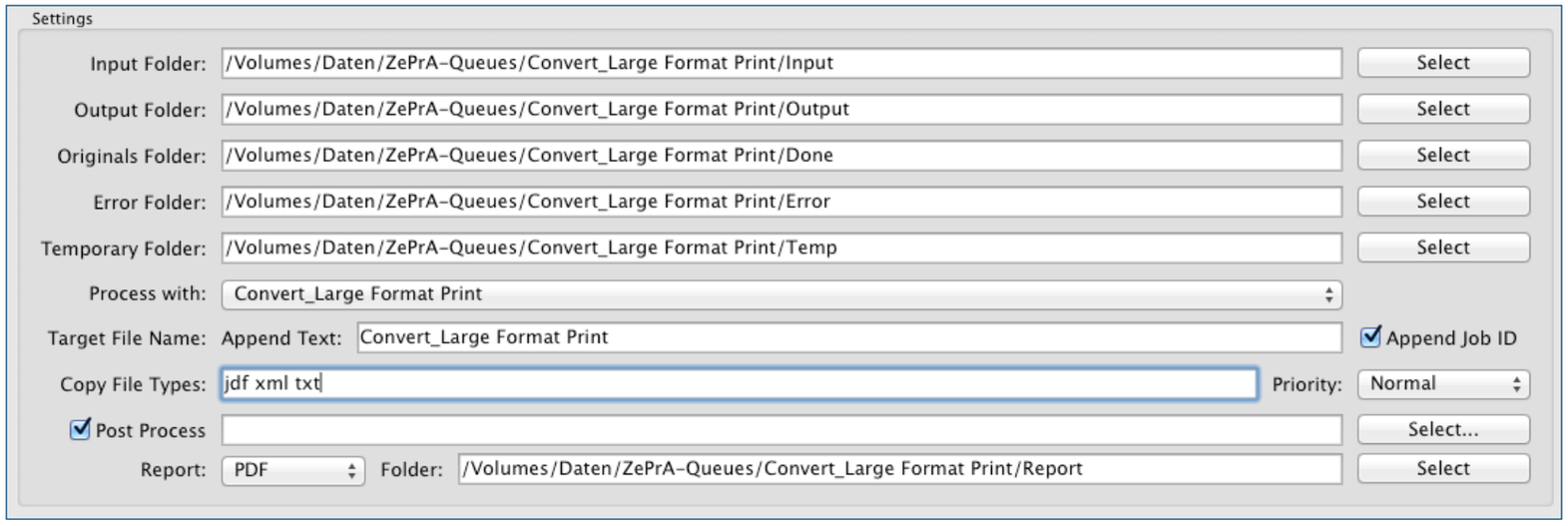
ZePrA deletes the original files after conversion if no ***Originals folder*** (***Done***) is specified. This is useful for workflows where the original files are already saved elsewhere and the hard disk is not to be burdened with additional copies when large amounts of data have to be handled. Needless to say, the ***Done*** folder is automatically created and used in a normal queue, meaning that your original files are always saved.

Note: If you or your workflow system have created folder structures with several sub-folders for file management and processing, you can transfer this sub-folder structure directly to ZePrA. Simply put the entire processing folder structure in the ***Input*** folder. You will subsequently find the same directory structure and the converted files in the corresponding sub-folder in your ***Output*** folder.

If ZePrA is integrated in an other workflow system, the completely converted files are usually taken over automatically by the other workflow system for further processing. To make sure that the workflow system does not attempt to access the files while the ZePrA conversion process is still in progress, you should create an additional, temporary folder.
This ***Temporary*** folder manages the file until conversion has been completely finished. Only then will the data be moved to the ***Output*** folder. In the standard procedure, however, no temporary folder is created when defining new queues.

as the file to be processed are copied into the ***Target*** folder and moved to the ***Done*** folder. The order in which queues are processed can be controlled, allowing you to give specific queues higher or lower priority for file processing. In the ***Queues*** dialog, you can use the ***Priority*** option to change the standard setting ***Normal*** to ***High*** or ***Low***.

Note: In ZePrA, you can automatically remerge unknown file types, including text files and control files, with the master file. This facilitates the cooperation of workflows with connections to databases or MIS systems. For the file merging function to automatically work correctly, you not only have to enter the file ending in the ***Copy File Types*** text field, but also ensure that the control file has exactly the same name as the associated file to be converted. ZePrA recognizes associated files of this kind, no longer displays them as independent jobs in the overview and ensures that the same text and the same Job ID are appended as used for the file to be converted. If necessary, entering several file types makes it possible to simultaneously process several additional files belonging



Under ***Target File Name: Append Text***, you can attach a suffix to the original file name. The name of the configuration is appended as standard. If this suffix is too long for your liking, you can modify and shorten the text. The ***Append Job ID*** option generates a unique, consecutive number and appends it to the original file name (extended by the suffix where applicable).

The ***Copy File Types*** function enables you to transfer control files belonging to a file (JDF, XML, TXT or similar file types) along with your original files. To do so, just enter the file types of the control files in the text field. Should there be several file types, you can separate their entries with blank spaces or commas, as illustrated in the screenshot. Control files that have exactly the same name to an original file. If the names of the control file and the converted file do not match, the control file is moved to the ***Error*** folder.

With the ***Post Process*** function, you can enable subsequent further processing of each file in a particular queue after color conversion in ZePrA. In the dialog, you can select an available script or batch file or manually enter a command-line command. If you just enable the ***Post Process*** checkbox, as shown in the screen shot, each file in that queue will be opened, after processing, in the program intended for opening the corresponding file type on your computer.
Note: The ***Post Process*** function is not available for Drag & Drop queues.

The ***Job Report*** feature allows to automatically save a job report (see: Show and Save Job Properties) for each converted file. Select the desired file format (***PDF, XML, HTML, TXT***) from the drop down menu if you want to use the feature. As a default setting ***No Report*** is selected disabling the creation of a report file. Under ***Folder*** specify the location you wish to save all the job reports of the given configuration. We recommend to create a new folder called "Reports" or similar at the same queue location where all the other folders are located. For easy finding the saved job report the same name than the converted file followed by a ***REPORT*** ending will be used.

Other notes: The Drag & Drop function is particularly helpful for testing a configuration. To do so, a configuration can first be assigned to the Drag & Drop queue. Then, the files are simply dragged onto ZePrA's ***Overview*** window. The converted files are stored alongside the original files, possibly with the appended configuration name and the Job ID.

If you use the ***Auto Setup wizard***, the hot folders are created automatically and the matching configurations assigned.
The file name of the optimized PDF file contains both the queue name and the Job ID.
If you work with the ColorLogic standard DeviceLink profiles, ***Auto Setup*** automatically enters all the relevant PDF/X information (read more about this in the chapter Configuration – PDF).

When dealing with all the common tasks for optimizing PDF files, you can work with the standard configurations that you can define using the ***Auto Setup*** wizard. However, there are certainly also cases where it may make sense to modify a few details of the settings of a standard configuration, or to duplicate a standard configuration and then make changes. However, before you tackle this topic, you first need a brief introduction to the automated color management of image and PDF files. This also particularly relates to the combination of PDF preflighting solutions with ZePrA. Read more about this in the chapter ZePrA and other programs.

SPECIAL SETTINGS

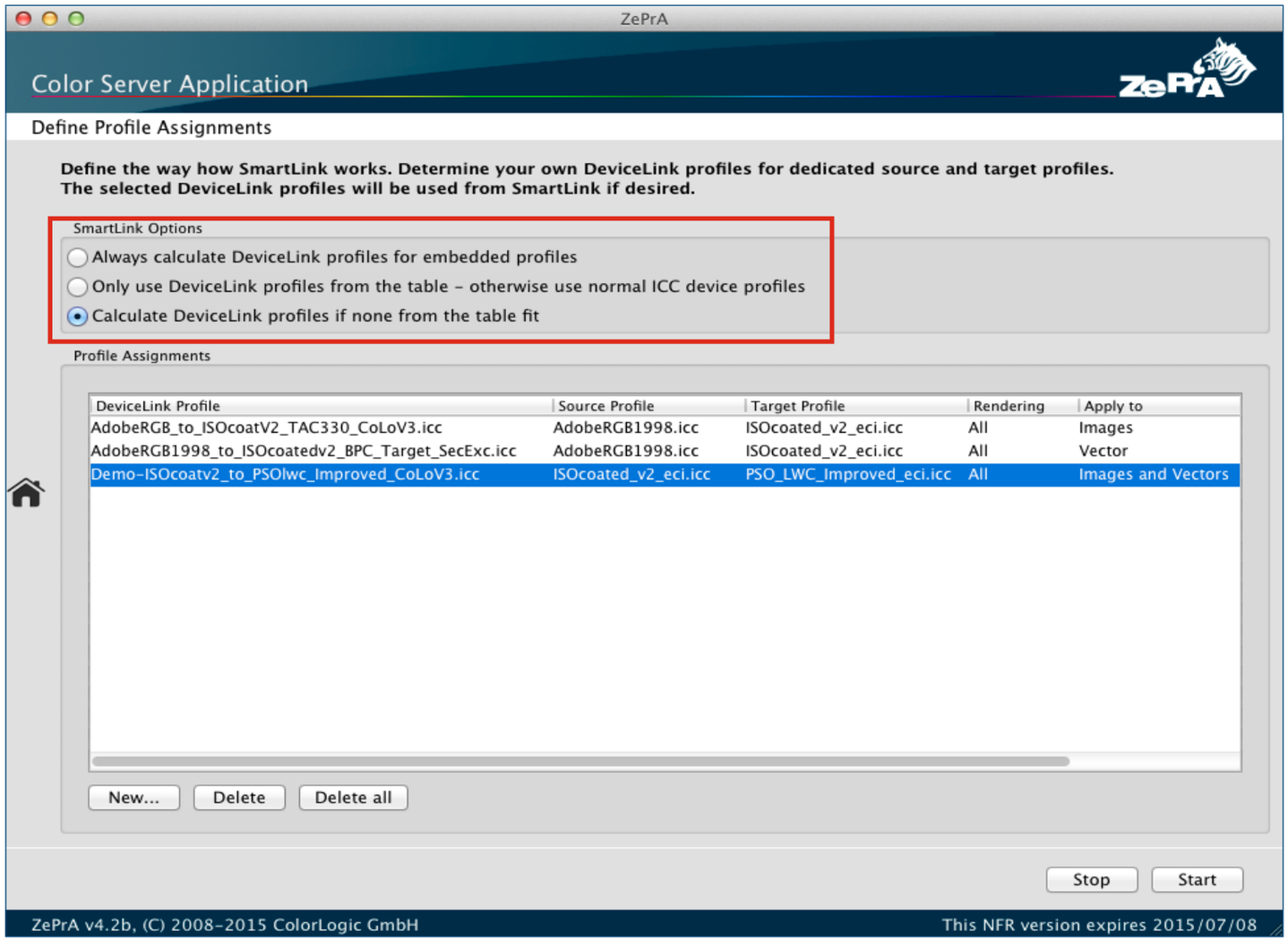
- Define Profile Assignments
- Create Gradations
- Create spot color libraries

19 SPECIAL SETTINGS

› Define Profile Assignments

With ***SmartLink***, high-quality DeviceLink profiles are automatically calculated in the background and applied to your data.
This allows you to counteract problems with normal ICC color management and obtain high-quality, perfectly printable data.

The following section focuses on the special feature of ZePrA that enables use of existing, possibly already practice-tested or special DeviceLink profiles that are based on the ICC standard for converting your data. You determine whether ZePrA should use existing DeviceLink profiles or new ones calculated on-the-fly.



You can also decide whether and to what extent dynamic DeviceLink profiles are used for data conversion.

» SmartLink options

There are various ways to make SmartLink settings for using DeviceLink generation "on-the-fly":

- Manually by selecting the ***SmartLink*** option in the ***Images, Vectors*** and/or ***Document Color Space*** tabs under ***Define configurations***. The prerequisite for dynamic calculation of a DeviceLink profile based on the selected source and target profiles is that you activate the ***Always calculate DeviceLink profiles for embedded profiles*** option in the ***Define Profile Assignments*** window.
  If you instead select the ***Only use DeviceLink profiles assigned in the table – otherwise use normal ICC device profiles*** option, ZePrA only applies the profiles in the SmartLink table if you have saved corresponding profiles there.
- Automatically when creating configurations via ***Auto Setup***.
  The rapid and reliable workflow configuration method via ***Auto Setup*** always applies the setting ***Calculate DeviceLink profiles if none from the table fit*** provided no other setting has been made. This means that priority is again given to use of the profiles in the table, on the conditions described in the section above. If no matching profiles are found in the table, appropriate DeviceLink profiles are automatically calculated on-the-fly from the source/target/document profiles you have set.

So, you have to intervene in the SmartLink table yourself in order to make the settings in accordance with your requirements.
To be usable, the profile combinations in the ***Define Profile Assignments*** window must match the preset profile combination in the configurations, including the conversion method (***Rendering***). This also applies to the ICC device profiles and intents in objects in the PDF file should these have been activated via ***Images/Vectors and Apply embedded profiles/intents***.

» Profile Assignments – Create SmartLink table

When creating the SmartLink table, you can use previously created DeviceLink profiles or standard profiles.

1. To add previously created DeviceLink profiles to the SmartLink table, click on ***New*** at the bottom edge of the ***Profile Assignments*** window. In the appearing dialog select the DeviceLink profile directly from the ***DeviceLink profile*** dropdown menu. If the DeviceLink profile contains the PSID Tag (as is usually the case with ColorLogic profiles), the ***source*** and ***target profiles*** are automatically searched for and displayed, if found, in the ***Source Profile*** and ***Target Profile*** dropdown menus.
2. Alternatively, you can also select a combination of source and target profile and a rendering intent.
   You select the desired DeviceLink profiles that match this combination of color spaces from the dropdown menu.

To make sure that the selected DeviceLink profile is used, it is important that not only the ***source*** and ***target profile*** of the DeviceLink match your settings in the ***Configurations***, but also the rendering intent. If you want the DeviceLink profile to be applied, regardless of which rendering intent is selected via your ***Configurations*** or read out, set the ***Rendering*** to ***All*** under ***Edit Profile Assignments***. In this way, the DeviceLink profile is always applied to every rendering intent.

In addition, in the ***Edit Profile Assignments*** dialog when selecting DeviceLink profiles for color space conversions, you can decide between ***Apply to*** vectors or images or both. Amongst other things, this means that for the same color conversion from e.g. AdobeRGB to ISO Coated V2 for vectors, you can choose a DeviceLink profile that converts primary and secondary colors to 100% of the corresponding CMYK values. As for images, such a conversion would not be desirable and therefore another DeviceLink profile can be selected. This way, you can perform even more specific color conversions.

Note: In the ***Define Profile Assignments*** dialog, you can use the ***Delete*** button to remove individual entries or you can directly remove all entries using ***Delete all***.

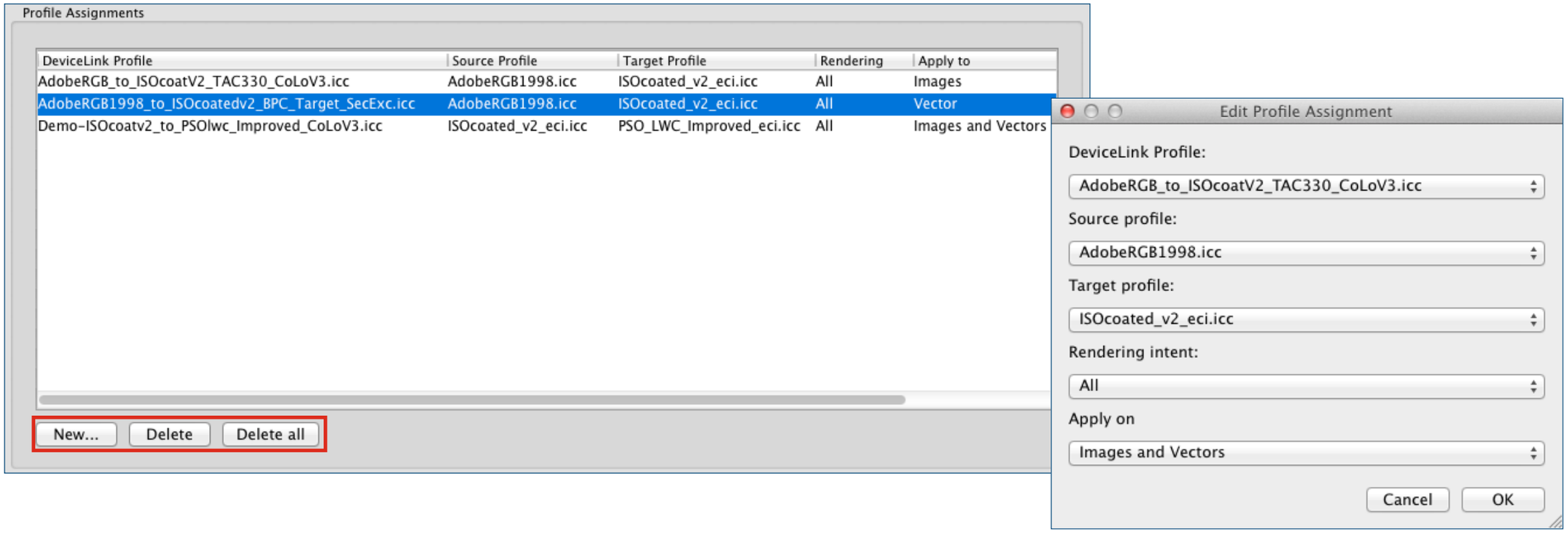
In the ***Jobs and Queues Overview*** dialog, while jobs are being processed ZePrA shows in the status line whether DeviceLink profiles are being calculated in the background via SmartLink.
If you want to know whether and for which color spaces DeviceLink profiles have been used or created with SmartLink, you can view this information in the ***Job Properties*** for each file (see also User Interface/Menu bar/Show and Save Job Properties).

