ColorLogic Guide for HP Indigo Press Users

White Paper

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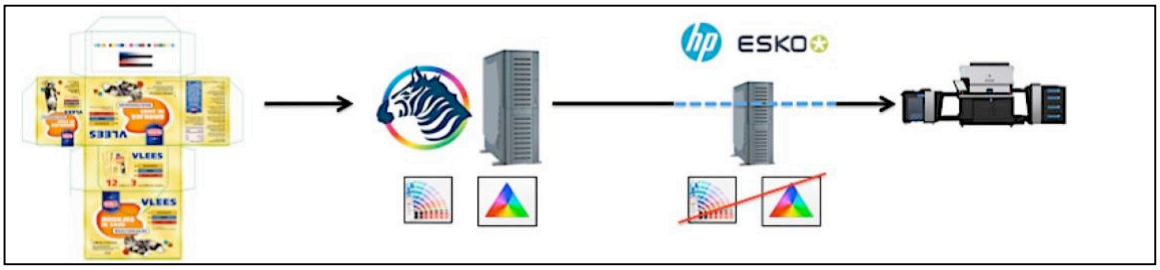
ColorLogic Overview

ZePrA XXL and **CoPrA XXL** are state-of-the-art color management solutions from **ColorLogic GmbH** that can extend the color processing capabilities of the HP Label and Packaging workflow. This paper will discuss how these applications can be implemented in the workflow. This is not intended as an exhaustive instructional guide, and expert professional implementation and training are strongly recommended. For detailed information, please visit: https://onlinehelp.colorlogic.de/en/
Quick-start guides may be found at: https://onlinehelp.colorlogic.de/en/quick-start-guide-main/ and introductory videos on ColorLogic's YouTube channel at: https://www.youtube.com/user/CrossXColorInc. While this paper covers the creation of a simple workflow for a single Indigo press, the instructions can be easily adapted to multiple-press use.

ZePrA Integration in the HP Print Stream



ZePrA is an advanced color server that converts image files and PDFs from one color space to another to optimize print quality on any substrate as well as accurately match reference colors. ZePrA XXL offers advanced spot color processing and multicolor output for producing color-managed separations with extended inks such as HP Indichrome Orange, Green, and Violet. Whereas the HP/Esko Color Pilot is dedicated to serving HP Indigo presses, ZePrA can export files into any workflow, and is thus ideal for mixed digital/ conventional production environments and prepress departments tasked with providing press-ready files to a wide range of printing operations.

ZePrA Key Features:

- Automatic, dynamic "smart" DeviceLink creation for ensuring maximum output quality without manual corrections
- Advanced spot color conversions with spectral tint and overprint calculation
- Iterative matching of spot and process colors
- Proofing tools, including CMY, CMYK, and CMYK+ OGV Indichrome input, iterative recalibration, and proof verification

- Support of industry standards such as ICC profiles, CxF, ISO 20654, and PDF 2.0 (X-6) for maximum compatibility with third party applications.
- Can process RGB, gray, CMY, CMYK, CMYK+N in image files or PDFs
- Advanced PDF tools and flattening engine
- Fast operation: Multithreaded processing through multiple queues
- Native 64-bit mode for both PC and Macintosh.
- Compatible with automation tools such as Enfocus Switch and Esko Automation Engine
- Compatible with any prepress workflow

CoPrA Key Features:

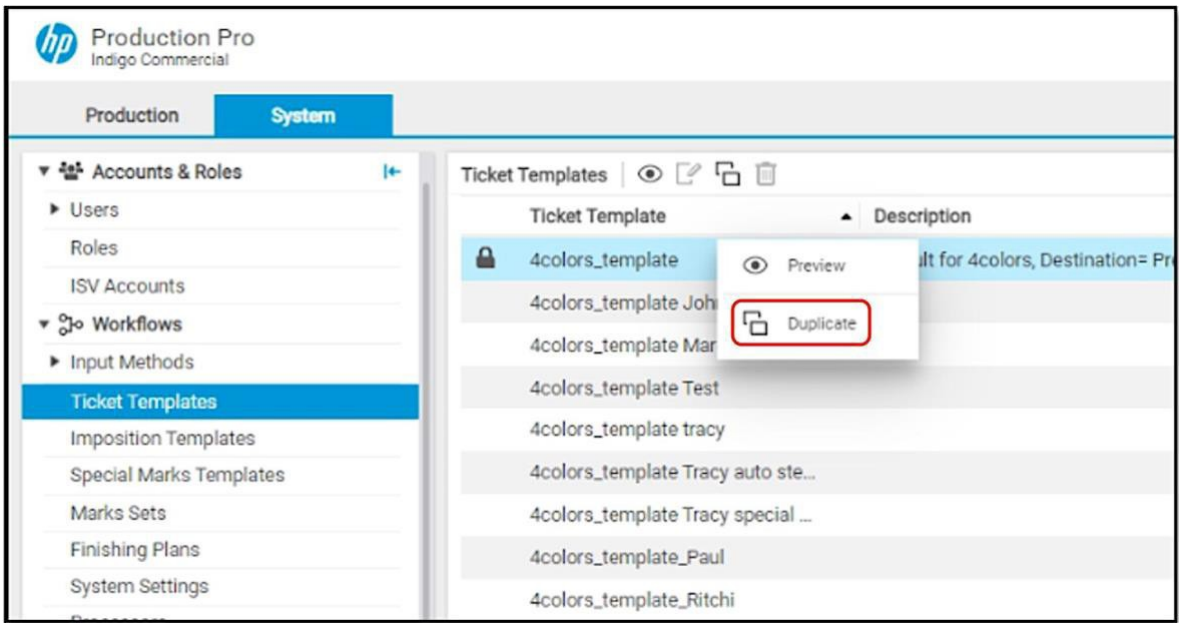
- Best-of-class output and DeviceLink profile creation
- Profiling and profile updating with small charts using spectral prediction technology
- Gray, CMY, CMYK, and multicolor profiles of CMYK plus extra channels using O, G, and V or any special inks
- DeviceLink profiles with automatic or manual separation settings and color purity exceptions
- Cleaner reproduction of RGB and other out-of-gamut colors, smoother gradations and blends
- Sharing of settings with ZePrA for SmartLink dynamic DeviceLink profile creation

I. Preparation of the HP Indigo DFE

The following instructions are adapted from HP Document No. TS1ES-00004, *Setting up Pass-Through Workflows for Use with Third-Party Color Management Software* and *Processes*, available to HP customers at https://www.printos.com/knowledge-zone/#/view/asset/62344 (Login required). These instructions apply to HP packaging and commercial (cut sheet) presses employing Commercial Production Pro DFE and package and label presses employing the HP-Esko Color Pilot. Users of older label presses lacking Production Pro may skip to the instructions for the Esko DFE below.

Settings in Commercial Production Pro:

1. Create a pass-through ticket template as shown below. Duplicate an existing ticket template. This preserves all existing settings defined in the ticket template.