» Creating your own DeviceLink profiles

There are tasks for which no standard profiles can be provided, e.g. for converting ISOCoated v2 data to the in-house standard of a digital printing machine. Thanks to SmartLink, especially in conjunction with CoPrA SP, all you need to do is make sure that both ICC device profiles that you want to link via ***SmartLink*** are available and that ZePrA has been correctly configured for ***SmartLink*** application.

Integrating CoPrA SP and the corresponding additional modules also means SaveInk, TAC reduction and Multicolor options. Especially rendering intents, specific separation requirements and exceptions or edits can be taken into account.
And if you do not yet have an ICC device profile for your output device, you can also perform printer profiling via CoPrA SP. (See also ZePrA and other programs/ZePrA in combination with CoPrA).

In order to calculate a corresponding device profile, a profile creation program is needed if you do not have CoPrA SP.

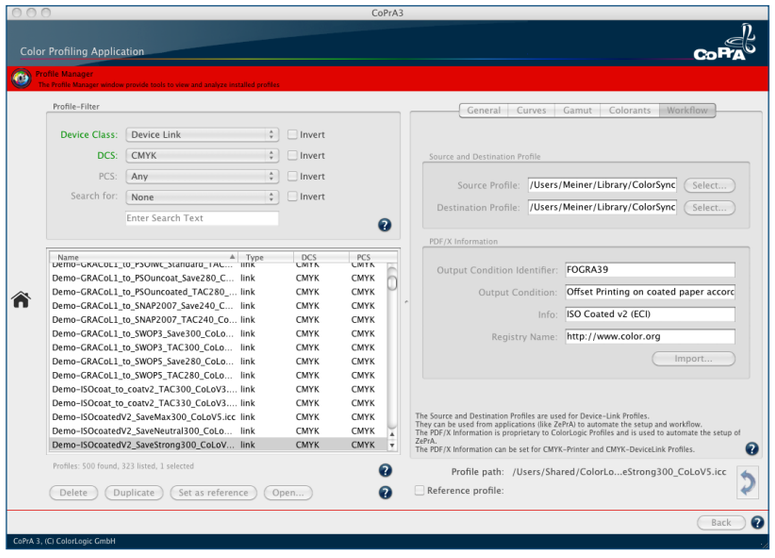


» Applying your own DeviceLink profiles

ZePrA can process all ICC-based DeviceLink profiles. Make sure the software you use for calculating the DeviceLink profile for high-quality CMYK-to-CMYK color conversion has functions for preserving separations, limiting the total amount of color and preserving the purity of primary and secondary colors.
It is also helpful if the software used for color space compression (gamut mapping) can calculate individually from the source profile to the target profile. ColorLogic CoPrA offers this and other capabilities.

Should your DeviceLink profiles not have the PSID Tag, ZePrA will not recognize the source and target color spaces. When using this kind of profile with the Auto Setup wizard, a warning is displayed after creating the configuration. You then have to manually set the corresponding profiles in the ***Document Color Space*** and ***Target*** configuration dialogs.

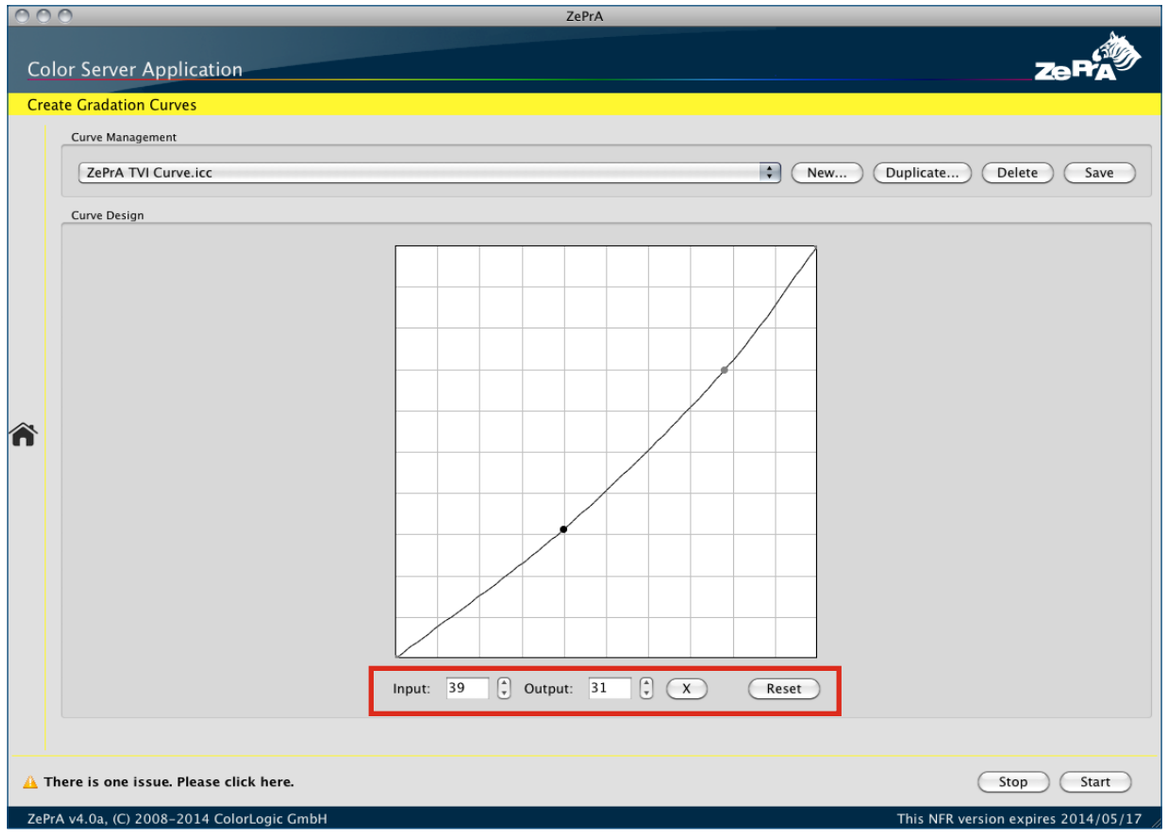
Note: If you have the SP version of **CoPrA** (included in the SmartLink, SaveInk and Multicolor modules and the L/XL version of ZePrA), you automatically have the integrated ***ProfileManager***. With the ***ProfileManager***, you can specify the source and target profiles for your individual DeviceLink profiles in the ***Workflow*** tab and enter the PDF/X information prior to use in ZePrA so there is nothing left to prevent automatic setup in ZePrA.



› Create Gradations

The application of gradation curves completes the process of preparing data for printing. Shortly before going to press, almost every printing process calls for a tone value correction that is stored in the RIP of the platesetter. This TVI correction primarily serves to ensure compliance with printing standards and to compensate for imponderables in the printing process, these being brought about by a host of printing parameters, not least also by the substrate and the ink. These TVI corrections can now also be directly included in the data to be converted. When subsequently setting the data, all that is necessary is linear implementation in the RIP software of the imagesetter.

When you select ***Special Setting – Create Gradations*** in the navigation panel in ZePrA, the ***Create Gradation Curves*** window opens.
In this window, you can create gradation curves which you can subsequently apply to CMYK or spot-color channels of the file you want to convert via ***Configurations – Apply Gradations***.



» Creating new gradation curves

Under ***Curve Management***, you can create new curves using the ***New*** button and duplicate or delete existing ones.

- A new curve can be edited under ***Curve Design***, either by clicking on the curve shown and moving it with the cursor or by entering values.
- If you wish to enter percentage values in the ***Input*** and ***Output*** fields, you must first set an anchor point in the curve by clicking in the curve.
- The values entered influence the selected anchor point.
- With the ***X*** button, you can delete a selected anchor point.

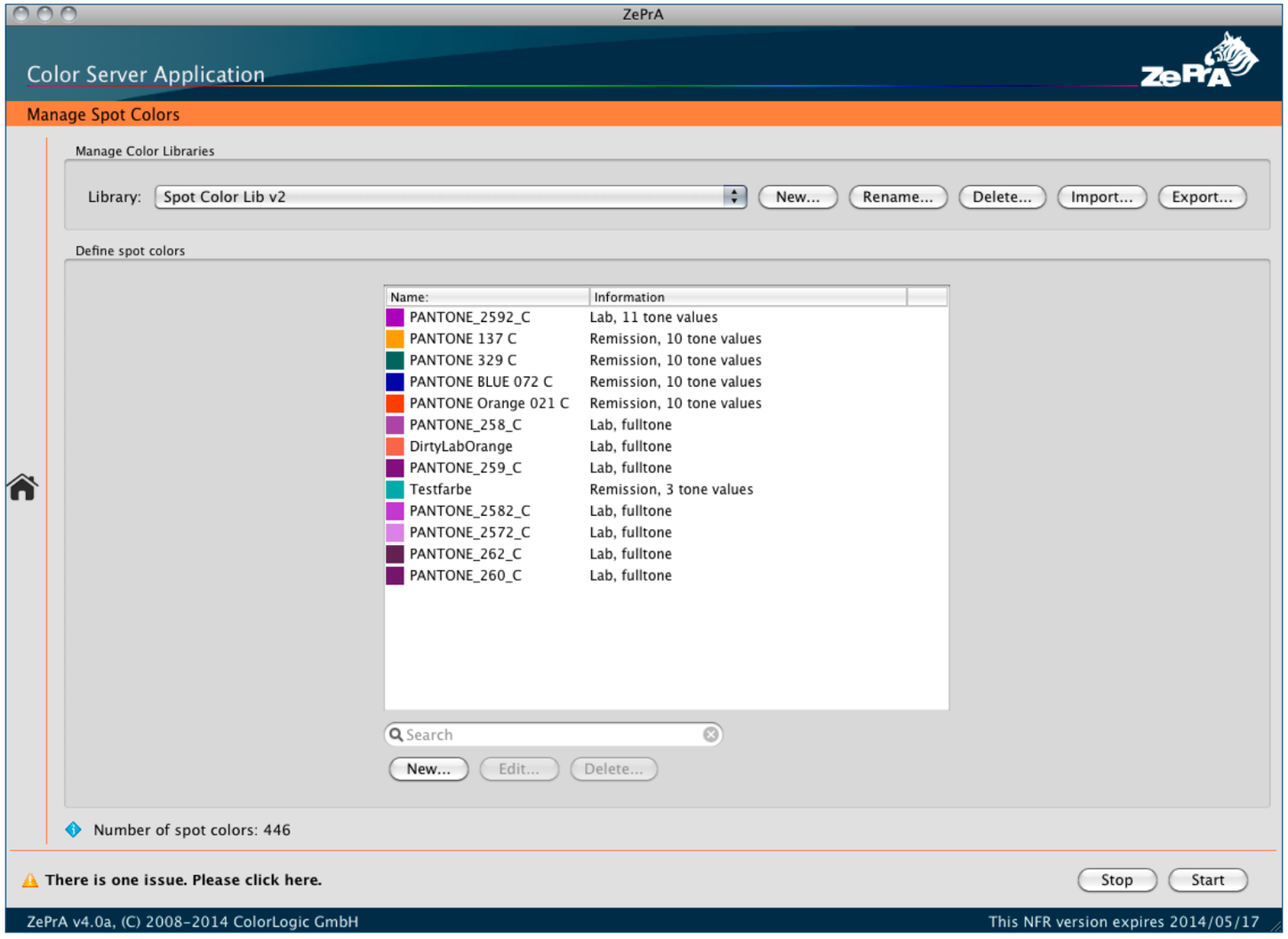
› Spot colors

In ZePrA, a module for high-quality conversion of spot colors to the target color space is available and can be purchased as an add-on. This allows optimized conversion of spot colors in PDF files into CMYK. If you have purchased ZePrA XL or higher, the Multicolor license, which includes the Spot Color module, is included and has the ability to monitor Multicolor spaces.

The high-quality spot color solution makes it possible to use the maximum color space of Multicolor printing systems when converting spot colors, thereby achieving unprecedented accuracy with optimum printability. You can read more about this under Configurations – Converting spot colors.

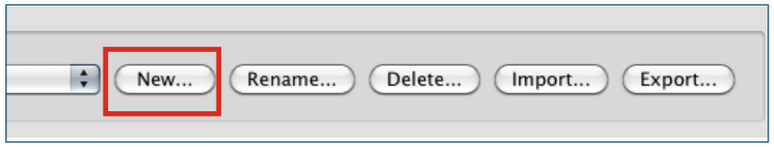
» Creating spot color libraries

Clicking on the ***Spot Colors*** button in the navigation panel of the main window will take you to the ***Manage Spot Colors*** window. In this dialog, you can use a spectrophotometer to measure your spot colors from color specimen books, sample prints or your customer's corporate identity colors, or enter them manually yourself. Alternatively, you can also import existing color tables with spot colors. These color tables can have the form of Named Color ICC profiles, Photoshop ACO color tables, text files in CGATS format or CXF files. The color values can be in either Lab or spectral form. Spectral measurement data are preferable, since they permit the best internal calculation.

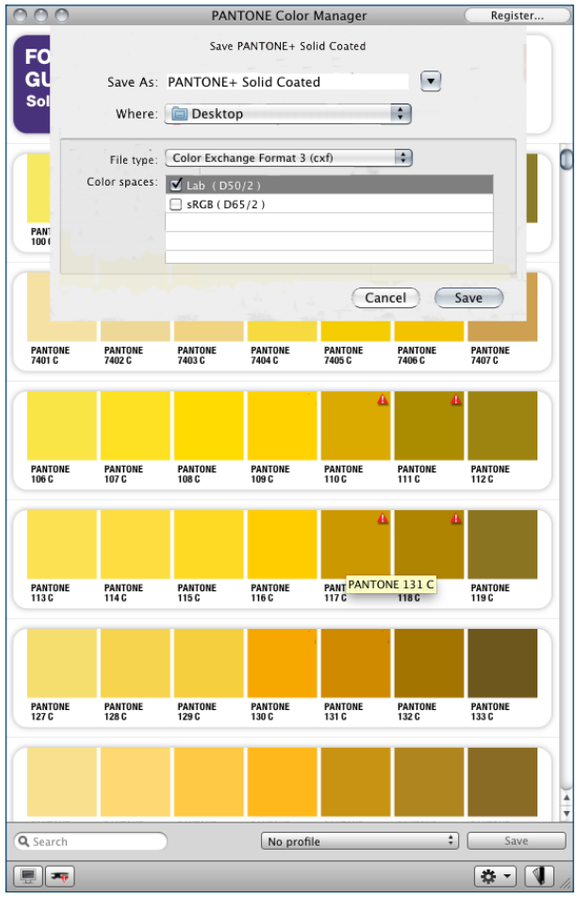


How to do it:

1. Click on the ***Spot Colors*** button and create a name for a new color library using the ***New*** button under ***Manage Color Libraries***.

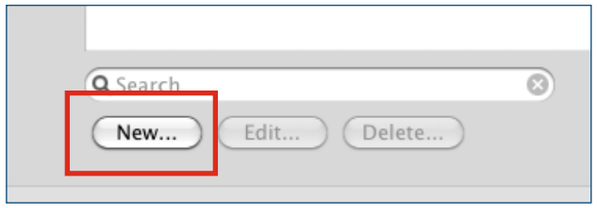


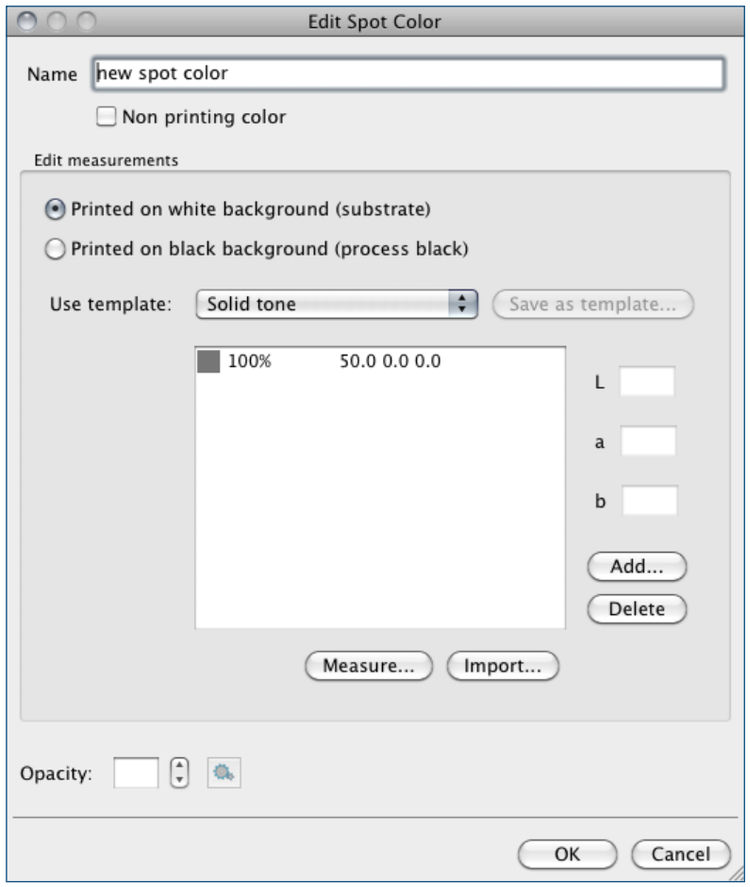
2. Import existing color tables containing numerous spot colors via the ***Import*** button under ***Manage Color Libraries***. The formats supported by ZePrA are ACO (Photoshop color tables), TXT (text files in CGATS 1.7 format), CXF (Color Exchange Format 3) and Named Color ICC profiles.



Note: Users of **Adobe Photoshop** can export color tables with Lab color values from Photoshop in the form of ACO files. Users of the X-Rite **Pantone Color Manager** program can export their color tables as Named Color ICC profiles or CXF files and thus have the actual Lab values, but no spectral values, for Pantone solid tones at their disposal. In exactly the same way, color lists available as CGATS-compliant text files, are also supported. You can import all four formats into ZePrA.

3. You can enter individual, new spot colors as solid tones or gradations via the ***New*** button under ***Define Spot Colors***. The ***Edit Spot Color*** dialog is then opened.





4. If you want to enter a new spot color, first enter the name of the spot color in the ***Edit Spot Color*** dialog. The ***Name*** is important and accordingly must be written in the same way as in your PDF documents, since it is used for identifying the spot color in the PDF. Automatic conversion can only be performed successfully if the name of the spot color in the PDF file matches the name in the library.

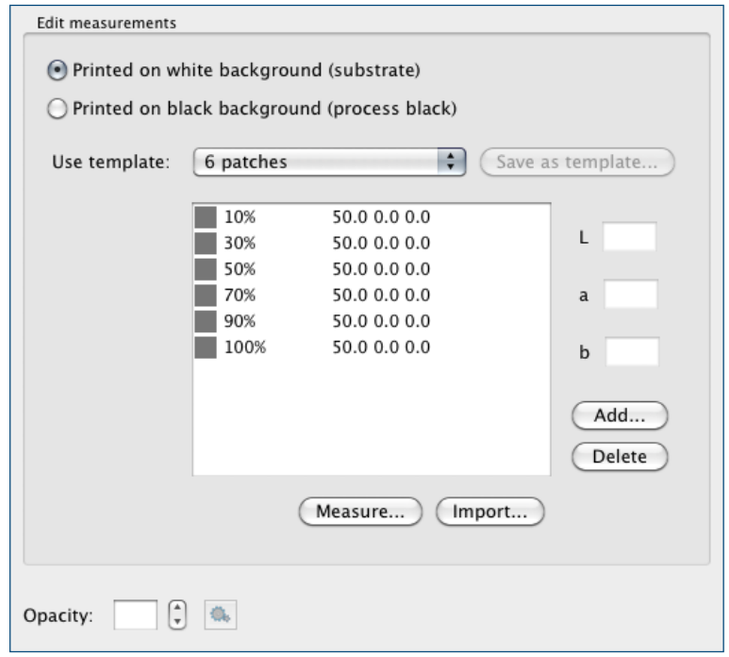
   Note: If you create separate libraries for different substrates or printing processes, you will find that the same spot color name occurs in different libraries, but with different measurements. To avoid this causing problems in use, select the required library for color conversion in the configuration.

5. Use the ***Non-printing color*** checkbox to define whether the indicated name of the spot color corresponds to a non-printing color (die-cutting marks, Braille characters, coatings, etc.) and is thus not to be converted. In the case of a ***Non-printing color***, activation of the checkbox automatically makes all the necessary settings. Close the dialog by clicking on ***OK***.

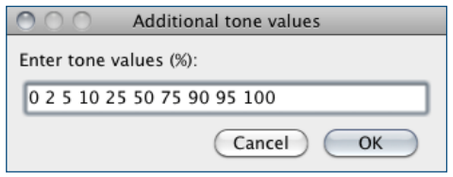
   Note: In this way, you can create a library of non-printing colors in accordance with your naming conventions that is then automatically used in every configuration and preserves non-printing spot colors in your documents.

6. If your spot color is available printed on ***white*** and on ***black*** background, you can enter both prints (measure yourself or import measured values) and use for further processing. Choose on white or on black to specify whether colors created or measured subsequently are saved on white or black.

7. In the case of a "real" spot color, specify whether you want to indicate only the 100% solid tone or gradations of the spot color. To do so, under ***Use template***, select the ***Solid tone*** option for the 100% value (opaque) of the spot color. For complete wedges, select one of the two templates with three gradations (***3 patches:*** 0%, 50% and 100%) or eleven gradations (***11 patches:*** in 10% increments). Alternatively, you can use the ***Import*** button to load a spot color that has already been measured and is available in the form of a measurement file.



8. If you already have a printed wedge with gradations of your spot color that does not correspond to either of the predefined templates, you can use the ***Add*** button and the ***Additional tone values*** dialog that then appears to create the gradations of your wedge in the form of percentage values. Enter a blank space between the percentage values and then confirm with ***OK***.



9. Your personal wedge is then marked as ***Custom*** and can be saved as a template of your own for later use for additional spot colors. Simply click on the ***Save as template*** button, enter a name in the dialog and close the dialog with ***OK***.

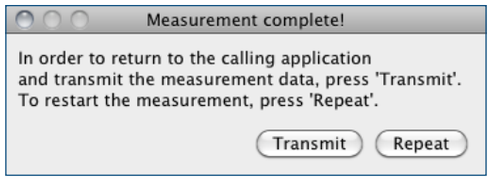
10. You now have three options for entering measurements.
    - The first is to manually enter the Lab value for each gradation
    - The second is to select ***Measure*** to apply the **UPPCT** measuring software supplied with ZePrA.
    - The third is through the ***Import*** of an existing measurement file.

Note: We recommend that you print a wedge of your spot color directly on the respective substrate as well as a second wedge of the spot color as an overprint with the black process color using the correct printing conditions and then measure them spectrally in ZePrA. In this way, ZePrA can perform very high-quality conversion not only of the solid tone, but also of the gradations and the opacity, taking the dot gain into account in the process. Compared to Lab measurements, spectral measurement data are more capable of simulating overprinting spot colors.

11. If you click on the ***Measure*** button, the supplementary **UPPCT** software is started for measuring a color value.

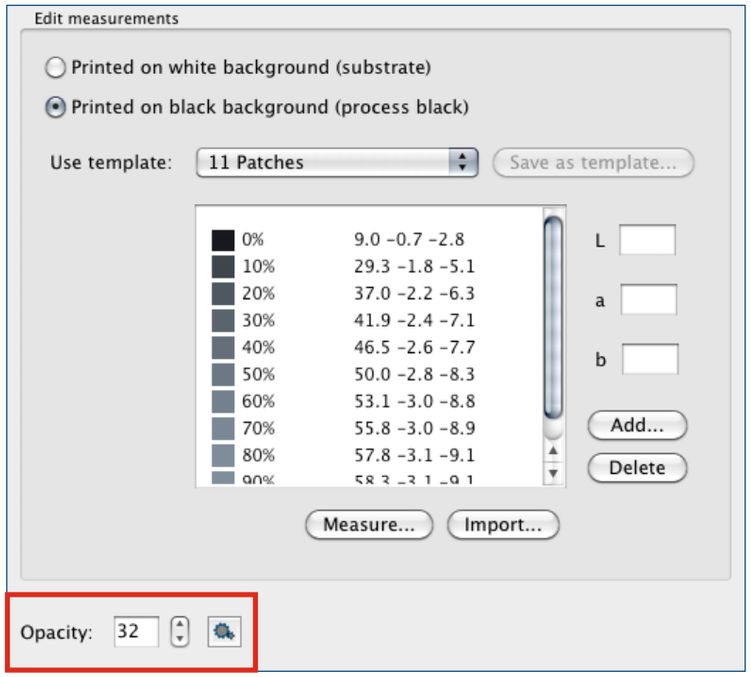
Note: The next section gives a more detailed description of the **UPPCT** software.

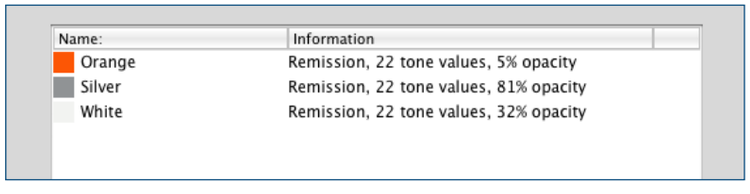
12. Once you have finished measuring, a dialog appears in **UPPCT**, indicating that the measurement is complete and can be transmitted to ZePrA by clicking on the ***Transmit*** button. If you click on ***Transmit***, **UPPCT** closes and you are taken back to the ***Edit Spot Color*** dialog. Confirm the dialog with ***OK*** to add the measured spot color to your color library.



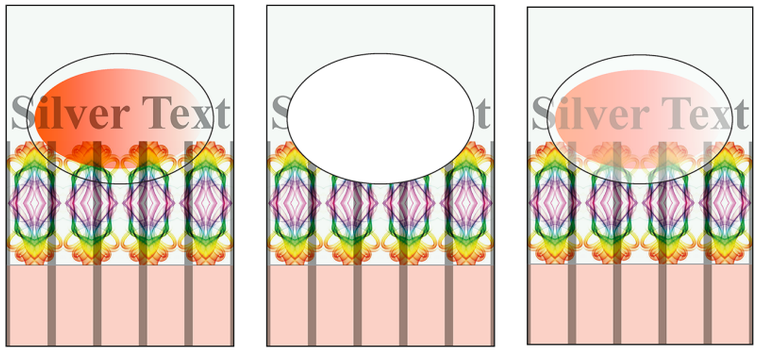
13. The ***Opacity*** indicates how translucent or opaque a color is.

Note: From the measured values with black background, ZePrA automatically calculates the opacity and takes this value into account during color conversion of spot colors. If you have information from the ink manufacturer regarding the opacity of the spot color, then you do not need to perform any measurement on black background, just enter the opacity directly as a percentage. Using the ***Calculate*** button, you can calculate and display the opacity from the measured values on black. If necessary, you can manually change the value calculated. If you do not have any information regarding the opacity, then ZePrA assumes the spot color is fully transparent. 0 % means that the spot color is fully transparent.



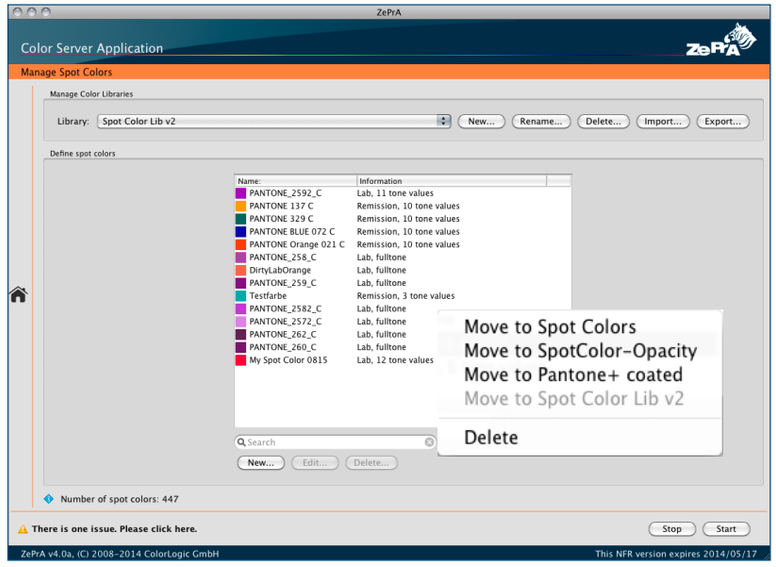


The example shows a PDF file that was created using the three spot colors Orange, Silver and White in addition to the CMYK process colors. If the spot color White is fully transparent, then the Orange and Silver colors underneath show through completely (see example on the left). However, if the spot color White is completely opaque, then it fully blocks the colors underneath it (see example in the middle). With 50% opacity, the Silver and Orange are visible (see example on the right).



14. Proceed as described above for the other spot colors and wedges until you have completed your color library.

Note: The ***Define Spot Colors*** table indicates whether a spot color in the library consists of just a solid tone or of several gradations, and whether the color values are of the spectral type (designation: ***Remission***) or the Lab type. The opacity of the spot colors, if available, is also shown. Needless to say, you can edit color values, delete them and add further spot colors to your library at any time.
In addition, you can move selected colors from one color library to another. To do so, select one or more colors and then right-click to choose the color library into which the color(s) is/are to be moved.



» Measuring spot colors with UPPCT

Spot color measurement is made possible by the link to the **UPPCT** software from **Ugra**, the Swiss Center of Competence for Media and Printing Technology. The **UPPCT** software runs under Windows and Mac OS X operating systems, permitting the measurement and analysis of proofs and prints as well as the measurement of individual colors, wedges and test charts in conjunction with ColorLogic products.

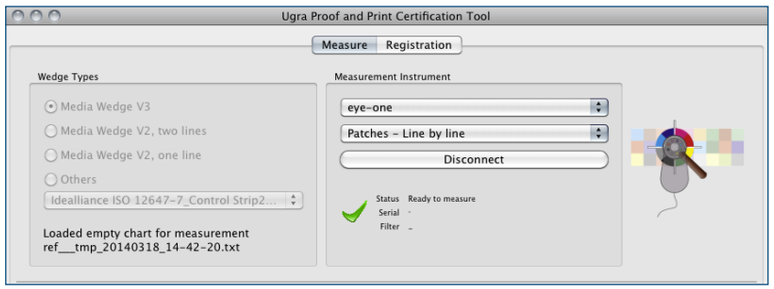
UPPCT is already installed as standard when installing ZePrA. If the software is not installed on your computer, the Measure button in ZePrA is not available.

Thanks to the link to the **UPPCT** software from **Ugra**, you can work with the following measuring instruments:

- X-Rite i1Pro (1 and 2)
- Konica-Minolta FD-5 and FD-7
- Barbieri SpectroPad
- Barbieri SpectroLF
- X-Rite Pulse
- Datacolor Spyder3PrintSR

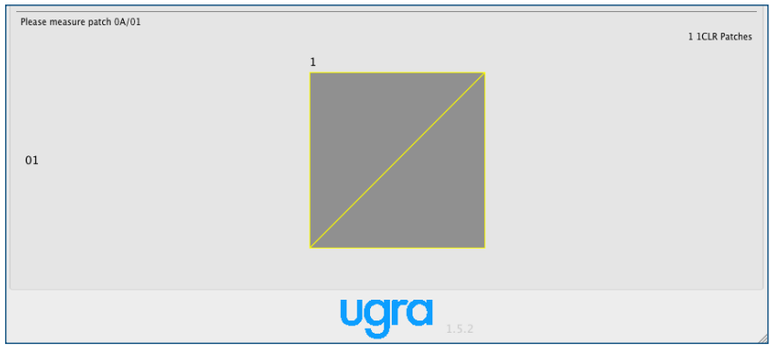
How to do it:

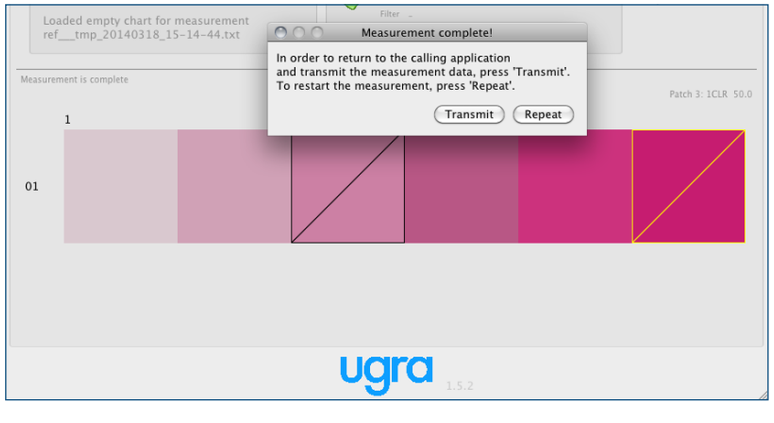
1. Connect your measuring instrument to your computer via a USB port.
2. Then click on the ***Measure*** button in the ***Edit Spot Colors*** window in ZePrA (***Special Settings/Spot Colors/Define Spot Colors/New***).
3. Die **UPPCT** software starts. The next steps are performed entirely in **UPPCT**.
4. Usually, you select the ***Others*** radio button under the ***Testcharts*** heading on the ***Measure*** tab and then, in the dropdown menu, the reference file for the testchart that you have in printed form and want to measure. However, these options are grayed out in the event of solid tone or wedge measurement from within ZePrA. If you choose a solid tone, a single color patch is preselected for the measurement or, if you choose a wedge, the layout of the wedge selected in ZePrA is displayed.
5. Under the ***Measurement Instrument*** heading, use the dropdown menu to select the measuring instrument you have connected by USB, click on the ***Connect*** button and follow the instructions, e.g. for white calibration, which can differ from one measuring instrument to the next.