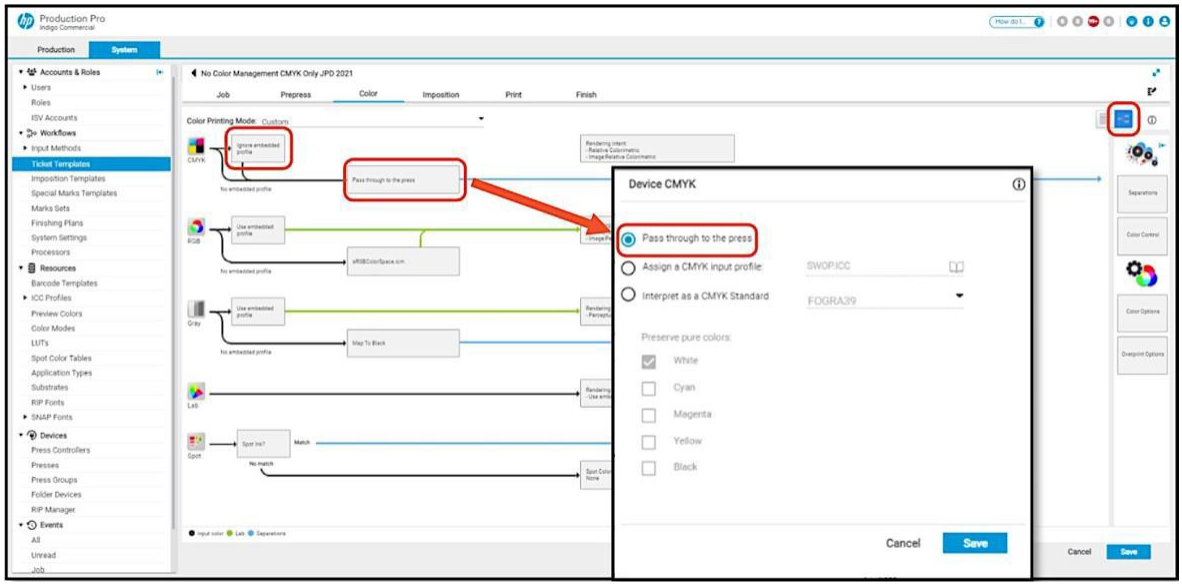


2. Name the new ticket template, identifying it as **Pass-Through** or **No Color Management**.

3. Edit the ticket template:

   a. Set options in the **Color** tab using the **Advanced** view icon at the top right.

   b. Under the **CMYK** workflow, set the input options to **Ignore embedded profile** and **Pass through to the press**. This prevents any color transformation of a job's CMYK content.



4. Set any additional ticket template options needed and save the changes. This workflow can now be used for all jobs that are color managed by a third-party software or system.

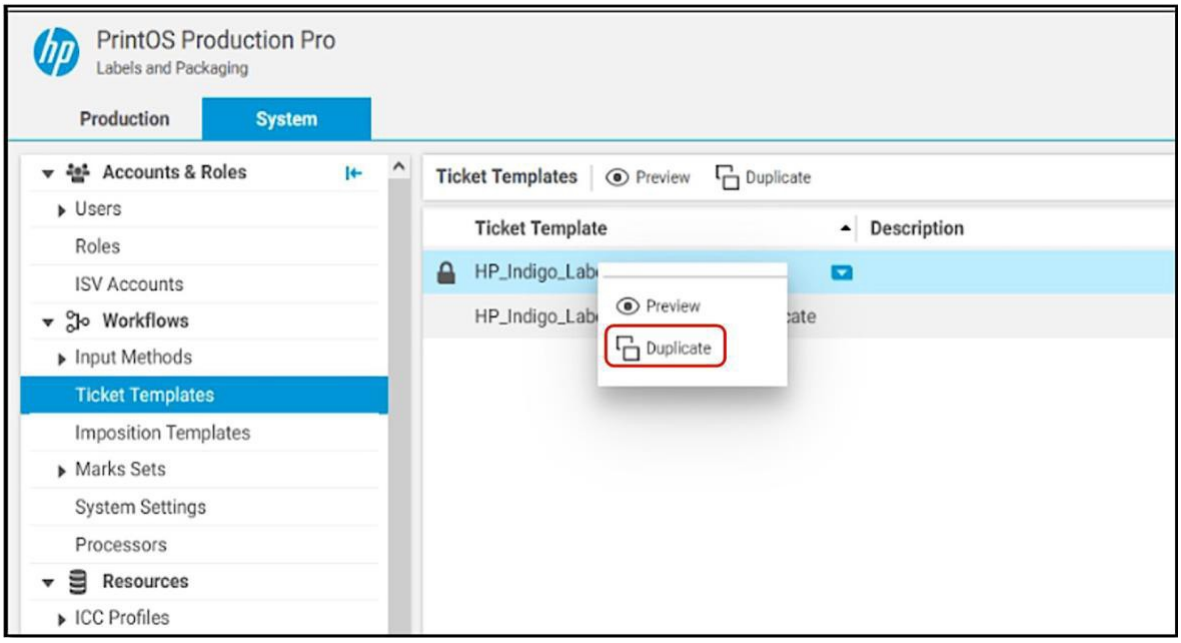
5. Submit a job to the HP DFE using the new pass-through ticket template.

6. Verify color results.

Settings in Production Pro for Labels and Packaging:

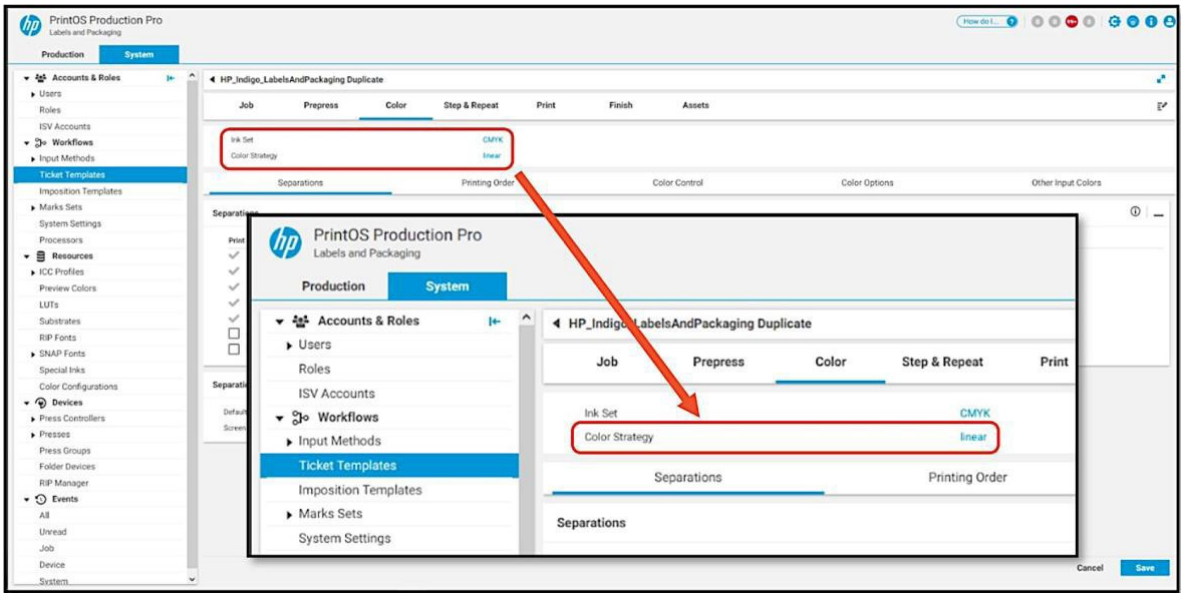
1. Create a pass-through ticket template as described below.

Duplicate an existing ticket template. This preserves all existing settings defined in the ticket template.

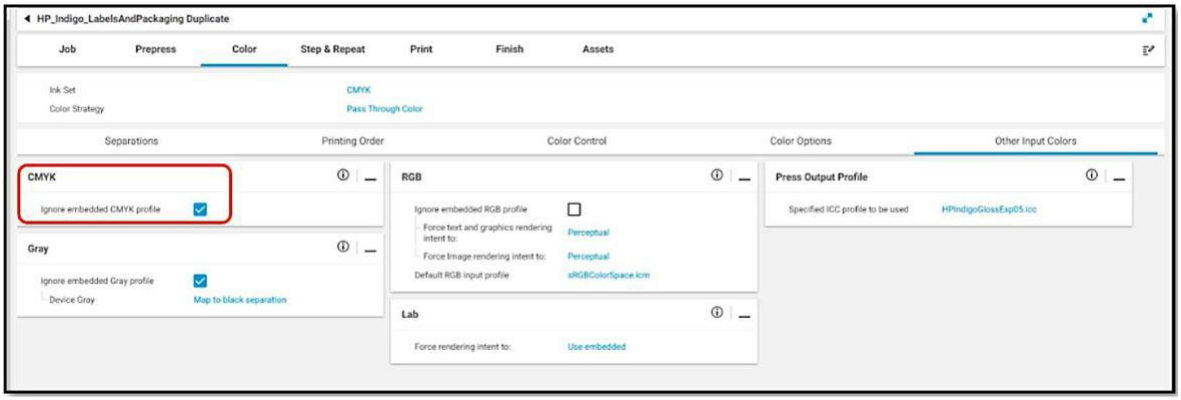


2. Name the new ticket template, identifying it as **Pass-Through** or **No Color Management:**

3. Edit the ticket template: Under the **Color** tab, set the **Color Strategy** to **linear.** This is the only setting needed to create a pass-through workflow.



4. Under the **Other Input Colors** tab, verify that the **Ignore Embedded CMYK Profile Check Box** is selected:



5. Set any additional ticket template options needed and save the changes.
   a. This workflow can now be used for all jobs that are color managed by third-party software or systems.

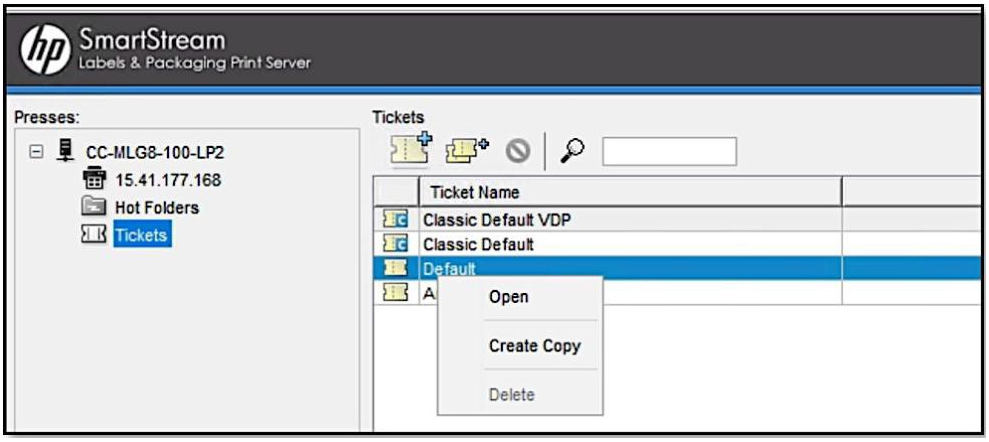
6. Submit a job to the HP DFE using the new pass-through ticket template.

7. Verify color results.

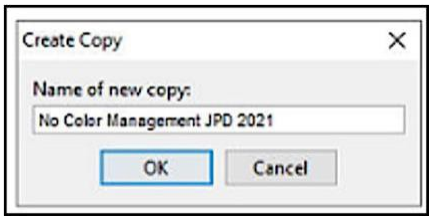
Settings In Package & Labeling Esko DFE:

1. Create a pass-through ticket template as described below.

Duplicate an existing ticket template. This preserves all existing settings defined in the ticket template.



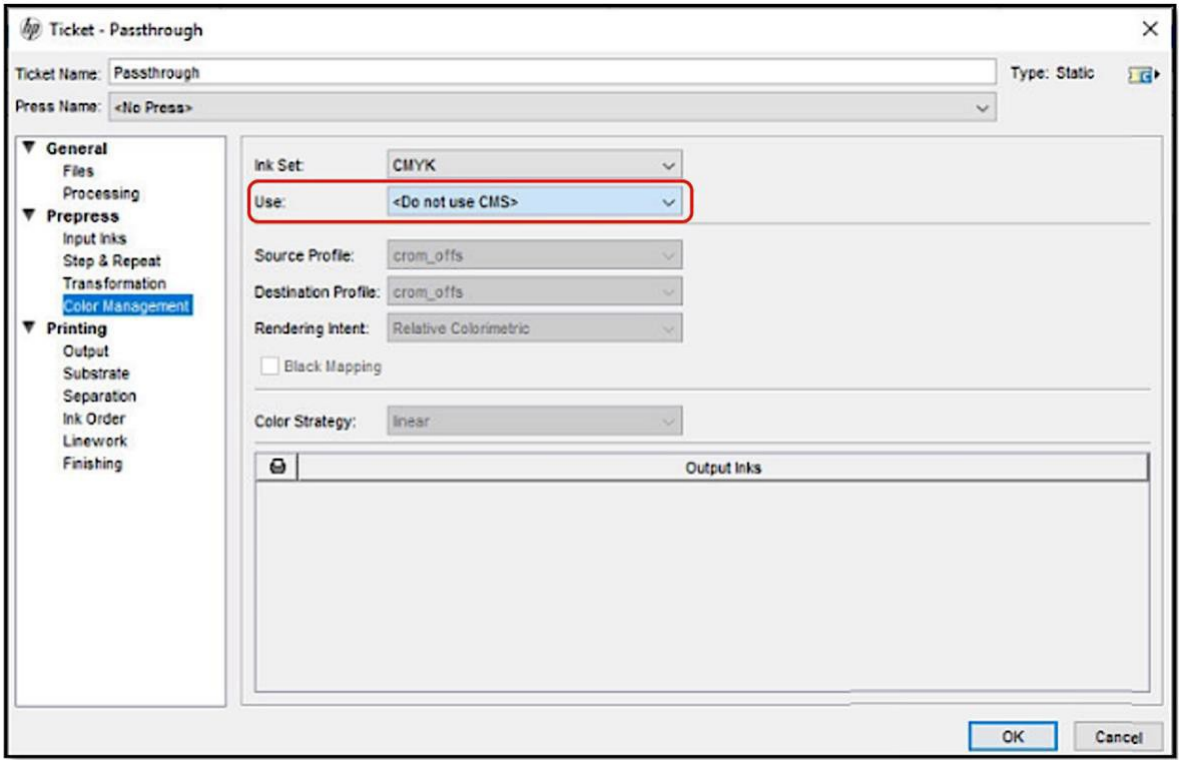
2. Name the new ticket template, identifying it as **Pass-Through** or **No Color Management**:



3. Edit the ticket template:

   a. In the side tab, go to **Prepress > Color Management.**

   b. From the **Use** dropdown list, select **<Do not use CMS>.** This turns off color management.