Note: On some measuring instruments, such as the two Konica-Minolta FD-5/FD-7 devices, the Barbieri SpectroPad or the X-Rite i1Pro 2, you have the choice of switching the measuring mode to M1, M0 or M2. Select the mode that suits your task.

6. Select the measuring mode, either single patch or line-by-line, depending on the wedge layout.

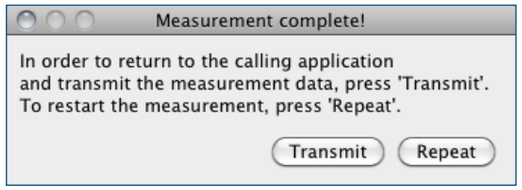




7. Now perform the measurement by pressing the Measure button on the instrument.

   Note: Single-patch measurement is not available for the Barbieri measuring instruments, which are optimized for testchart measurement.

8. Once you have finished measuring, the measured color appears in UPPCT. A dialog indicates that the measurement is complete and can be transmitted back to the main program by clicking on the ***Transmit*** button. When you click the ***Transmit*** button, UPPCT closes and the measured values are available directly in ZePrA. You do not need to save the measured values in UPPCT.



Note: In single-patch measurement, only one color at a time is measured in UPPCT and transmitted. In the event of an incorrect measurement, you can use the ***Repeat*** button to restart the measurement.

WORKFLOW OPTIONS

- Softproofing
- Sharpening and transparencies
- Multicolor and spot colors

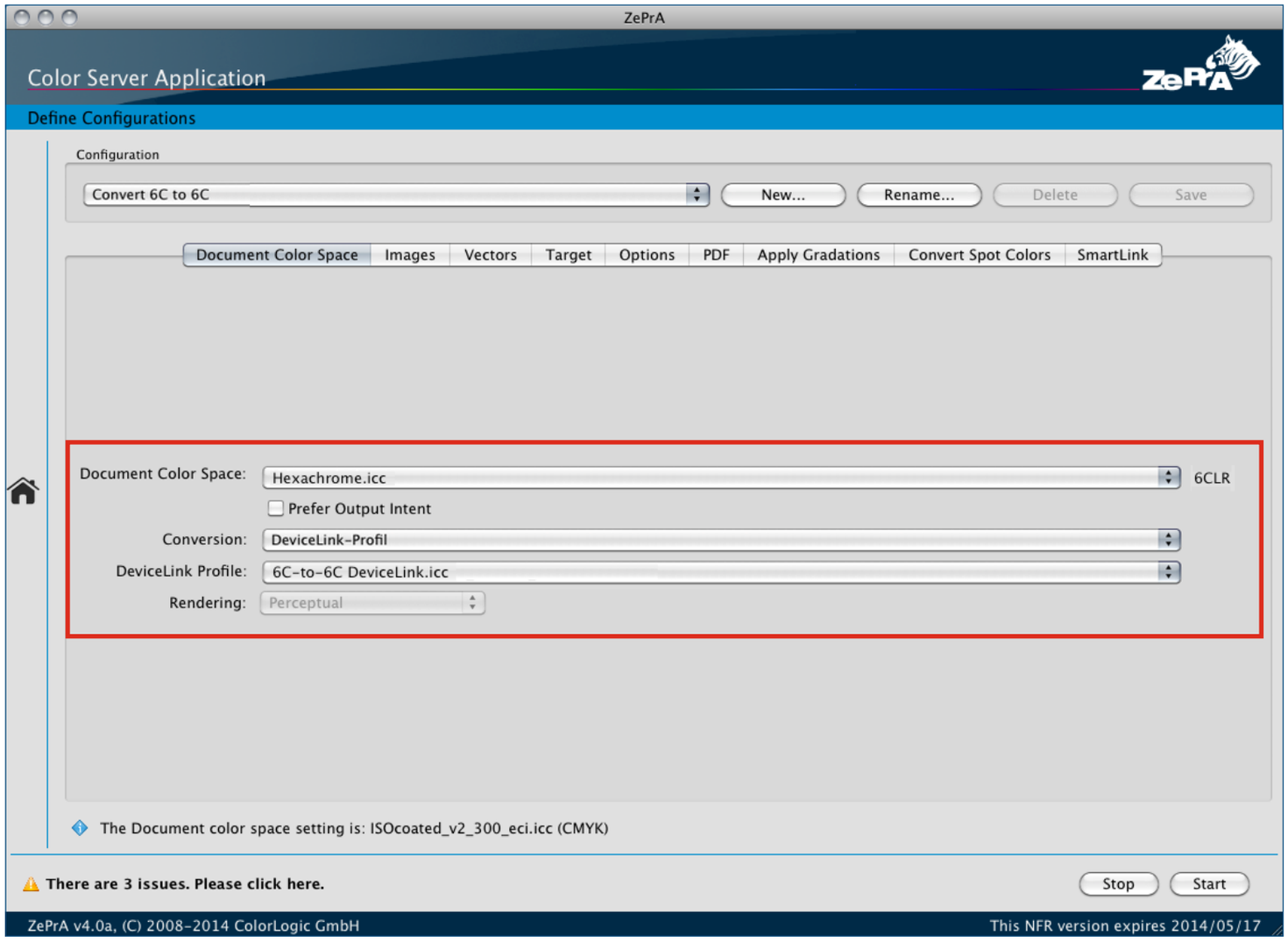
20 SPECIAL WORKFLOW OPTIONS

› Use of Multicolor profiles

In ZePrA, you can work either with Multicolor printer profiles or with DeviceLink profiles that permit RGB-to-Multicolor, CMYK-to-Multicolor color or Multicolor-to-Multicolor conversion.

» Use of Multicolor profiles in the PDF workflow

A special feature of ZePrA is the possibility of using Multicolor profiles both as the document color space and as the target profile and of using Multicolor DeviceLink profiles for color conversion.



Particularly in prepress work for packaging printing, this is an important option when image data are present in the form of an RGB or CMYK file. First, you can place RGB and CMYK image files directly in the finished document. From this, you create a PDF file and convert the complete document in ZePrA to the required Multicolor color composition for printing. Another interesting field of application is the printing of photo books by so-called HiFi color printing processes using 6 or 7 inks.

Note: An additional license is necessary if you want to use the Multicolor functions.

When preparing the data in ZePrA, you get what is known as a DeviceN PDF file, where every single channel is named like the channel name of the Multicolor target profile. For many years, the DeviceN has been the standard color definition in PDF for describing spot colors for print production. It offers a high degree of compatibility with the proven spot color processing functions of common application programs. The PDF files generated can usually be assessed in the ***Output Preview*** of the current version of Adobe Acrobat Professional and processed with current PDF workflow systems. Positioning of the PDF files in, and export from, current Adobe InDesign documents also present no problems. ZePrA supports the PDF/X-5n standard, which enables the embedding of Multicolor profiles in PDF files for the first time.

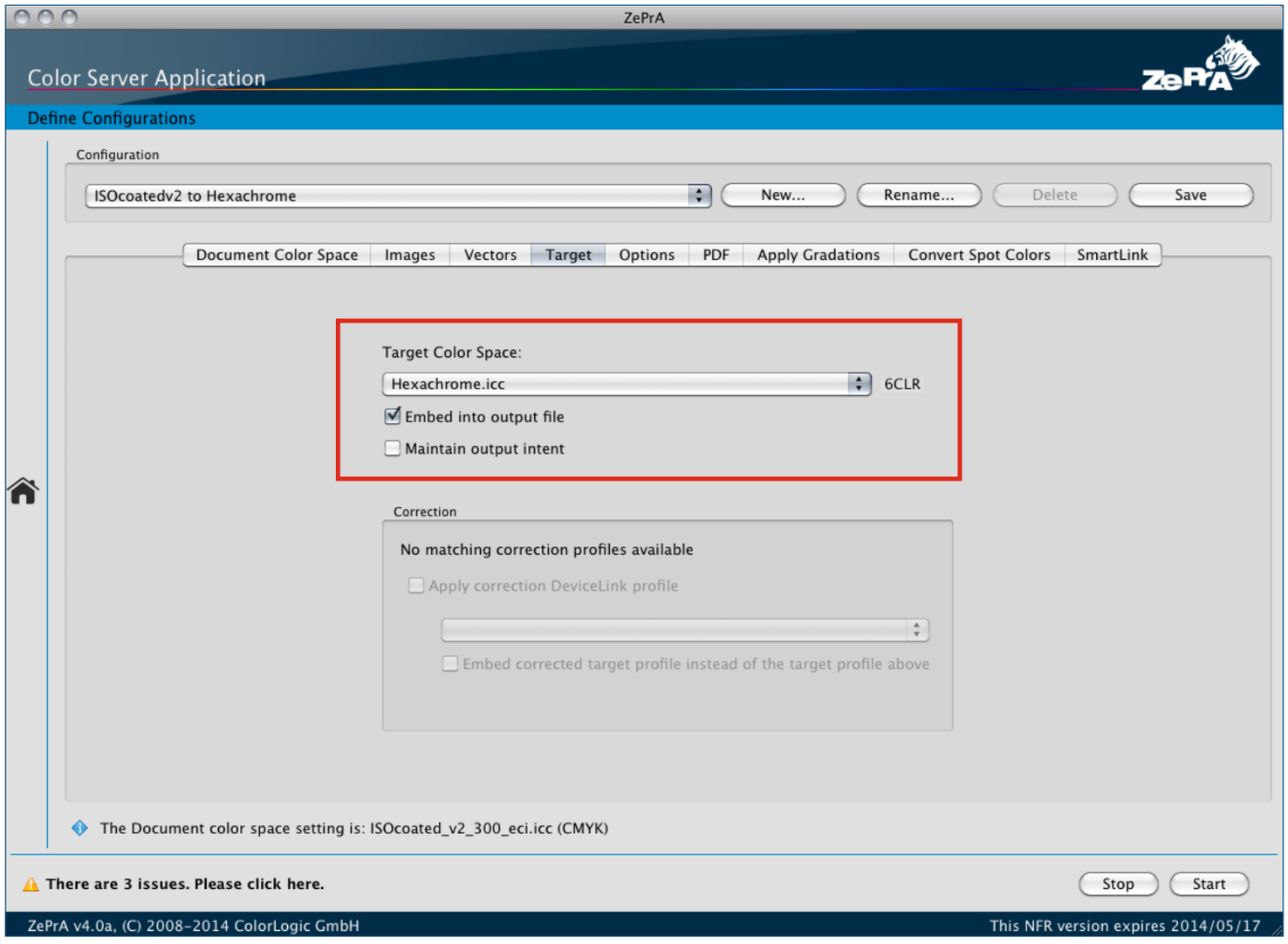
In the case of a configuration created with the ***Auto Setup wizard*** (selection of a Multicolor DeviceLink profile), the default setting is such that the Multicolor target profile is not embedded in image data, but that it is embedded as the output intent in PDF files. In the case of a converted PDF/X file (e.g. a PDF/X-4, X-3 or X-1a file), the color-converted file is changed into a PDF/X5n file.

Before using your Multicolor printer profile, which you select under ***Define Configuration*** as the ***Target Color Space*** in the ***Target*** tab, or in the ***Document Color Space*** tab in the case of a Multicolor DeviceLink profile, check whether the channel names and Lab color definitions have been entered in accordance with your specifications.

If the ***Embed into output file*** checkbox is activated, ZePrA uses the channel names and color definitions from the Multicolor printer profile set as the target color space when creating the color-converted PDF file.

Otherwise, the channel names and color definitions are adopted from the Multicolor DeviceLink profile. So, make sure you have identical channel names and Lab color definitions in the target profile and the DeviceLink profile. With the help of the **ProfileManager** freeware module, which is part of the ColorLogic profiling program **CoPrA**, you can rename the colorants (description of color channels) in accordance with your specifications and also enter the Lab color definitions in every Multicolor printer profile and DeviceLink profile.

Depending on the Multicolor profile used, the channel designations contained and the subsequent workflow outside ZePrA, we recommend that you test the complete workflow beforehand to make sure that everything runs smoothly.



» Converting image data with Multicolor profiles

For converting image data with Multicolor profiles, ZePrA supports PSB, PSD, TIFF and JPEG files. Since the current file format specifications (as at May 2014) do not provide for embedding Multicolor profiles in TIFF, JPEG, PSB and PSD files, for image data conversion you should deactivate Profile Embedding in the Target tab. We recommend that image data to be converted to Multicolor should be saved as PSB/PSD files from Photoshop and then processed using ZePrA. You can, of course, also position in Adobe InDesign any PSB/PSD image files converted with ZePrA by means of a Multicolor target profile.

When converting the image data of Multicolor files, ZePrA distinguishes the following cases, which can be set in ***Configurations*** under ***Options/Image quality***:

- If the channel designations of the Multicolor target profile are CMYK+X, a TIFF file is created providing ***Preferred lossless format*** is set to ***TIFF***.
- If the channel designations of the Multicolor target profile are not CMYK, then a PSD file is created.

  Note: TIFF only supports CMYK+X.
- If the compression method is set to ***Automatic***, the system will try to preserve the format or create a TIFF file. However in the case of a JPEG file or a non-CMYK Multicolor file, a PSD file is created.

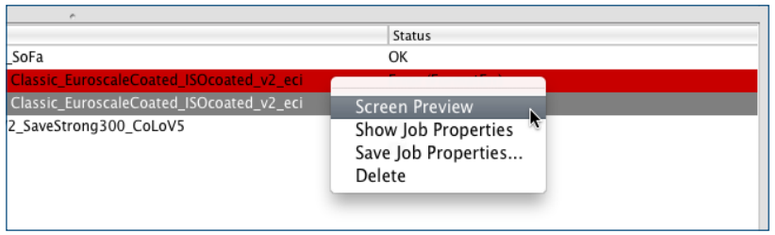
  Note: JPEG generally does not support Multicolor color spaces.

› Softproofing of PDF and image files

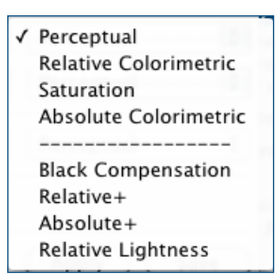
Softproofing in ZePrA offers you true-color presentation of your jobs on the monitor, with overprinting elements and transparency effects also displayed correctly on-screen.

To create a softproof of your job, proceed as follows:

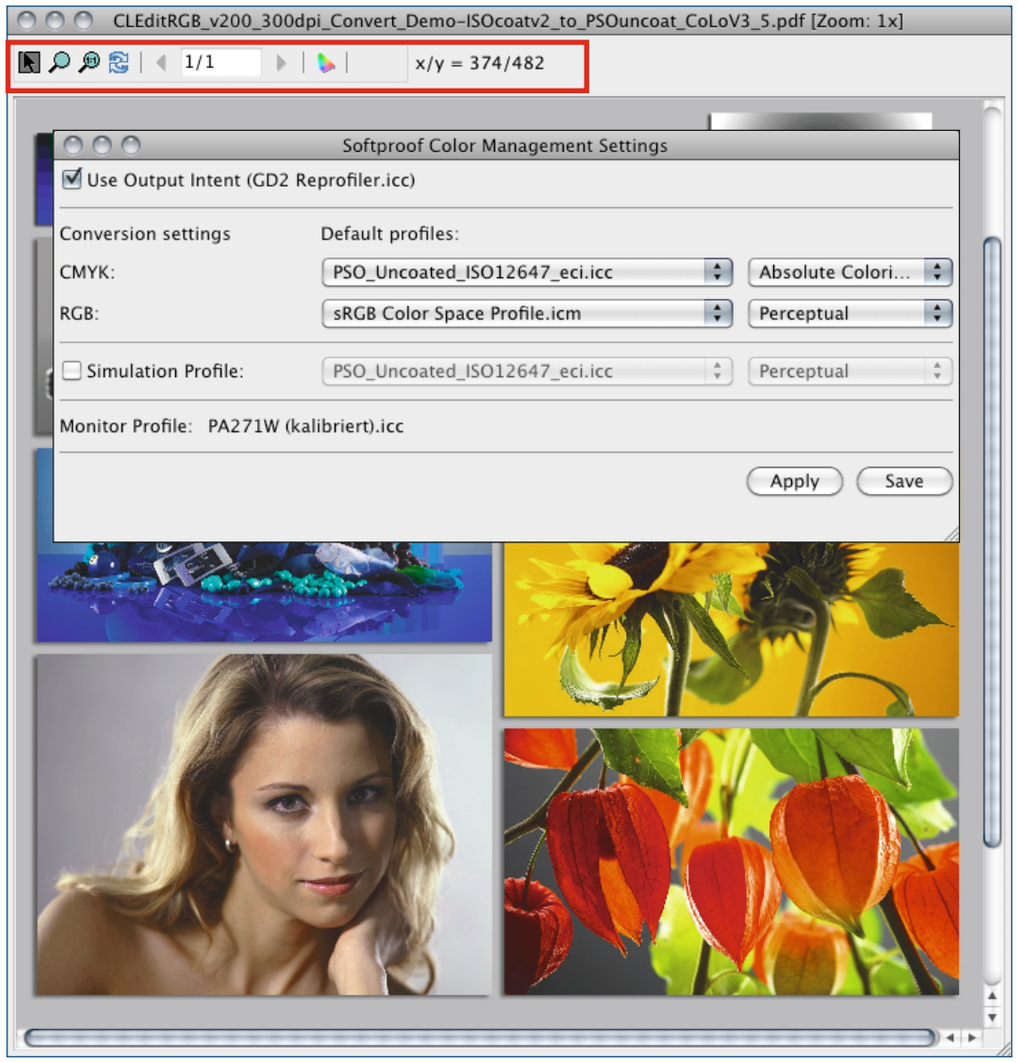
1. Go to the navigation panel and open ***Overview/Jobs and Queues Overview***.
2. Right-click on a job in ***Pending jobs*** or ***Processed jobs*** to open the context menu.



3. Select the option ***Screen Preview***. Your file is displayed in a window.
4. You can activate the ***Softproof Color Management Settings*** via the colored icon in the title bar of the window. The softproof is displayed according to the color settings which are to be defined by the user.
5. Select Use Output Intent if you want to apply the ICC profile of your PDF/X document.
6. In the Conversion settings, indicate which ***CMYK*** or ***RGB default profile*** should be applied in the case of image/vector data or in case there is no output intent for the PDF file.
7. A color conversion method (rendering intent) must be selected for the calculation. The rendering intents include not only the normal ICC intents and relative + Black Compensation, but also three special ColorLogic intents:



- **Relative+** and **Absolute+** only have an impact if the black point information contained in a relative matrix monitor profile indicates that the black point is lighter than L* = 0. The softproof becomes a little darker as a result of this, which usually leads to a visually better match with a reference proof.
- **Relative Lightness** is based on the absolute colorimetric intent with paper color simulation. The lightness of the paper color simulation is scaled to the maximum displayable lightness of the monitor, the color of the paper color simulation and the gray balance of the softproof as a whole being preserved. This setting makes sense if the absolute colorimetric softproof is visually too dark, as is often the case in newspaper printing for example.



8. If you want to simulate an output condition, select ***Simulation Profile*** as well. As the rendering intent here, we recommend the colorimetrically structured or special ColorLogic intents.
9. For presentation on your monitor, the monitor profile stored in your system is automatically read out.
10. Click ***Apply*** to visually display the settings and ***Save*** if you want to save the window with the settings and then close it. Next time you open it, these settings will be used again.

Note: In order to select the right softproof intent, it is generally advisable to use not only the monitor, but also a dimmable standardized light box with a reference proof for visual comparison.

› Use of sharpening, e.g. for in-house RGB workflows

Optimal sharpening should always refer to the scaled end format of an image in the printing data. In the following section, it is assumed that the processing of high-resolution RGB images, their placement in the layout program, the creation of PDF data and the application of ZePrA is a continuous workflow within the same company. Here, the summary of the procedure described is called an in-house RGB workflow.

In-house RGB workflows provide the opportunity to work with high-resolution originals of RGB images in the layout program and then create a PDF/X-3 or PDF/X-4 file that also contains the high-resolution RGB images. Color management, downsampling to the final resolution and sharpening for the PDF file are then performed in ZePrA. After downsampling of RGB images to the final resolution and color conversion to CMYK, you should use stronger sharpening in ZePrA than would usually be used on pre-sharpened CMYK images. To do this in ZePrA select ***Define Configurations/Sharpening/Preset strong sharpening of RGB and Gray images***.

For documents that contain mixed image data set of RGB images and presharpened CMYK images, you should restrict the sharpening in ZePrA to RGB images.

Note: If you work with transparencies in the layout program, it is essential to ensure that no(!) transparency reduction is performed. This will result in converting RGB data to CMYK if the RGB image in the layout program is tangent to transparent objects. During generation of PDF/X-3 files, transparency reduction is mandatory, while in PDF/X-4 files, transparencies are explicitly allowed. Hence, if you want to sharpen all RGB images in ZePrA, you should not perform any transparency reduction in the layout program, you should instead perform it with ZePrA.

› Working with transparencies

» Flattened transparencies and sharpening

Many users tend to think only of photographic images when it comes to sharpening in PDF data. However, you should also note that through flattened transparencies, vectors and text can result in pixel images. These pixel images are treated exactly the same as photos if sharpening is activated in ZePrA. This can lead to unwanted artifacts. Differentials in sharpening between neighboring objects (which are possibly preserved as vectors or text), can cause visual dissimilarity. You should test the effects in any case prior to production.

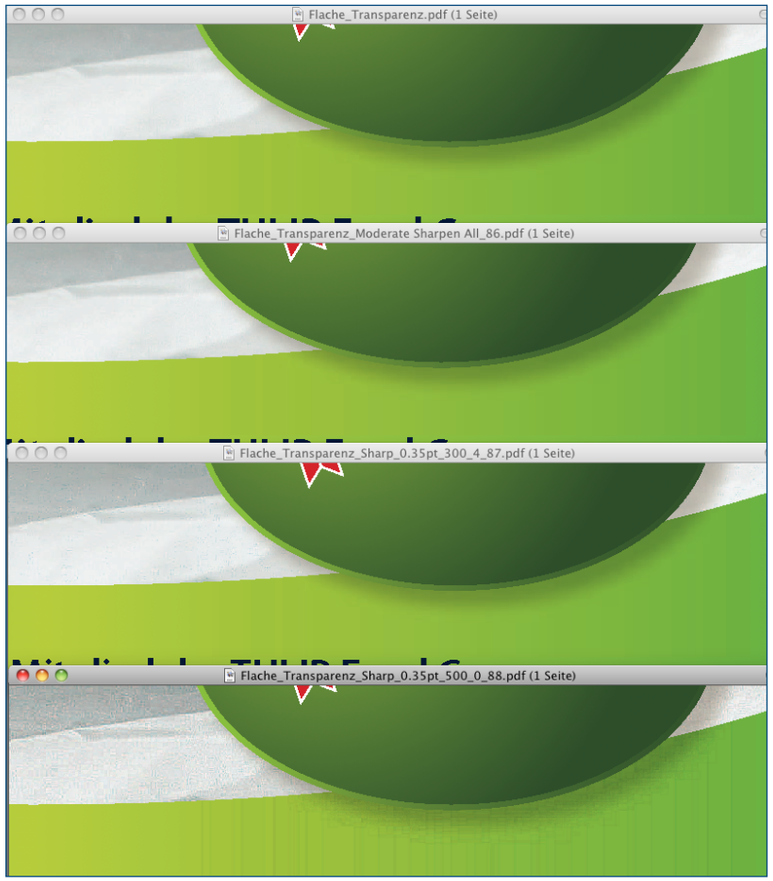
This is especially true if you flatten the transparencies in ZePrA. In this case, the sharpening is performed prior to color conversion and flattening. Without transparency flattening, ZePrA would apply the sharpening after color conversion.

Depending on what the interplay of elements in the layout program, the parameters for flattening the transparencies and the sharpening parameters in ZePrA look like, extreme sharpening can lead to undesirable visual effects.

The negative effects are revealed only with the most extreme sharpening strength and a threshold of 0. Since JPEG artifacts usually exhibit only very small color differences, a high threshold is the most important criterion for avoiding undesirable effects.

The following example shows such an interplay with various levels of sharpness. In this case, the graphic artist has placed an object with shadows over a gradient. In flattening the transparencies, the flattened objects were compressed in the JPEG format. With extreme sharpening, artifacts which are not normally visible are intensified in the part of the gradient that has been changed into a JPEG image through the overlying shadows. From top to bottom, the following sharpness settings were applied:

- No sharpening
- 0.35 points, Amount 80, Threshold 8
- 0.35 points, Amount 300, Threshold 4
- 0.35 points, Amount 500, Threshold 0



» Converting PDF files with transparencies

ZePrA can be used for the color management of PDF files with transparencies. You can choose to preserve transparencies or flatten them by means of ***Transparency flattening***. The ZePrA approach for color conversion, when you want to preserve transparencies, is that every object – with or without a transparency – is color-converted individually, the structure of the PDF document being preserved in the process. Unfortunately, there are so many variations for the blending of transparencies and the stacking order of semi-transparent objects that there is no simple rule regarding when you should and, shouldn't flatten transparencies to avoid unwanted color shifts when converting the colors of transparencies.

Flattening requires you to specify the resolution to be used for platesetting. Whenever possible, avoid flattening until later on in the workflow. Taking these aspects into account, we recommend that you first convert the colors without flattening the transparencies in ZePrA and examine the converted file in a transparency-compatible PDF viewer (e. g. the latest version of Adobe Acrobat Pro). If the color-converted file looks correct and the desired total area coverage is maintained, you can continue to work with it.

If artifacts are evident in the file following color conversion, you should first deactivate the ***Convert all transparent elements in PDF files*** checkbox under ***Configuration/PDF*** and convert the colors of the file once again.

In many cases, deactivating this option helps to preserve the impression of the original file (see also the example in the middle) because ZePrA excludes certain transparency modes from color conversion. The option should, however, be activated as standard.

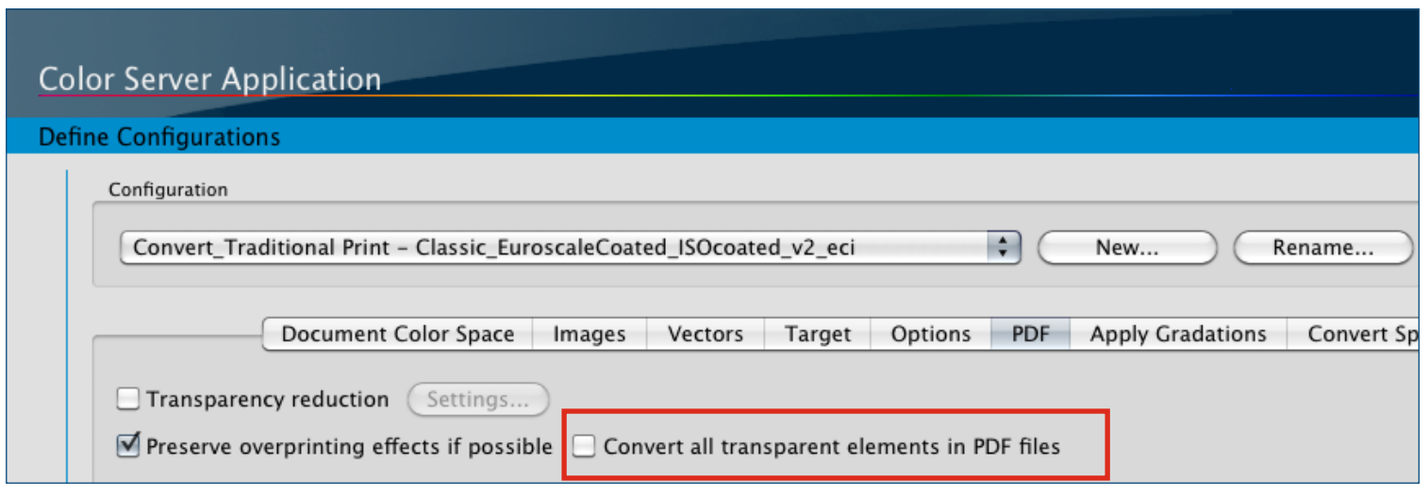
Original file with a transparency effect that causes the image to fade to white from the center.

Visual artifacts following SaveInk conversion (hard edge and gray ing of the left-hand side of the image)

Perfect SaveInk conversion without flattening of the PDF file; "Convert all transparent elements" option deactivated

If even deactivating the ***Convert all transparent elements in PDF files*** option is incapable of avoiding artifacts following color conversion, you will need to enable ***Transparency flattening*** in ZePrA (in the ***PDF*** tab).

Note: Transparency flattening is based on the Callas SDK, which in turn uses the Adobe PDF Engine for transparency flattening. That way, the results from ZePrA are compatible with the results you obtain with the current versions of Acrobat Professional and the Callas pdfToolbox for transparency flattening.



» SaveInk application and TAC reduction for PDF files with transparencies

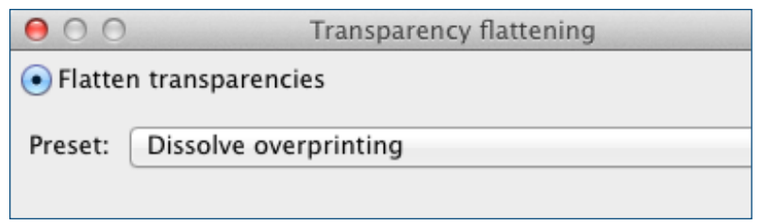
Auto Setup queues do not activate transparency flattening as standard with workflows to ***Save inks*** or ***Optimize TAC***. This would involve greater interference in your files and would also increase the file size.

In many cases, transparency flattening is not necessary, especially for PDF files with harmless transparencies such as drop shadows. However, there are certain cases where transparency effects change the color appearance, despite high-quality SaveInk profiles, or where the total area coverage is exceeded despite correct reduction profiles. We recommend that following TAC reduction and SaveInk application; examine the total area coverage using a modern preflighting program that takes into account transparencies. If, for performance reasons, you cannot, or do not want to, examine every file, then we recommend that you activate ***Transparency flattening*** in the configuration.

» Converting spot colors with transparencies

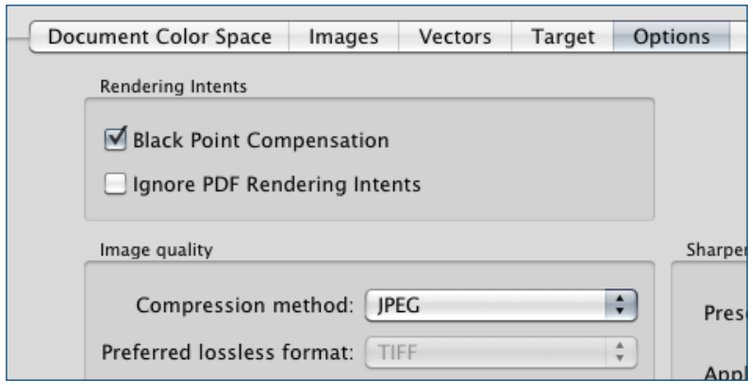
When PDF files, that include process and spot colors, are flattened, the Adobe transparency flattening provides that spot colors are maintained. However, in order to preserve the impression of the original file, they are set to overprint. Overprint preview should always be enabled when you view your flattened PDF file in the PDF viewer (e.g. Adobe Acrobat Pro). Basic PDF viewers, such as Mac ***Preview*** and many apps on tablets, display these kinds of files incorrectly because they do not have overprint functionality.

Should ZePrA be used for high-quality conversion of spot colors to the output profile instead of the PDF preflighting program or the RIP, then you can optimally convert spot colors into process colors under ***Configuration/Convert spot colors***. Please note, that due to transparency flattening, converted spot colors may be on overprint and mixed with process colors. This can lead to unwanted results and the "disappearance" of converted spot color objects. If this happens with you, please use the transparency flattening preset ***Dissolve overprinting*** or the extrem method to rasterize the file completely.



» Transparency flattening, image quality and file size

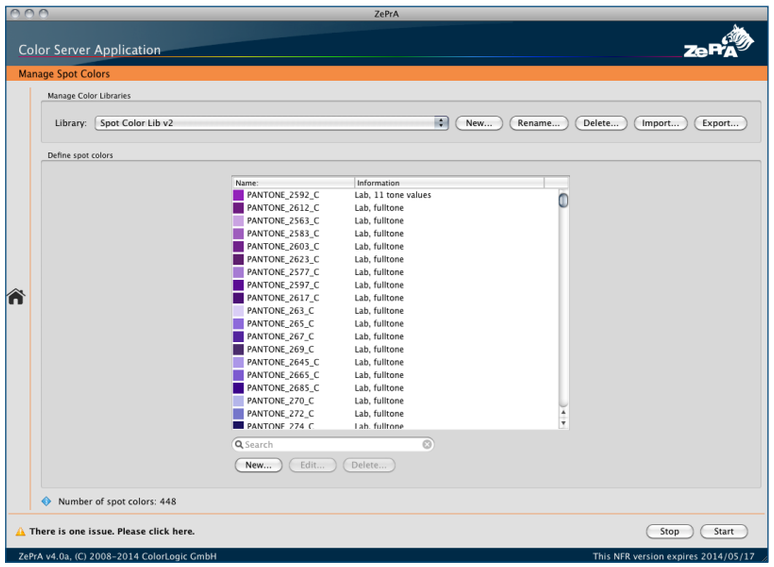
With transparency flattening, ZePrA creates the resulting rasterized objects with lossless ZIP compression. This produces the best results in terms of quality, but also results in a larger file size compared to JPEG compression. Even in the case of PDF files with JPEG-compressed images, transparency flattening results in ZIP-compressed images. If you want to reduce the file size and can accept a drop in quality, then you can switch the configuration of the ***Compression method*** to ***JPEG*** in the ***Image quality*** section of the ***Options*** tab.



Note: ZePrA only takes the compression method into account if you are performing a color conversion.
If you are only performing transparency reduction, without color conversion, in ZePrA then no compression modification is made and rasterized objects would be ZIP-compressed.

› Spot color processing

Our spot color solution is aimed at printers whose customers impose stringent demands on the color-accurate rendering of spot colors. The target group includes in particular printers in packing printing who have to deal with a lot of spot colors, and who would like to optimize their printing process by converting spot colors into CMYK or Multicolor process colors. The ColorLogic solution offers printers the secure knowledge of getting the best possible conversion of spot colors into process colors, both in terms of colorimetry and from the point of view of best printability.