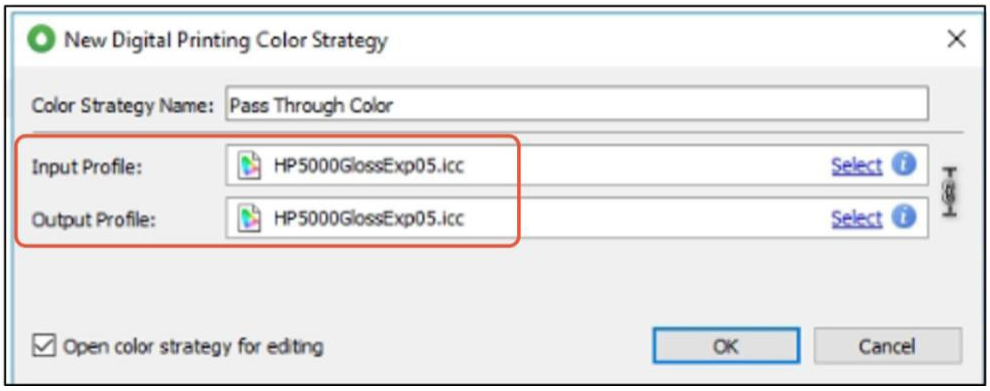
4. Set any additional ticket template options needed and save the changes. This workflow can now be used for all jobs that are color managed by ZePrA.

5. Submit a job to the HP DFE using the new pass-through ticket template.

6. Verify color results.

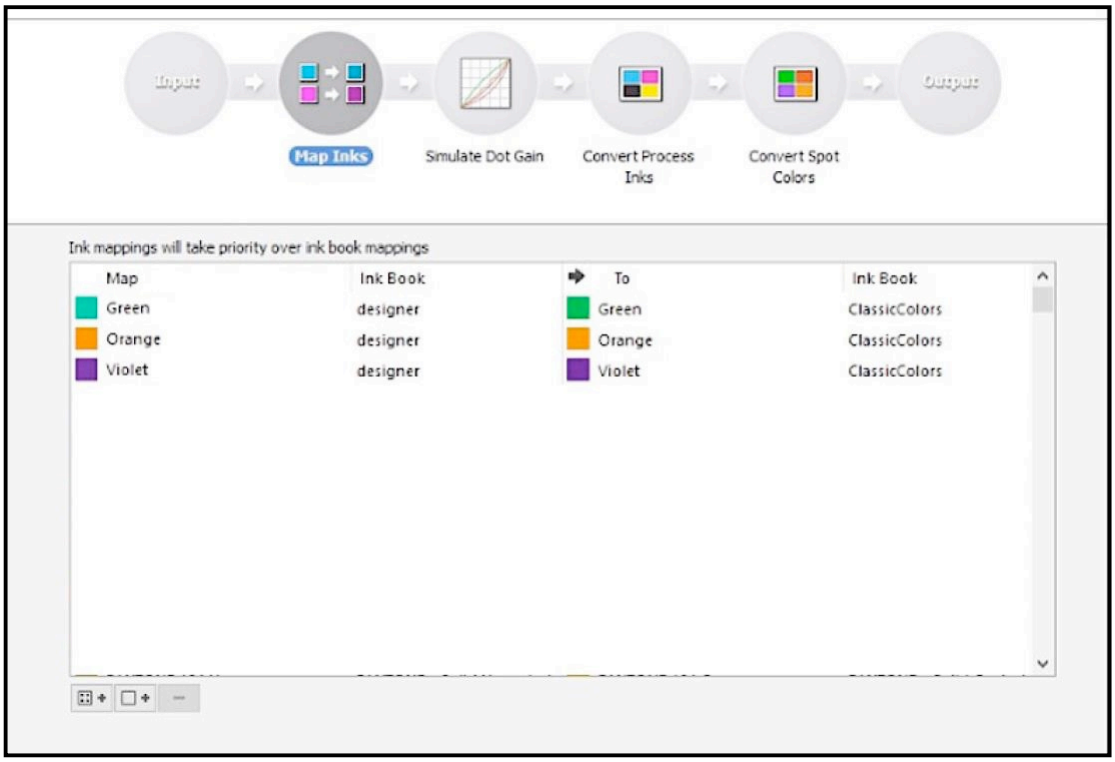
To create a pass-through color strategy in Esko Color Pilot:

1. Set **Input Profile** and **Output Profile** to be the same:



Note: The sole requirement for this "null" transformation is that the input and output profiles be identical, and one of the HP default press profiles will suffice.

2. Add any gamut-expanding spot channels such as orange, green, or violet to the **Designer ink book** and map to corresponding Indichrome "**Classic Colors**" (press inks):



This step assures that all extra process inks are not mapped to other library colors, causing an inadvertent spot color lookup and conversion. This is also the place to add any special Indichrome spot inks, such as grays or metallics, that are to be printed directly without conversion.

II. General Workflow Preparation

Once color profiles are disabled in HP Production Pro and special Indichrome ink names are mapped to the Press's ink configuration in Color Pilot, ZePrA can replace all color conversion and spot color-matching functions in the HP Packaging and Label Server. (See HP documentation for further details.)

Input File Requirements and RecommendationsImage files (TIFF, JPEG, PSD, PSB)

ZePrA can process PDFs and image files (TIFF, JPEG, PSD, PSB) using a wide range of source and destination color spaces, such as RGB, CMY, CMYK, grayscale, and multicolor, including Indichrome CMYKOGV.

Layered image files: While ZePrA provides several options for the processing of layered image files, the only absolute assurance against unwanted color changes is to flatten and inspect images before processing in ZePrA.

PDF:

Preflighting: Error-checking or "preflighting" of PDFs is a recommended step before color conversions in ZePrA or any DFE. Several excellent applications exist for this purpose, including Callas PDF Toolbox, Enfocus PitStop Pro, Adobe Acrobat Pro, Hybrid PACKZ, and others. PDF-X3 or higher is the recommended file output type.

"Normalizing" or "Refinement": These and similar terms are used variously in press workflows such as Hybrid Cloudflow, Esko, Kodak Prinergy, Agfa Apogee, and others to signify a range of operations performed on PDFs to render them press-ready as well as to embed instructions for downstream processes such as stepping and repeating, cutting, and other post-print operations. ZePrA does not remove or alter this information.

Note: If color conversion is included in this operation, it is recommended that this be disabled, and the function transferred to ZePrA to ensure that conversions are consistently handled and the highest output quality achieved.

Special note for Esko workflow users: In order to maximize ZePrA's flexibility and avoid errors caused by incompatibility of proprietary XMP metadata embedded in the Esko Normalized PDF, it is recommended that the newer Esko *PDF+* export format be employed, thus assuring correct description of color channels.