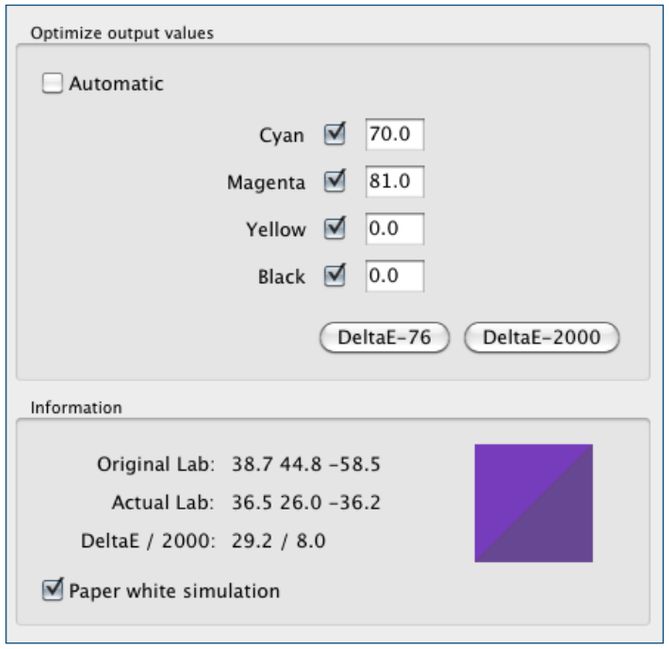


» The classical method

To appreciate the special features of the new solution, we first need to take a look back in order to understand how the previous method for converting spot colors used to work in ZePrA and many other solutions: The ***Convert spot colors to target color space*** checkbox resolves spot colors (DeviceN colors without CMYK components) and converts them to the target profile. The substitute color (referred to as the alternate color space in the PDF) assigned to each spot color in the PDF file is used in this context and is processed using the color management settings in the ***Images*** and ***Vectors*** tabs in ZePrA. The PDF alternate color value for a spot color is usually indicated in CMYK or Lab, and is specified in the graphic or layout application used to create the PDF (e.g. Adobe Illustrator, InDesign or QuarkXPress).

Given appropriate settings, ZePrA performs DeviceLink conversion from the alternate color space to the target color space. Nevertheless, conversion using the alternate color value is only an inaccurate solution, particularly if the alternate color for the spot color is indicated by device-dependent CMYK values. Even if the alternate color were to be indicated by a measured Lab value, ICC color conversion would usually result in converted colors that are not sufficiently accurate and, above all, not easily printable.

Example: The spot color PANTONE 266 C has an alternate color value of CMYK = 70/81/0/0 in a PDF document. When printed in a high-quality offset process on coated paper in accordance with ISO Coated V2, these CMYK process-color values would produce a dark violet color that is 29.2 Delta E-76 or 8.0 Delta E-2000 off the actual spot color (see screenshot). The color is outside the printable gamut and thus cannot be printed by 4-color offset printing.



On a Multicolor printing system with 7 process colors, which would be capable of wonderfully simulating the spot color, the same spot color with the same PDF alternate color value would likewise only be reproduced with a major color error of approx. 9 Delta E-2000. Using this example, conversion via a stored CMYK alternate color value will result in highly unsatisfactory color reproduction in both printing processes.

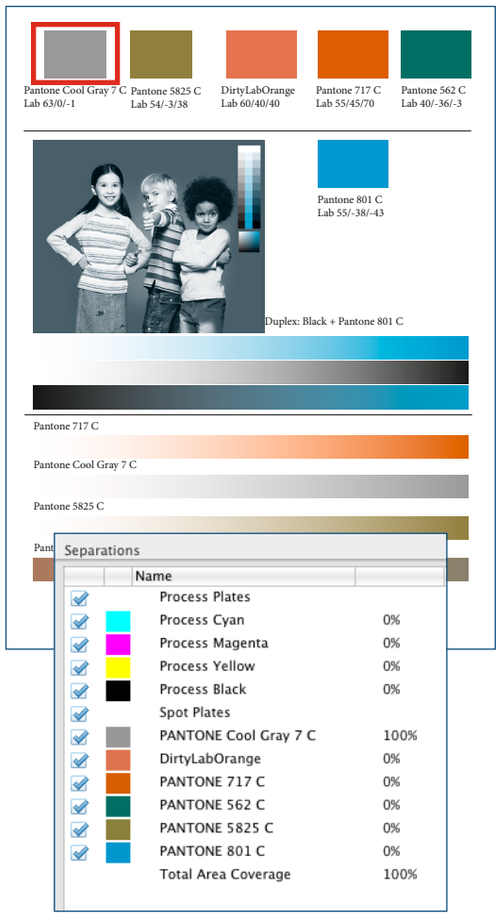
» Other problem-solving approaches on the market

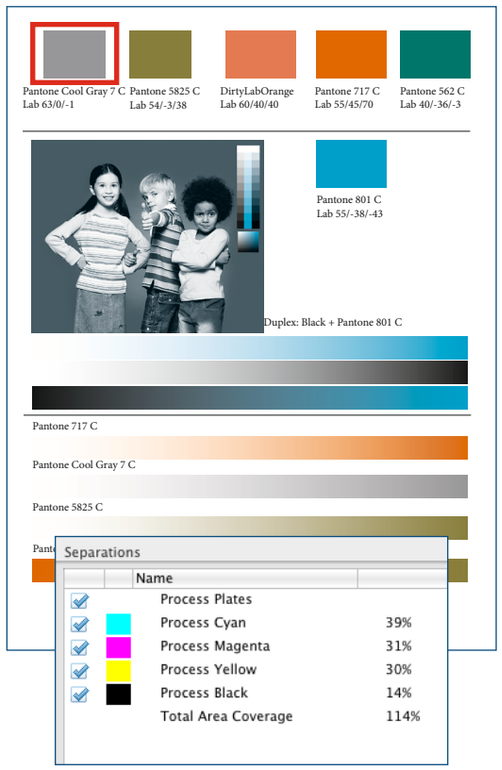
Lab alternate color values have been stored for spot colors in the PDF document since the launch of Adobe InDesign CS6. At first glance, Lab alternate color values appear to be a better alternative than CMYK alternate color values, but it creates other, sometimes even more serious problems when converting spot colors.

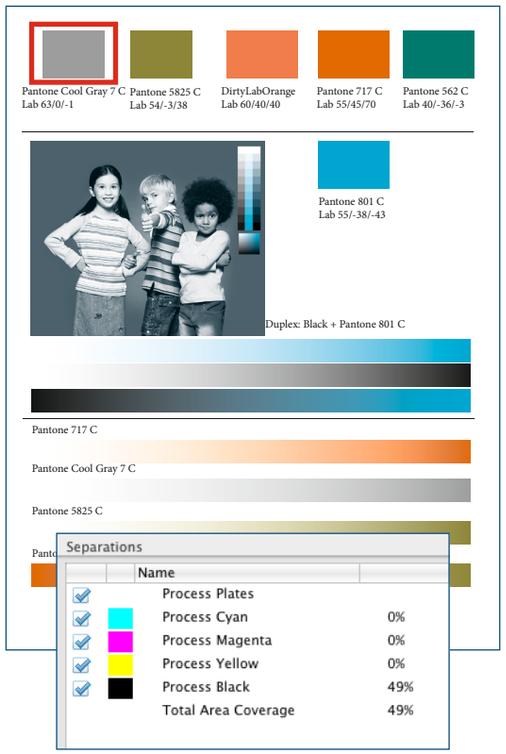
The screenshots show how differently a spot color can be converted to CMYK with a Lab alternate color value. The spot color PANTONE Cool Gray 7C is highlighted in red in the original file in the screenshot on the left. The screenshot in the middle shows that conversion of this spot color by means of a standard tool leads to four process colors, which is highly unsuitable for printing. In contrast, the screenshot on the bottom right shows that conversion using ZePrA not only achieves the most accurate color reproduction, but also manages with the minimum number of channels (only the process color Black is used). Moreover, the screenshots show that the spot color gradients converted with ZePrA have a far purer color appearance than the gradients converted using the standard tool.

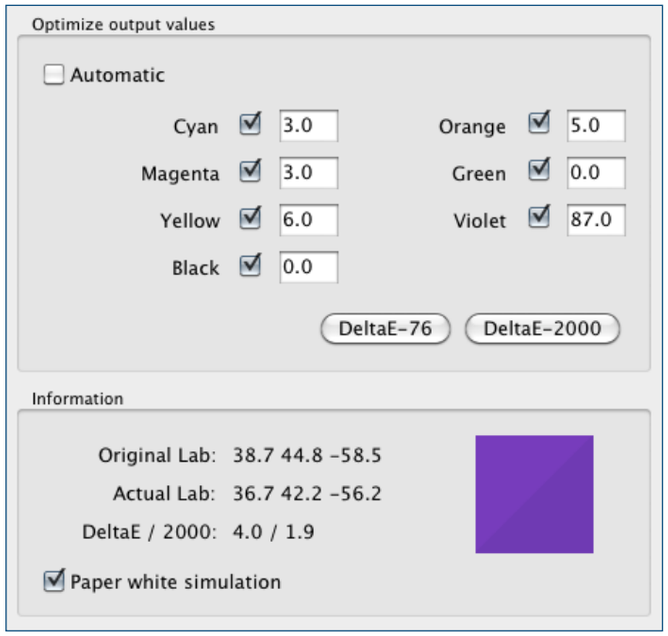
Instead of alternate color values, some other color server solutions on the market use a color library that contains the color values of the solid tones of the spot colors, measured in Lab. Rather than using the PDF alternate color value when converting spot colors to the target profile, these solutions take the Lab value of the solid tone from the color library and convert it to the target color space by the absolute colorimetric method. If the gamut of the target profile is large enough to be able to map the spot color, a good colorimetric match with the solid-tone value is obtained.

In our example using PANTONE 266 C, this would be the case with our Multicolor printing process, and the spot color could be reproduced quite well with 1.9 Delta E-2000 (the screenshot on the right shows the color conversion that would be obtained with standard tools).







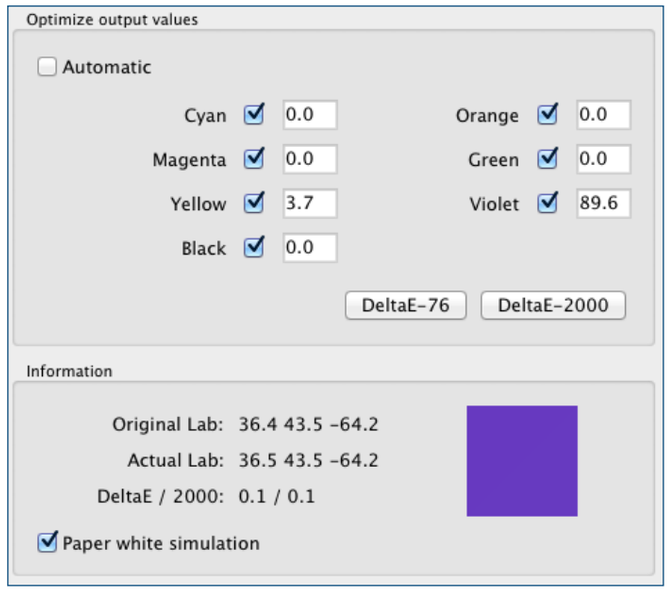


However, should the gamut of the target profile not be large enough and the spot color be out-of-gamut, only rarely would the best possible color value with the smallest Delta E be calculated, depending on the target profile used.
This is due to the inaccuracy of profiles and the Gamut Mapping used. The biggest drawback of simple colorimetric conversion is, however, that unwanted process color components can emerge (in our Multicolor process, for example, CMYK +Orange+Green+Violet = 3/3/6/0/5/0/87), impairing the quality of the printed image.

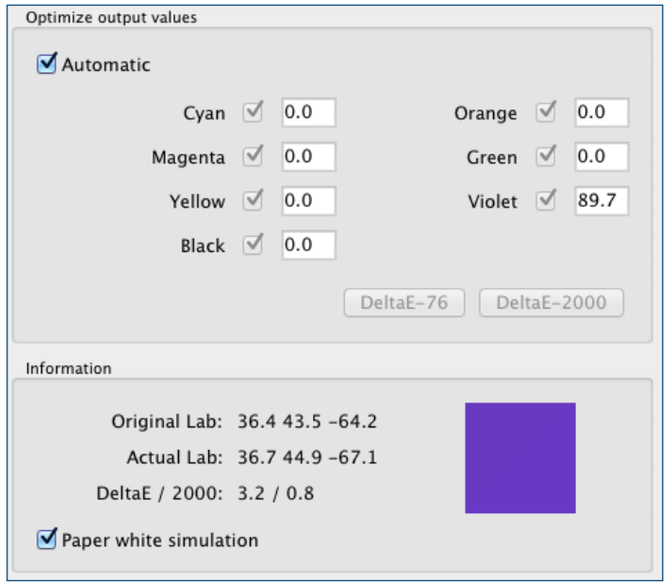
Just think of a text or a barcode that would thus be composed of several colors and be unsharp as a result of register problems when printed. At the same time, problems can arise when overprinting what were previously spot colors with process colors or other spot colors. Furthermore, a library that contains merely the measured solid tones permits only an incomplete prediction regarding the appearance of graduations of the spot colors. So, this approach is bound to fail and may, from the printing point of view, produce poorer results than converting the alternate color value by means of DeviceLink profiles, as previously done in ZePrA.

» Scope of supply of the Spot Color module in ZePrA

- Many users would like exact colorimetric conversion of spot colors. This results in a need for both, for color libraries with the correct, measured spectral color values, and also for additional Delta E minimization. Delta E minimization would even make it possible to reproduce our specimen color PANTONE 266 C exactly and without a color error in the 7C Multicolor printing process (see screenshot below).



- Users would like to create and use several libraries, if necessary, for the same spot color because they need separate and optimized color values for different substrates and printing processes.
- Similarly, the color libraries must work with measured graduations of the spot colors, so that the 50% value of a spot color, for example, can also be reproduced optimally.
- To accurately calculate overprinting simulations, the measured values should additionally be stored in spectral form. Additionally, an intelligent, spectral color mixing model should be used.
- It is also desirable if the color server is able to preserve overprinting properties to the greatest possible extent.
- When dealing with elements consisting of a mixture of spot colors and other process colors, the color appearance should be simulated as accurately as possible following resolution of the spot color.
- When converting to the target color space, the fewest possible process colors should be used, but the result should still yield the smallest possible visual color difference. In our example, the optimum solution is to use only the Violet process color (see screenshot below) and achieve a color error of just 0.8 Delta E-2000.



- Some spot colors need to be converted to a specified target value (e.g. to a process color), regardless of the smallest possible Delta E. This is necessary for texts or barcodes, for example.
- Similarly, some spot colors have to be excluded from conversion, this being indicated for cutting marks created as spot colors, varnishes or braille characters, for example.

› Application of Photoshop color corrections to PDF files

Colorimetrically generated DeviceLink profiles cannot be used in some applications. This is the case if, for example, a customer provides printing data and, instead of a correct proof, some kind of print that needs to be matched as accurately as possible in production printing. If you open the printing data on a monitor with softproofing based on the printing standard for production printing, there may be pronounced differences compared to the print provided by the customer.

In this case, the options for solving the problem are: either to print outside the standard and try to adjust the specifications using either the gradation corrections in ZePrA or the means available on the printing machine, or to apply Photoshop corrections to the PDF file. The latter approach has the advantage that you can apply standards to proof the color-corrected data and have them approved by the customer. For this method, you need an experienced Photoshop operator and the Edit module in CoPrA.

You can also use the demo version of the programs for a single test run with production data. The operator compiles color-relevant objects, taken from the PDF data to be corrected, in a file in Photoshop and combines the test data with the CoPrA Edit Chart. S/he then corrects the test file on the monitor under softproofing conditions. The edited image is loaded into CoPrA and the corrections are saved as a DeviceLink profile.

The DeviceLink profile can subsequently be used in ZePrA to correct the colors of the original PDF data. If necessary, these data can be approved by the customer on a proof before printing. The printer can work according to a standard in the accustomed manner and reliably match the proof.

The individual steps for converting Photoshop corrections into DeviceLink profiles are described in the tutorial manual for CoPrA.

OTHER PROGRAMS

- ZePrA and CoPrA
- DocBees ProfileTagger
- PDF preflighting • ZePrA Flow

21 ZEPRA AND OTHER PROGRAMS

Even for highly advanced and efficiently configured applications like ZePrA, there are still application scenarios where special file treatment or an additional approval step for optimized PDF files make sense. This particularly applies to print providers and printshops who receive PDF data from numerous customers that have been produced in a variety of different ways. The combination of ZePrA with Enfocus Switch and a preflighting solution has proven to be very successful for this kind of application. To make it easier to start creating efficient process workflows, we have developed **ZePrA Flow**, an Enfocus Switch workflow comprising preflighting and color conversion. The following sections contain more information on this subject.
Another attractive supplement to ZePrA is ColorLogic's **DocBees-ProfileTagger**, which performs a specific check on PDF/X data and thereby reveals various pitfalls in data received from external sources.