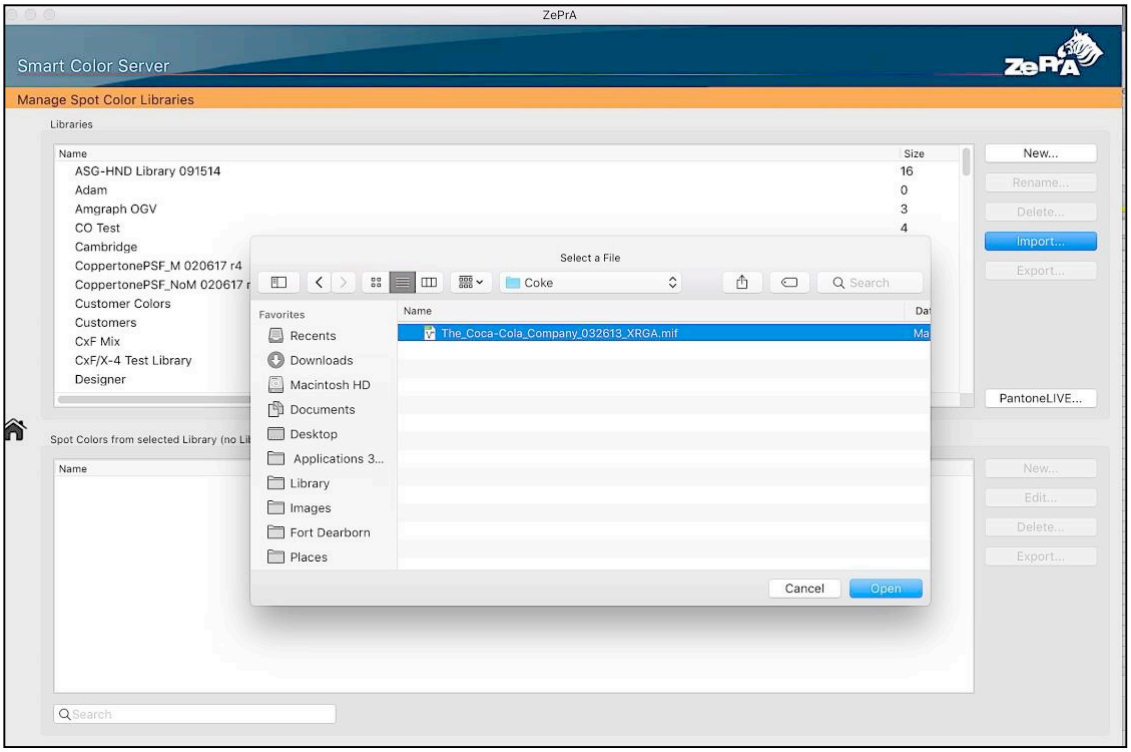
Preparing ZePrA for Indigo Print Jobs

1. **Import any custom ICC profiles created for use with your Indigo press for access by ZePrA**. New profiles can be made in the bundled CoPrA SP application. (Please note that Esko "4x4" Indichrome profiles are not directly usable in ZePrA but may be rebuilt as ICC profiles. Please consult a ColorLogic application specialist for details.)

The default directories are:

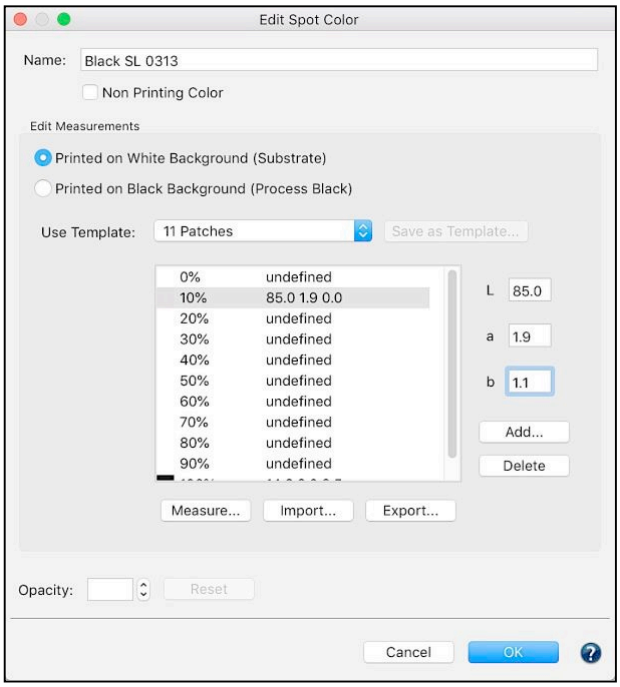
In Windows: C:\Windows\System32\spool\drivers\color.
In Mac OS: /Library/ColorSync or ~/Library/ColorSync.

2. **Import from Color Pilot any spot color libraries you wish to preserve.** These can be exported as **CxF** files and imported in ZePrA's Spot Color Library Window (**Start** menu: **Spot Color Libraries**):

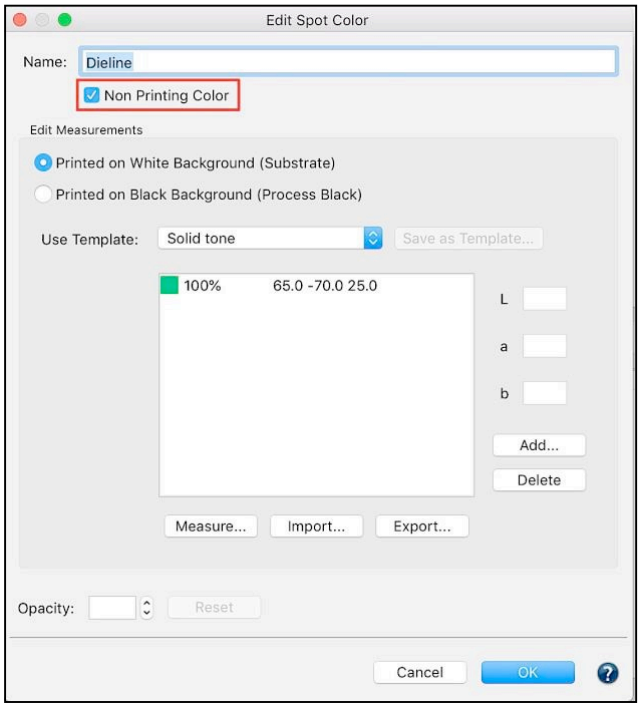


ZePrA can import spot colors in a wide variety of formats: CxF, CGATS, MIF, named ICC profile, Adobe Color Book (ACO), and ColorLogic configuration file (CCF). Be sure to add a custom library for any special Indichrome ink colors used (for example, white or gray).

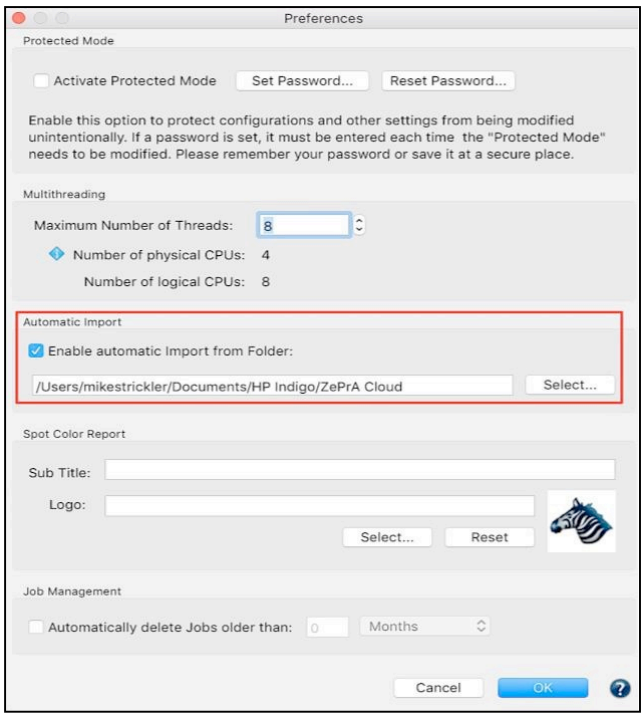
Spot colors may also be modified or added by spectral measurement or by entering Lab values inthe spaces provided. ZePrA is unusual in being able to assign colorimetric tint values (where available or measurable) as printed on both substrate and black ink to aid in the calculation of spot tints, gradations, and overprints:



Be sure to designate any marks, cut paths, embossing, spot varnish, or other “technical”spot channels as nonprinting:



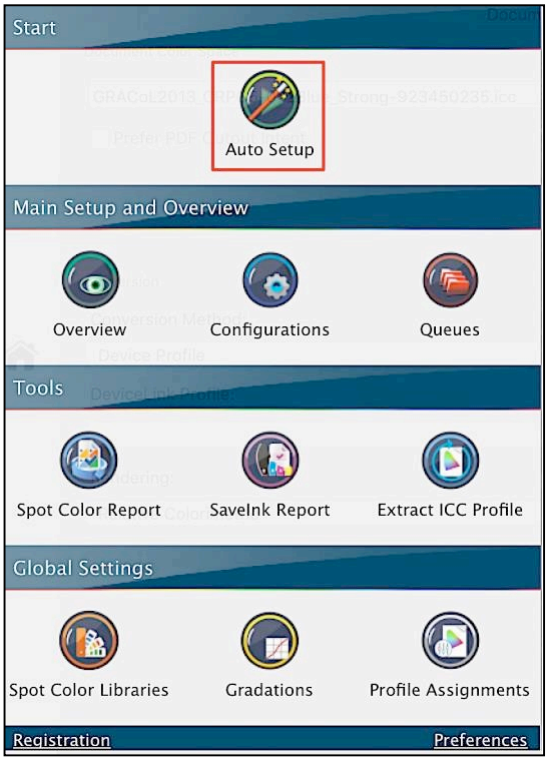
3. In **Preferences**, choose a ZePrA auto-import folder for synchronizing assets and settings with CoPrA and other ZePrA servers:



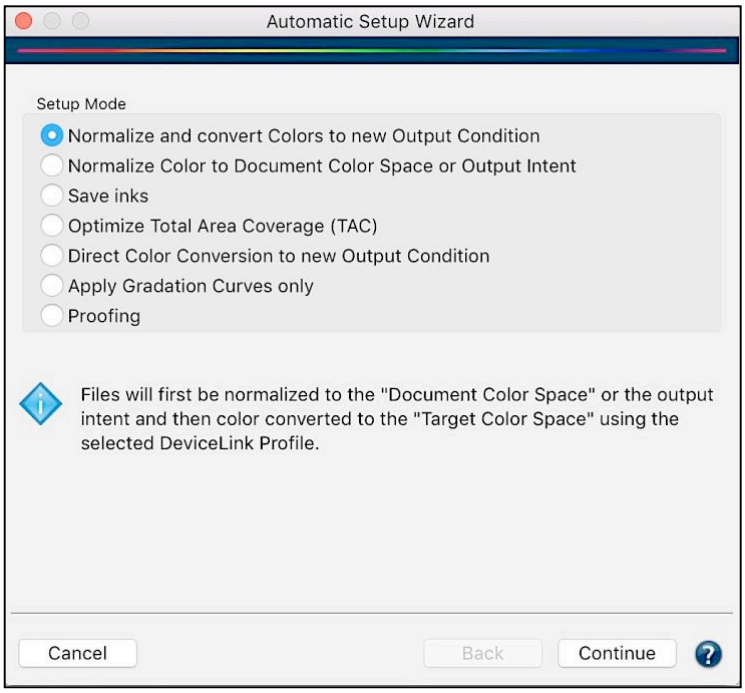
III. Building a ZePrA Workflow

ZePrA provides a convenient and relatively foolproof way to build a processing configuration and associated queue with the **Auto Setup wizard.**

1. From the **Start** menu select **Auto Setup:**

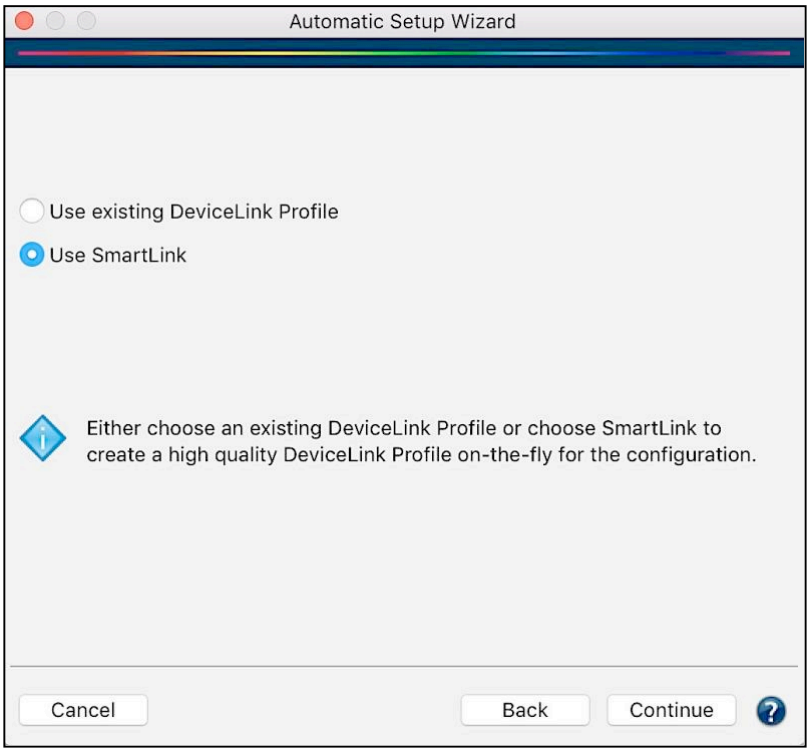


2. In the second screen select a workflow template. **Normalize and Convert to New Output Condition** is a traditional prepress workflow that converts all process color objects to the document space before final conversion to the target space. This provides the most predictable results when transparent spot color objects must be flattened and blended. Alternatively, when colorful RGB images are to be printed in hi-fi color using Indichrome special inks, **Direct Conversion to New Output Condition** is preferred.



3. Click **Continue.**

4. Select **SmartLink.** This enables automatic calculation of DeviceLink profiles as needed, on the fly, to assure optimal results.



5. Click **Continue.**

6. **Choose the color management settings for the workflow.** Note the following:

   Document Color Space: The document profile designates the assumed color space of a PDF. It is usually also the assumed profile for all objects within the PDF. It is normally a CMYK profile.

   Target Color Space: The document and all its objects will be converted to the target space.