› ZePrA in combination with CoPrA SP

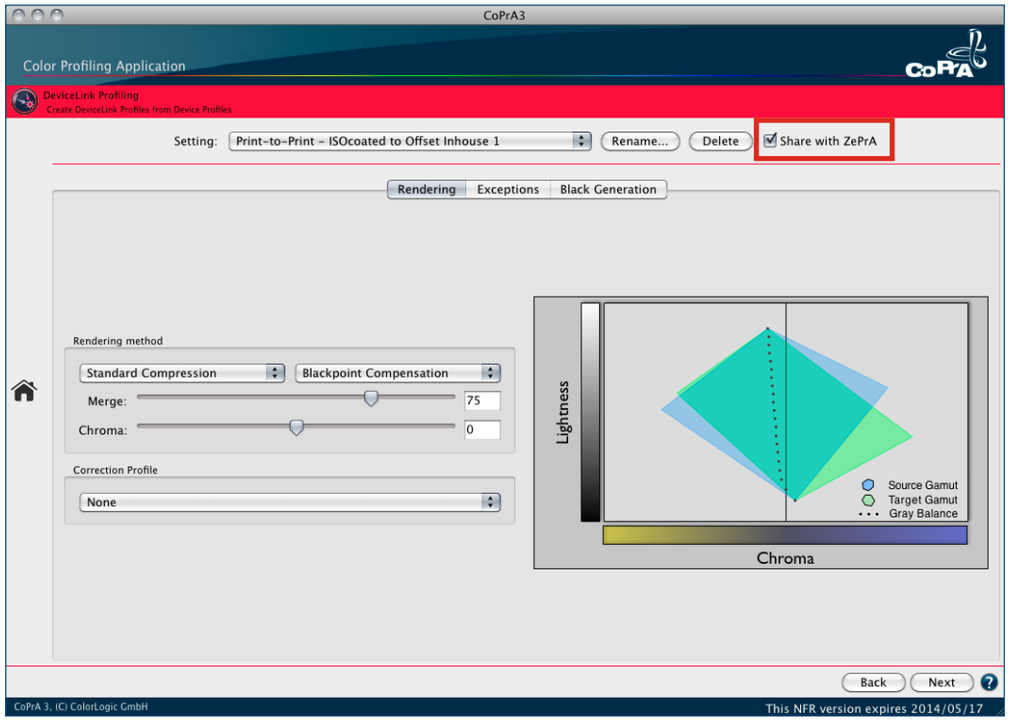
ColorLogic CoPrA is a high-quality DeviceLink and printer profiling solution based on the ICC standard. The software includes all the essential tools and functions that a professional user of ICC profiles needs in order to create high-quality profiles.
CoPrA creates DeviceLink profiles for a wide variety of combinations of color spaces: Gray, RGB, CMYK, Multicolor. The most important applications are CMYK-to-CMYK, RGB-to-CMYK, and CMYK-to-Multicolor.
For DeviceLink generation, CoPrA uses sophisticated presets that take account of individual types of conversion as well as comprehensive settings for generating Black and support the definition of practice-related exceptions.

And this is exactly where one of the great features of ZePrA comes into play.

If you have licensed the SmartLink module in ZePrA L/XL, you can define your own presets with CoPrA SP which ZePrA can then use for calculating DeviceLink profiles "on-the-fly". As soon as you enable the ***Share with ZePrA*** checkbox in CoPrA, this feature becomes available to you immediately.

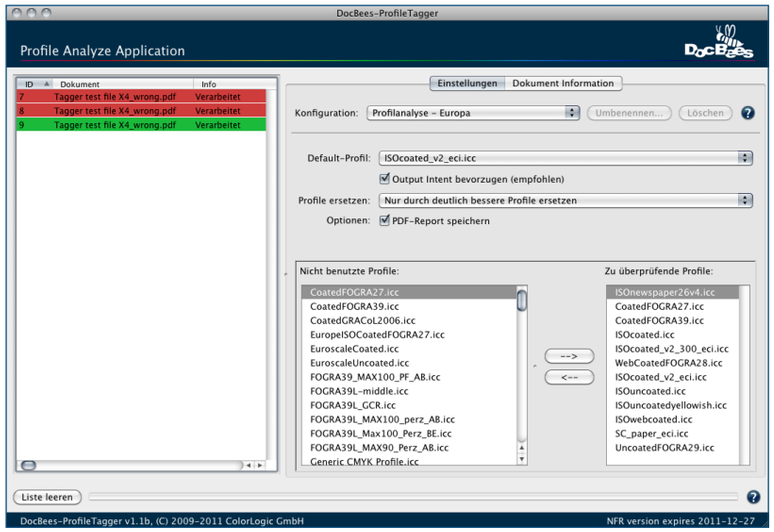
If, in addition to the SmartLink module, you also have the SaveInk module in ZePrA XL, you can use the SaveInk module of CoPrA. This means you can create SaveInk DeviceLink and/or share SaveInk presets with ZePrA.

Note: Since all profiles are serialized, i.e. protected and encrypted, they can only be used with the serial number for which ZePrA is also activated. If you want to use the profiles in other applications as well, then you must purchase a full license for CoPrA. The same applies for all other functions, e.g. editing DeviceLinks.



› Checking and embedding profiles with DocBees-ProfileTagger

Nowadays, almost everything can be converted professionally via ICC profiles and DeviceLink profiles. However, this approach presupposes that the source profile of the file is known.
Unfortunately, it is often the case in practice that this valuable source information is not saved with the data in the form of an ICC device profile. Good advice is hard to come by if this source information is missing, because optimum, printing process-specific and color-accurate data conversion is only possible on the basis of the source information.
In addition, although PDF/X files have an output intent that is intended to reflect the printing process for which the CMYK data were created, many data originators unfortunately simply add it later on, without referring to the objects in the file.



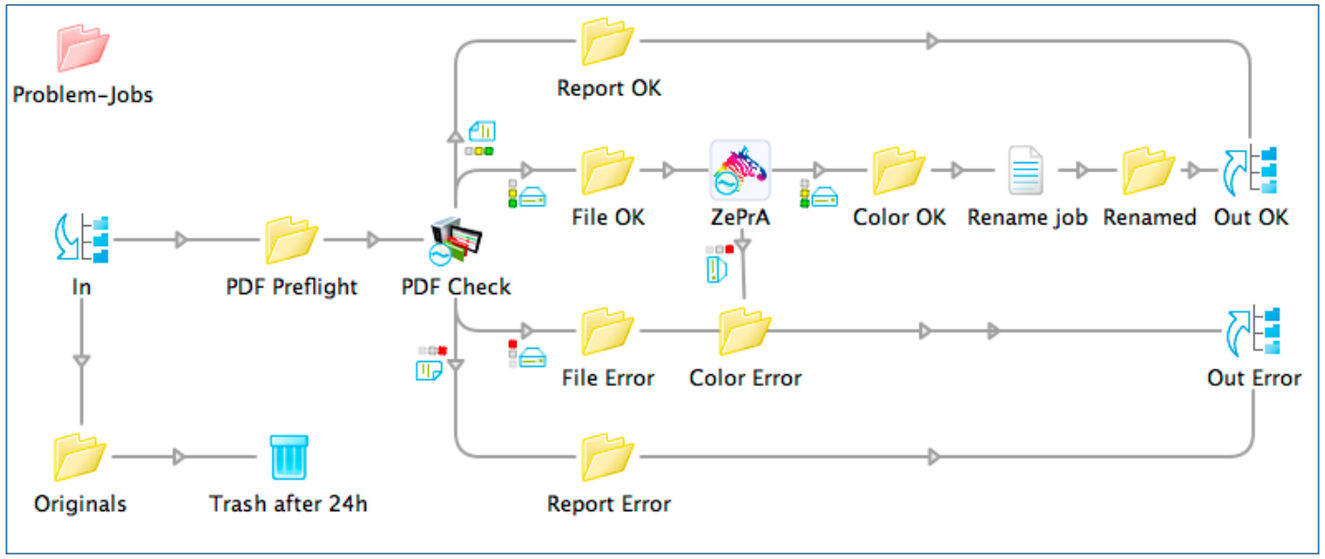
ColorLogic's **DocBees-ProfileTagger** can help in this respect. ProfileTagger analyzes CMYK files and, if desired, determines the source ICC profile that the calculations indicate to be the most suitable and attaches it to the PSD, TIFF or JPEG files or the image objects of the PDF document.

A Report function tells you to what extent which objects match the output intent. This is an important function for judging the quality of data in terms of printing. In conjunction with the ***SmartLink*** function and the consideration of embedded 98 profiles, ZePrA can then perform high-quality color conversion that preserves the color impression desired by the data originator.
Furthermore, DocBees-ProfileTagger can also be integrated in Enfocus Switch for workflow automation. Among other things, this permits automatic renaming of files as well as moving them to and sorting them in other folders for further processing.

› Workflow configuration with ZePrA Flow

Enfocus Switch can be used to automate and standardize production workflows in agencies, publishing houses, prepress houses and print shops. Switch deals with data reception and dispatch, the filtering and sorting of data and automates workflows between programs that it meaningfully interconnects. In Switch, the ZePrA settings can be made via a CLI (Command Line Interface) with the help of a Configurator. To allow this, you need the CLI module for ZePrA, which is an integral part of ZePrA in the Basic version or higher.

ZePrA Flow is an exemplary, preconfigured process workflow that you can test for free or use as a basis for creating your own production workflow. ZePrA Flow maps the interplay of Enfocus Switch, Enfocus PitStop Server and ColorLogic ZePrA.



The flow processes incoming PDF data fully automatically. A general check of the PDF files is first performed using PitStop Server.
A choice of three input folders is available: Coated, Uncoated and Newspaper Data that pass this test are then passed on to the ZePrA color server, which carries out color adaptation and optimization by means of DeviceLink profiles.

If data are stored in one of these folders, then in each case color matching is performed based on ISO Coated v2 data.

- The total area coverage for data in the Coated folder is reduced to 300%.
- Data in the Uncoated folder are converted to ISOuncoated, the tone value increase is balanced and the total area coverage is reduced to 280%.
- Data in the Newspaper folder are converted to ISOnewspaper26v4 and the total area coverage is reduced to 240%.

To be able to test ZePrA Flow you will need the current test or full versions of the following applications:

- Enfocus Switch Core Engine and Configurator Module
- Enfocus PitStop Server
- ColorLogic ZePrA Basic or higher

If you would like to test ZePrA Flow, simply download the flow from http://www.crossroads-world.com/.
Enter ***ZePrA preflight*** in the search bar of the Crossroads page and click on ***Preflight and color conversion using ICC DeviceLink profiles***.

› ZePrA and PDF preflighting

The following points relating to color should be checked by PDF preflighting:

» Number and type of color channels in the PDF file

Depending on the print job, additional spot colors are either necessary or superfluous. In this respect, the task of preflighting is to determine whether the number and naming of the color channels match the print job.
If the PDF preflight indicates unwanted spot colors, you can remedy the problem through high-quality spot color conversion in ZePrA, provided you have the Spot Color module. If you have not licensed the Spot Color module, you can still convert spot colors using the alternate color space in ZePrA. This way, you obtain the same results as a preflight program would generate. Read more about this in the chapter on spot color conversion to get an idea of the potential quality you can achieve with the Spot Color module.

After successfully processing the job, you can check the spot colors in the PDF file in ZePrA by opening the Job Report for the processed file via the ***Job Properties*** menu entry. This is particularly useful if you are not using an additional preflighting program.

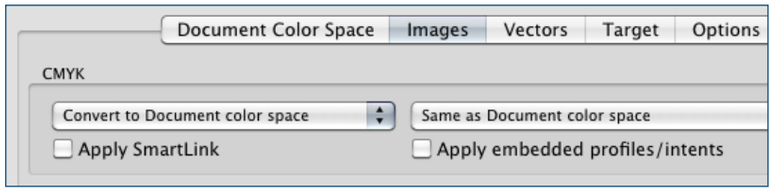
» Check for RGB and/or CMYK objects with embedded profiles

For fully automatic workflows in print shops without additional approval by the customer, we recommend that you only accept pure CMYK PDF files from the customer that are tagged with correctly embedded profiles. If the files are not pure CMYK PDF files, we advise you to optimize the data by means of ZePrA and then send them to the customer, at least in a CMYK LowRes version, for renewed approval. Please note that the standard queues ***Normalize and convert colors to new output condition*** created via the Auto Setup wizard with use of the SmartLink function optimize all RGB, CMYK and Gray objects in a PDF file via DeviceLink profiles and give consideration to any embedded profiles during conversion. Alternatively, you can duplicate a standard queue and use it to change the way embedded profiles are handled (see next section).

After successfully processing the job, you can inspect the profiles embedded in the PDF file in ZePrA by opening the Job Report for the processed file via the Show Job Properties menu entry.

» Ignoring CMYK objects with embedded profiles

In some workflows, especially in printshops, it is standard practice to remove the profiles in PDF files containing CMYK objects (images and vectors) having embedded profiles. The reason for this is the suspicion that the profiles were added incorrectly and would lead to problems in subsequent ICC conversion. This procedure is the normal setting for Auto Setup queues in ZePrA if the SmartLink feature is not licensed. If the SmartLink feature is licensed, embedded profiles are taken into consideration. No damage is to be expected in the process, thanks to the DeviceLink profile conversions that preserve the separations as well as the primary and secondary colors. If you want an Auto Setup queue for normalizing and color conversion or for SaveInk applications to ignore CMYK objects with embedded profiles, or if you do not wish to use the SmartLink function, please make the settings shown in the screenshot under CMYK in the ***Configurations/Images/Vectors*** tab. These settings ensure that no embedded CMYK profiles are used.
Instead, ***Same as Document color space*** is set and conversion performed using the profiles set in the ***Document Color Space*** tab.



» Check of the maximum total amount of color

For printshops, it is important that the data delivery specifications and the order confirmation clearly indicate the maximum total amount of color expected for the type of paper to be printed, and also the printing standard for which the data supplier should ideally prepare the printing data.

When printing on uncoated paper or newsprint, any marked transgression of the maximum total amount of color is a sign that the image data were not optimized for the respective printing standard. This is usually a case of image data for coated paper for offset printing.

When optimizing PDF files by means of standard queues in ZePrA, you now have the following alternatives:

- Limitation of the maximum total amount of color without changing the color appearance: ***Optimize Total Area Coverage*** option in the Auto Setup wizard.
- Conversion of the data from coated paper to uncoated newspaper, incl. Optimization of color appearance: ***Normalize and convert colors to new output condition*** option in the Auto Setup wizard.

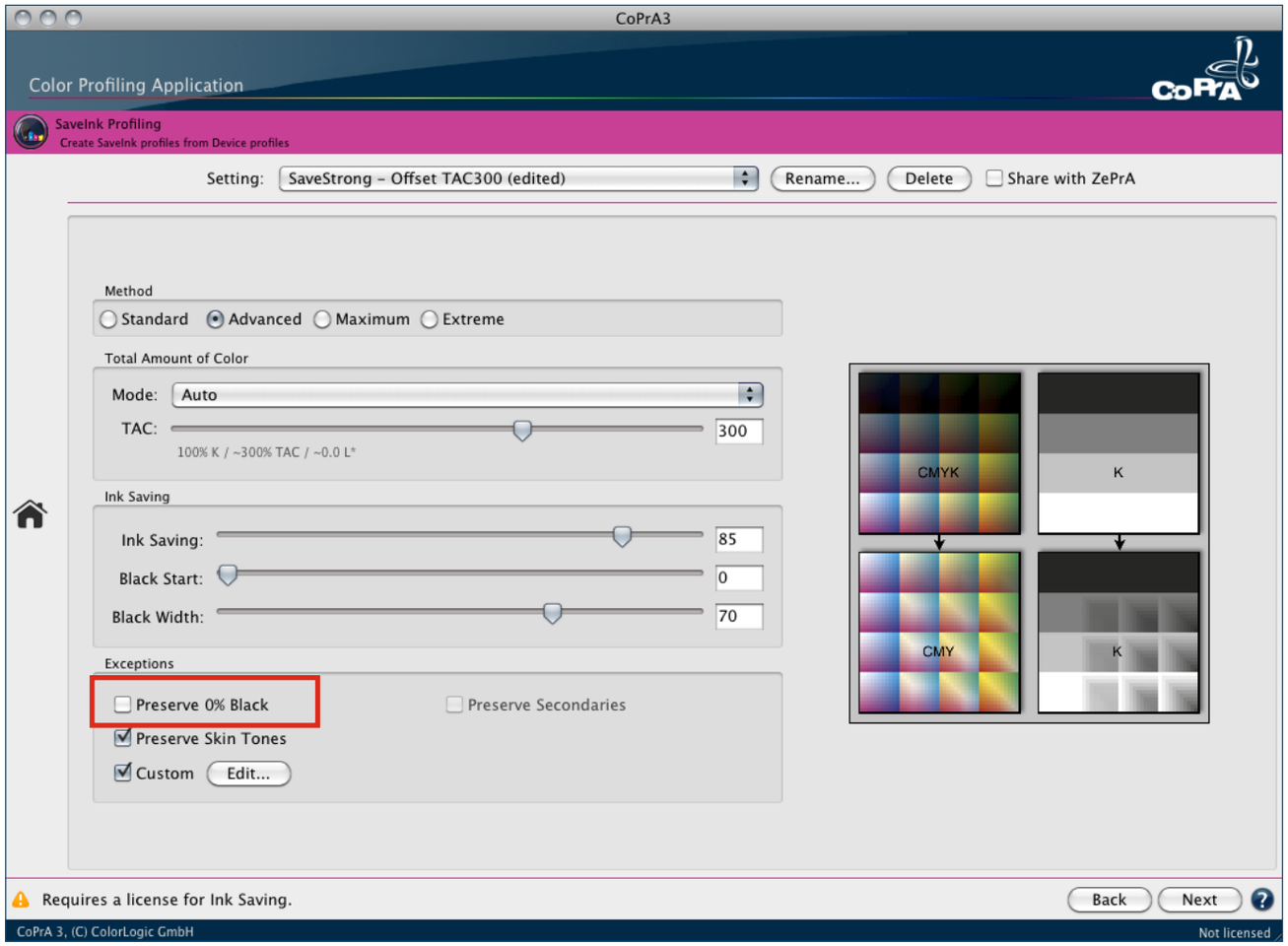
It makes sense to view the results of optimization on a softproof. If the result is better, you could, for example, offer the customer this conversion as chargeable data optimization, including renewed approval.