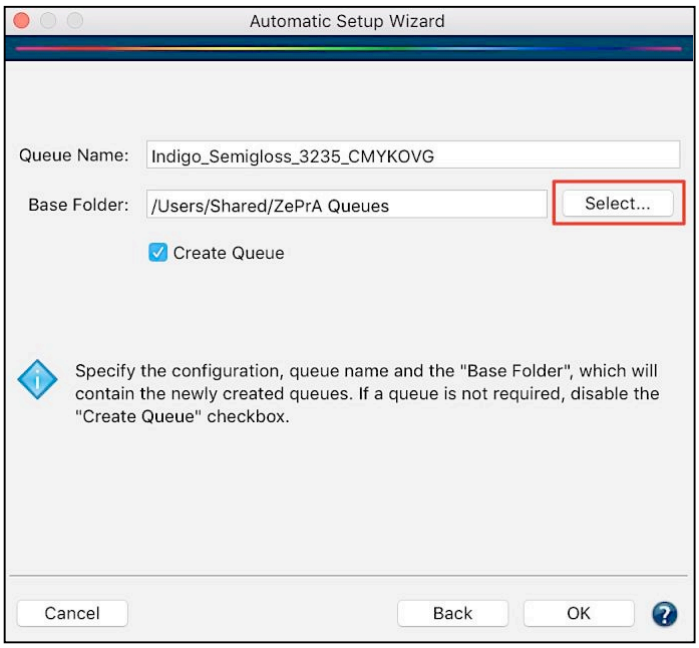
   Note: Profile output channel names should align with standard Indigo process ink names: Cyan, Magenta, Yellow, Black, Orange, Green, and Violet in order to assure automatic and trouble-free processing in the HP DFE. For advice on creating ICC press profiles please consult a ColorLogic application specialist.

   Prefer PDF Output Intent is suitable for PDF-X workflows, where an output intent is applied during PDF preflighting. This setting may override the **Document Color Space**.

   Rendering Intent: ColorLogic offers seven additional rendering intents for use with SmartLink. **Standard Compression** is an advanced perceptual intent that is a good choice for general printing.

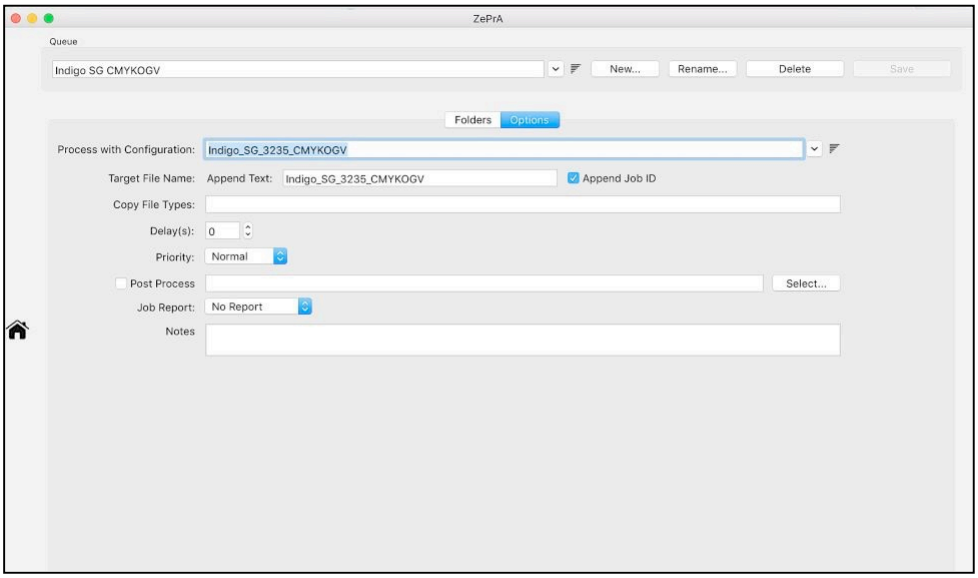
   SmartLink Method: This automatically sets the color generation scheme (black and multicolor, and total area coverage. **Digital Printing-Toner** uses an aggressive GCR and automatically generated color exceptions.

7. **Create the processing queue.** Name the queue and select a directory for the processing folders. Click **OK.**



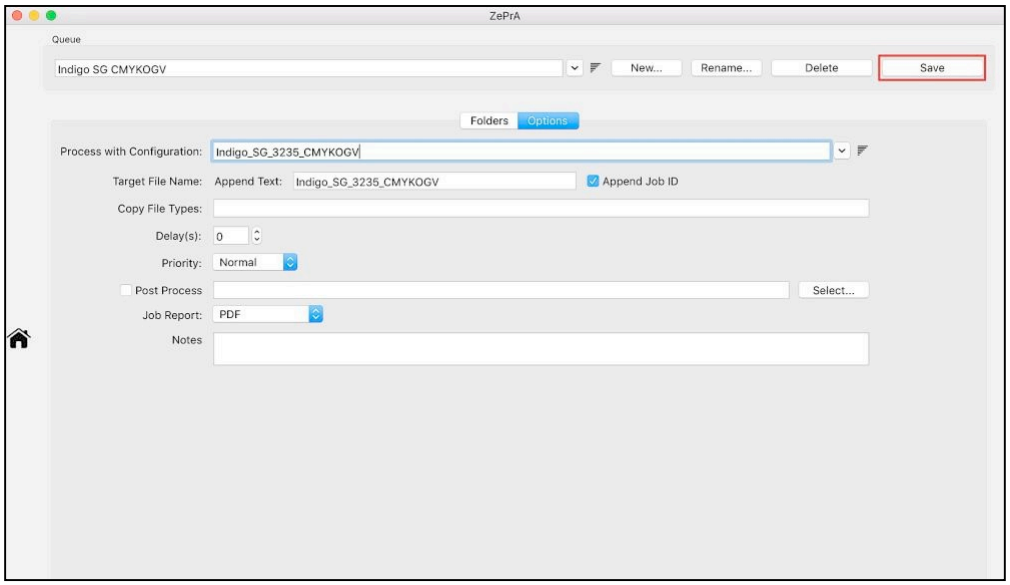
8. **(Optional) Create a customized processing queue**. This is recommended if any special actions are planned, such as postprocessing, profile updating, and reporting.

   a. In the navigation pane (**Home** button), select **Queues** to access the configuration window. Click on the **New** button. Uncheck the **Automatic Setup** box, name the queue, and click **OK.**