» Check for overprinting CMY objects without black

Checking for overprinting CMY objects without black is quite a rare special case. With a view to maximum color stability in production printing, rapid drying and ink savings, it makes sense for the printshop to use the ColorLogic SaveInk queues for all jobs, as far as possible.

However, if the rare case arises that an overprinting object in the PDF file is composed of all CMY colors without black, the color impression resulting from the overprinting object and the background may change following color optimization. The cause of the problem lies in the way that the overprinting of CMYK on CMYK is handled in the PDF standard.
Only if there is no color in a channel in an overprinting object can you completely "see" the color of the same channel in the underlying object. As soon as there is just a minimal amount of color in a channel in the overprinting object, only the color component of the upper (overprinting) object is displayed and put onto the paper.

Since SaveInk replaces CMY components with black, it may well happen that areas previously containing no black are then composed with black, meaning that the overprinting properties may change. If this occurs and you still want to apply the SaveInk function, you have to calculate a new SaveInk profile that preserves colors containing 0% black by enabling the setting ***Preserve 0% Black***. You can find this special option in the SaveInk module of the CoPrA profiling software.



DEVICELINK SETS

Possible applications for DeviceLink profile sets

22 COLORLOGIC DEVICELINK PROFILE SETS

For many production workflows, ColorLogic provides preconfigured sets of standard DeviceLink profiles that can be used to convert colors, limit the total amount of color and save ink. The composition of the DeviceLink sets for various printing processes and applications can be seen in the DLS document which you will find in the Download area of http://www.colorlogic.de/help/. The ColorLogic sets used comply with the official ICC standard for DeviceLink profiles.

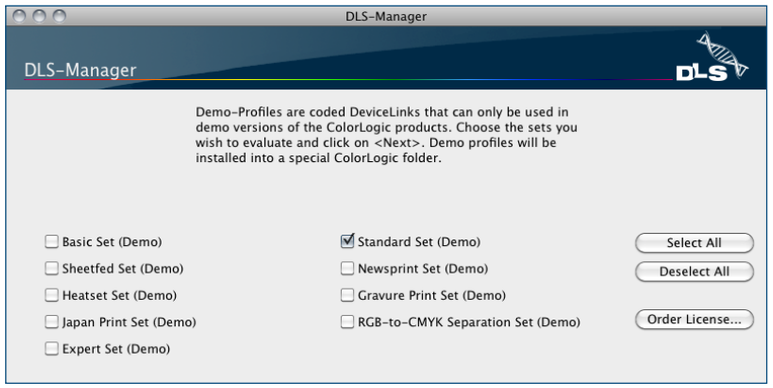
› Installing demo DeviceLink profile sets

The demo version of ZePrA contains over 330 profiles, ordered according to different printing processes and divided according to the following fields of application:

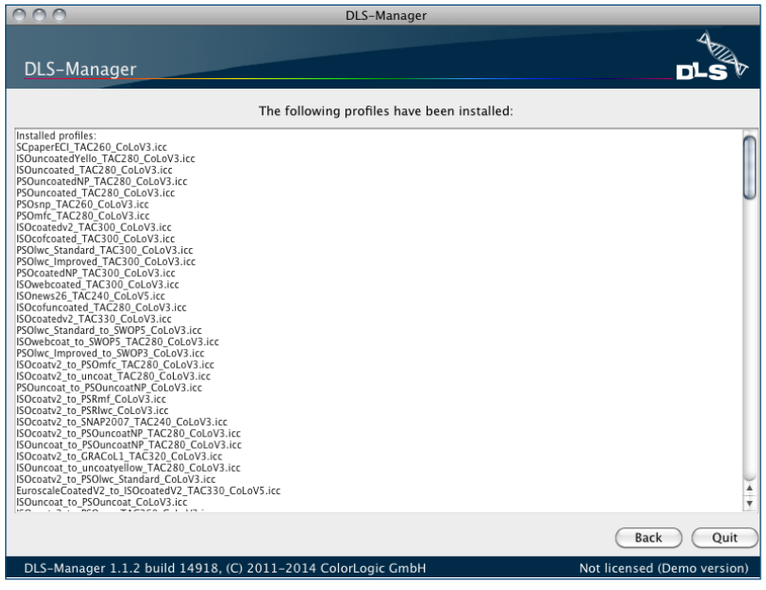
- Basic Set
- Standard Set
- Sheetfed Set
- Newsprint Set
- Heatset Set
- Gravure Print Set
- Japan Print Set
- RGB-to-CMYK Separation Set
- Expert Set (all profiles)

You can perform various conversions using these sets:

- CMYK-to-CMYK color space conversion
- Limitation of the maximum total amount of color
- Ink saving
- CMYK-to-Gray color space conversion
- CMYK-to-CMYK conversion including ink saving
- RGB-to-CMYK separation



In ZePrA, all demo DeviceLink profiles are stored in a separate, well-organized ***DLS-Manager***. This is automatically created when ZePrA is installed. Via the ***DLS-Manager***, you can decide which profile packages you would like to install and test. Of course, it is also possible to install all profiles.



As soon as you have loaded your demo license (see also Installing ZePrA/Requesting and installing a demo license), a ***DLS-Manager*** dialog will open automatically, in which you can select the DeviceLink sets you require. The ***Expert Set*** contains all available profiles.

- Once you have selected your DeviceLink sets, click ***Next*** to see an overview of all the profiles to be installed.
- Click ***Install*** to install the selected profiles.
- Click ***Quit*** to close the dialog.

Note: You can load your demo license via ***Help/Registration*** or directly via ***Tools/Install DeviceLink profiles***. When you upgrade, the ZePrA Installer creates a new ***Demo profiles*** folder.

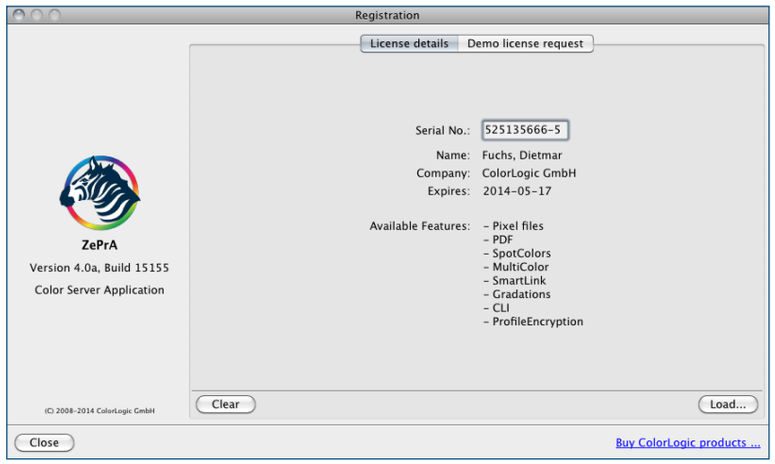
The DeviceLink profiles of the ***Demo*** version are stored in a special folder. If a profile's name starts with Demo-, it is a coded version that only works under a ZePrA demo license. The Demo profiles are no longer available as soon as the full version of ZePrA is enabled.

› Installing the DeviceLink sets

When ZePrA is installed, a DLS-Manager is created which you can call up via the Tools menu entry ***Install DeviceLink Profiles***. The ***DLS-Manager*** facilitates the selection, installation and maintenance of the official DeviceLink sets.

You dealer will provide you with a license key for the sets you require. You load your license key via the ***DLS-Manager***. The profiles you have ordered are automatically installed in the correct place in your system and are immediately available for use in ZePrA.

Profile updates, e.g. new or improved profiles, are also very easy to perform via the ***DLS-Manager***.



› Profile sets of international printing standards

The Standard DeviceLink profiles of the CoLoV3/V4/V5 series are based on the ECI, IFRA, Japan and GRACoL/SWOP profiles as of July 2011. Detailed information on the applications of the ECI profiles can be found in the MedienStandard Druck document from the Bundesverband Druck und Medien at www.bvdm.org as well as in the documentation regarding the individual profiles in the Download area of www.eci.org.
Information about GRACoL, SWOP and SNAP profiles can be found on the web pages www.gracol.org, www.swop.org and www.snapquality.com. Information about color profiles and characterization data for Japan are available in the color management area of the Ghent Working Group at www.gwg.org and in the registry of the ICC www.color.org.

DeviceLink profiles ending in ***CoLoV3/V4/V5*** contain special, internal identifiers that permit automatic setting of PDF/X color information in ZePrA via the ***Auto Setup wizard*** (see the chapter Configuration – PDF).

› Overview of DeviceLink sets

DeviceLink sets are available for the following international printing standards:

ISOcoated v2	Offset printing coated paper	FOGRA39
ISOcoated	Offset printing coated (current FOGRA 39)	FOGRA27 (old standard)
ISOwebcoated	Web offset printing LWC paper (current FOGRA 45 & 46)	FOGRA28 (old standard)
ISOuncoated	Offset printing uncoated (current FOGRA47)	FOGRA29 (old standard)
ISOuncoatedyellowish	Offset printing uncoated yellowish	FOGRA30
ISOcofcoated	Continuous printing coated	FOGRA31
ISOcofuncoated	Continuous printing uncoated	FOGRA32
SCpaperECI	Web offset printing SC paper	FOGRA40
PSOmfc	Web offset printing MFC paper	FOGRA41
PSOsnp	Web offset printing stand. newsprint	FOGRA42
PSOcoatedNP	Offset printing coated, FM with 28% dot gain	FOGRA43
PSOuncoatedNP	Offset printing uncoated, FM with 28% dot gain	FOGRA44
ISOnewspaper26	Newspaper printing, 26% dot gain	IFRA26
PSO LWC Improved	Web offset printing improved LWC paper	FOGRA45
PSO LWC Standard	Web offset standard – LWC paper	FOGRA46
PSOuncoated	Offset printing uncoated	FOGRA47
PSR LWC Plus V2	ECI gravure printing LWC Plus paper	
PSR LWC Standard V2	ECI gravure printing LWC Standard paper	
PSR SC Plus V2	ECI gravure printing SC Plus paper	
PSR SC Standard V2	ECI gravure printing SC Standard paper	
PSRhwc	ECI gravure printing HWC paper (old standard)	
PSRlwc	ECI gravure printing LWC paper (old standard)	
PSRsc	ECI gravure printing SC paper (old standard)	
PSRmf	ECI gravure printing MF paper	
EuroscaleCoated _v2	Offset printing Europe coated paper	
GRACoL1	US offset/gravure printing grade1 (coated)	CGATS TR006
SWOP3	US offset/gravure printing grade3 (LWC white)	CGATS TR003
SWOP5	US offset/gravure printing grade5 (LWC yellowish)	CGATS TR005
SNAP2007	US newspaper printing	CGATS TR007
JapanColor2001Coated	Japan offset printing coated	JC200103
JapanColor2001UncoatedJapan	Offset printing, uncoated	JC200104
JapanColor2003WebCoated	Japan web offset printing LWC	JCW2003
JapanColorWebcoated_Ad	Japan web offset printing LWC (old standard)	
JapanColor2002Newspaper	Japan newspaper printing	JCN2002

› DeviceLink profiles for color space conversion

Profiles for color space conversion convert the data from one printing standard to another. These DeviceLink sets are based on ECI profiles for printing according to ISO 12647-2/PSO, or on the IDEAlliance GRACoL and SWOP profiles for printing according to G7 Guidelines. Conversion profiles whose name includes _TACxxx_ optimally preserve the color composition of the source data (separation preservation) and merely limit the maximum total amount of color (TAC) in accordance with the target color space. Profiles for color space conversion are structured according to the following system:
SourceColorSpace_to_TargetColorSpace_TACxxx_CoLoV3.icc

Example: ***ISOcoatv2_to_PSOuncoat_TAC280_CoLoV3.icc*** converts printing data from the ISOcoatedv2 color space for coated paper to PSOuncoated for uncoated papers, limiting the maximum total amount of color to 280% in the process.

› DeviceLink profiles for limiting the total amount of color

These profiles limit the total amount of color for a specific printing standard, without performing color conversion.

Profiles for limiting the total amount of color are structured according to the following system:
Printing standard_TACxxx_CoLoV3.icc

Example: ***ISOcoatedV2_TAC300_CoLoV3.icc*** limits the maximum total amount of color to 300% for offset printing on coated paper. Profiles are also available for limiting the total amount of color to 240% for newspaper printing.

› DeviceLink profiles for converting CMYK data to Gray

When converting CMYK data to Gray using ICC device profiles, 100% black in the CMYK data is not converted to 100% black in the Gray color space. Depending on the source and target profiles, it is instead only converted to 96%, for example. To prevent this screening, e.g. of black text, we offer CMYK-to-Gray DeviceLink profiles for all supported printing standards.
These DeviceLink profiles ensure that 100% black is also preserved as 100% black in the Gray color space.

The nomenclature of these profiles is as follows:
SourceColorSpace_to_TargetColorSpace_Gray_CoLoV3.icc

› DeviceLink profiles for saving ink

The ColorLogic Standard profile sets for sheet-fed offset, web offset and newspaper printing each contain DeviceLink profiles for saving ink, the quality of which compares well with that of far more expensive solutions.
ColorLogic DeviceLink profiles for saving ink are based on advanced technology for increasing the black component of the printing data, while simultaneously reducing the CMY component. The algorithms used for this purpose enable far better data optimization compared to ICC-based color conversion with strong GCR.
Compared to ICC-based conversion with GCR, DeviceLink profiles display, for example, much softer transitions from tertiary colors to pure colors and offer the possibility of preserving colors with a high black component. The advantages on the press include improved printability on difficult papers, shorter makeready times, greater stability over the length of the run and ink savings (faster drying, thus higher press speeds and greater stack height on sheet-fed presses).

ColorLogic DeviceLink profiles for saving just a small amount of ink retain the original color composition and only very slightly increase the black component, while reducing the CMY components at the same time. They additionally limit the maximum total amount of color, very much like the DeviceLink profiles for limiting the maximum total amount of color. Printshops that have successfully applied DeviceLink profiles to limit the maximum total amount of color will usually have no difficulty switching to ColorLogic DeviceLink profiles for saving small or moderate amounts of ink.

Profiles for saving larger amounts of ink call for more extensive compliance with the standardization specifications as well as a regular check of the dot gains and solid ink densities for black.

Depending on application, ColorLogic provides SaveInk profiles with three different intensities for all relevant color standards:

- **PrintingStandard__SaveNeutralxxx_CoLoV5.icc** moderately increases the black component in the neutral color areas. This is ideal for printshops that are looking to make a quick start on saving ink and first want to gather some practical experience. These profiles primarily serve to stabilize the printing process and are less suitable for saving ink.
- **PrintingStandard__SaveStrongxxx_CoLoV5.icc** greatly increases the black component and targets printshops that have their printing process completely under control in accordance with the applicable standards and have already used SaveNeutral successfully.
- **PrintingStandard__SaveMaxxxx_CoLoV5.icc** maximizes the black component and additionally reduces the maximum total amount of color to approx. 20% less than the industry standard. This calls for very experienced printers and an excellent mastery of standardization.

› DeviceLink profiles for conversion with ink saving

If you have already gained positive experience with saving ink in your printshop and are sent printing data that do not exactly comply with your printing standard, a combination of color space conversion and ink saving offers the best possible color quality.

With its ***CoLoV3*** version profiles, ColorLogic provides profiles that combine the two steps in a single profile. The intensity of the increase in the black component is similar to that of "SaveStrong" profiles for saving ink without color conversion.

The nomenclature of these profiles is as follows:
SourceColorSpace_to_TargetColorSpace_Savexxx_CoLoV3.icc

Example: ***ISOcoatv2_to_PSOuncoat_Save280_CoLoV3.icc*** converts from coated to uncoated paper, saves ink in the process and limits the maximum total amount of color to 280%.

› RGB-to-CMYK separation profile

For the separation of RGB data, the advantages of DeviceLink profiles compared with ICC device profiles are that they produce very smooth and highly saturated separations and they preserve the purity of primary and secondary colors. Consequently, for the most important international printing standards, we offer separation profiles based on sRGB, AdobeRGB(1998) and eciRGB V2. These profiles are identified by the ending CoLoV3. We pay special attention to preserving the purity of primary colors since this leads to harmonious separation of similar colors. Preservation of the purity of primary colors was dispensed with in cases where this is not entirely possible. These profiles differ in that they are identified by the ending CoLoV4.

The nomenclature of these profiles is as follows:
SourceColorSpace_to_TargetColorSpace_TACxxx_CoLoV3.icc