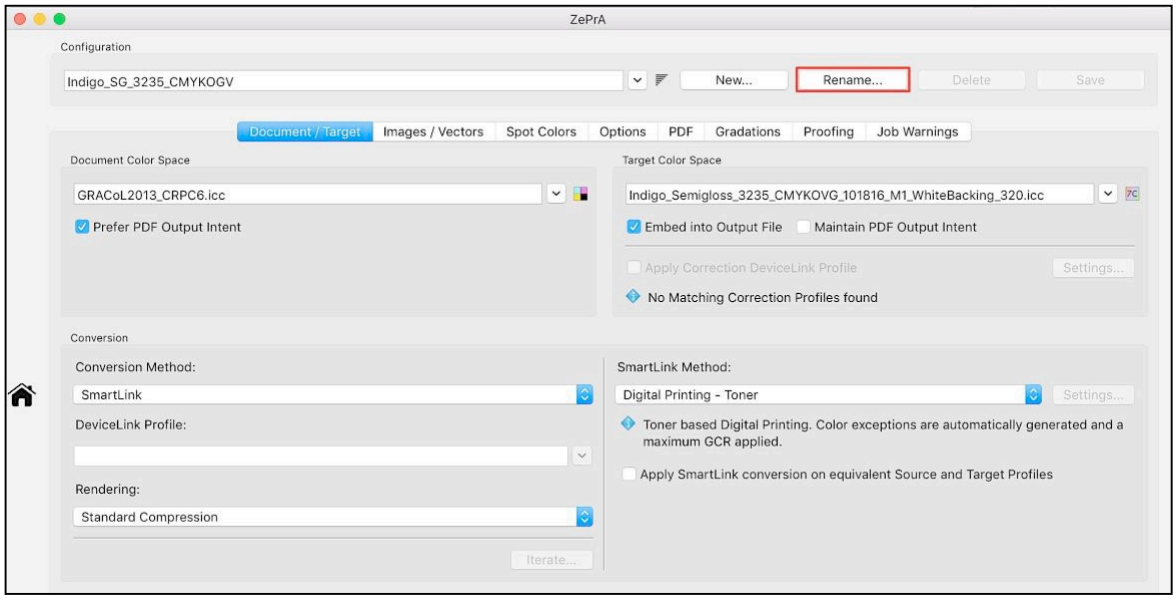
   b. Click on **Folders** and use the Select button to create new directories or choose existing ones. Choose/create **Input** and **Output** folders, and optionally **Originals and Errors** folders, and a folder for **Reports**.

   c. Click on **Options**. Choose the processing configuration just created. Here you can append a descriptive tag to the output file's name and designate another application for postprocessing. Click **Save.**



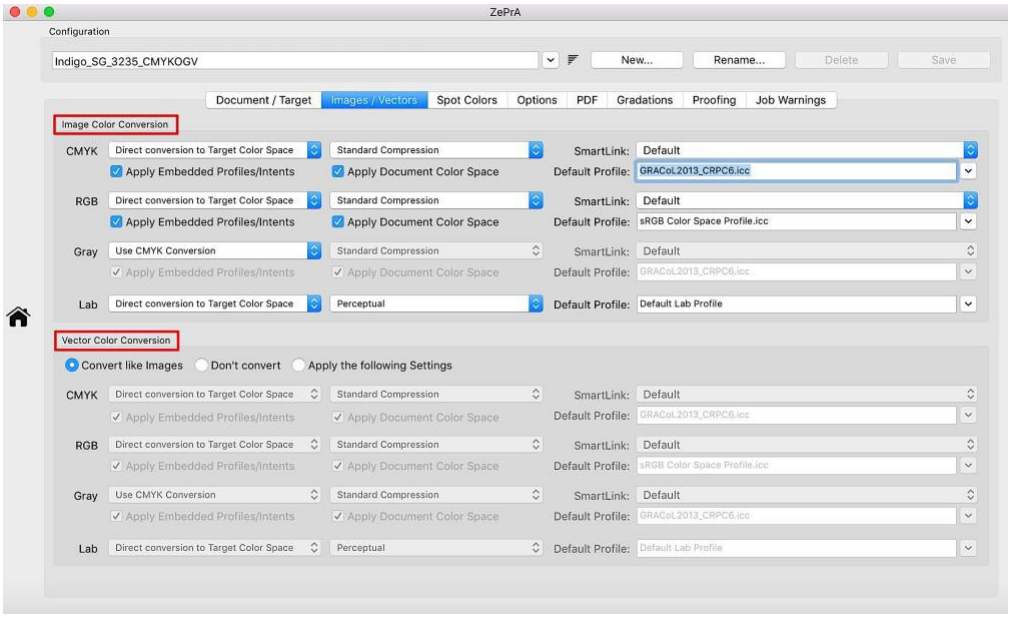
For modifying a configuration:

In the **Start** menu choose **Configurations**. Select an existing Indigo configuration for editing. Check the settings that were automatically filled in by Auto Setup and edit where desired. Because the configuration name is by default appended to the processed file name, the user may wish to shorten it here. (The file name extension may be edited further in the **Queues** dialog accessed from the Navigation pane.)



Note on embedding profiles as output intent (Target Color Space): This is normally recommended, as it facilitates further automatic color processing of the converted file in ZePrA. However, *multicolor* (e.g., CMYK+N channels) intents are not readable by many third-party applications and may in some cases cause processing difficulties. At the present time, this includes crashes in Adobe Acrobat. In time, with the adoption of PDF 2.0 (including PDF/X-6 n-color spaces), this will no longer occur.

Click on the Images/Vectors tab:



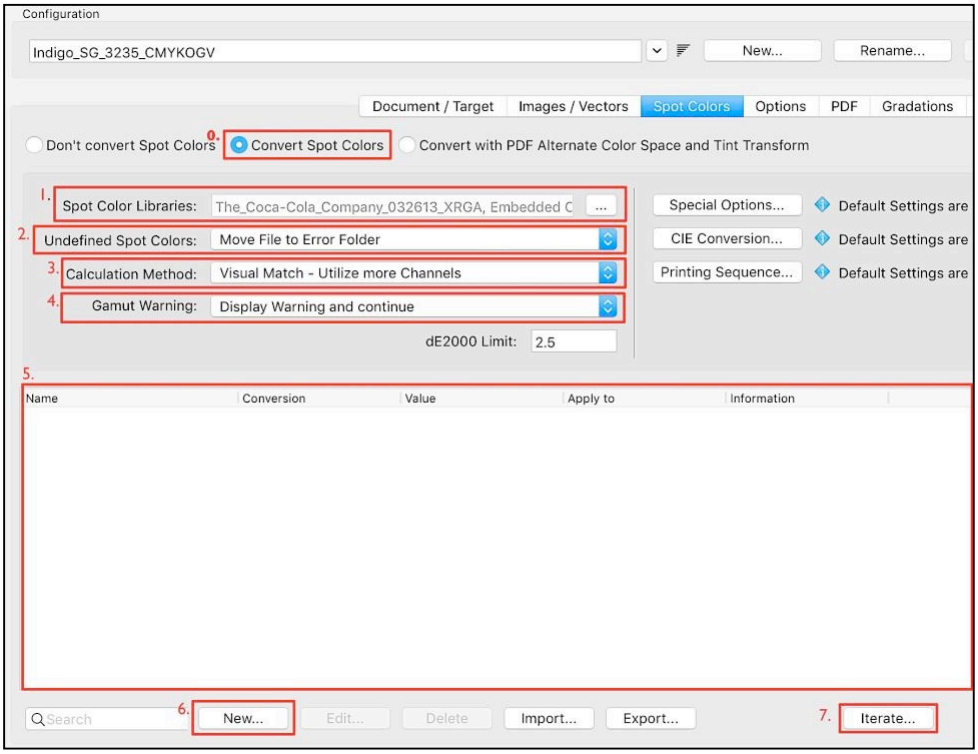
This screen allows specification of separate conversion strategies for vector objects (including type) and images. Because PDFs have both a document space, with its own associated ICC profile or output intent, and vector and image objects whose color identity must be separately considered, these settings are both necessary for PDF and somewhat complicated.

It is strongly recommended that all other settings in this dialog automatically made by Auto Setup not be changed except in consultation with a ColorLogic application specialist.

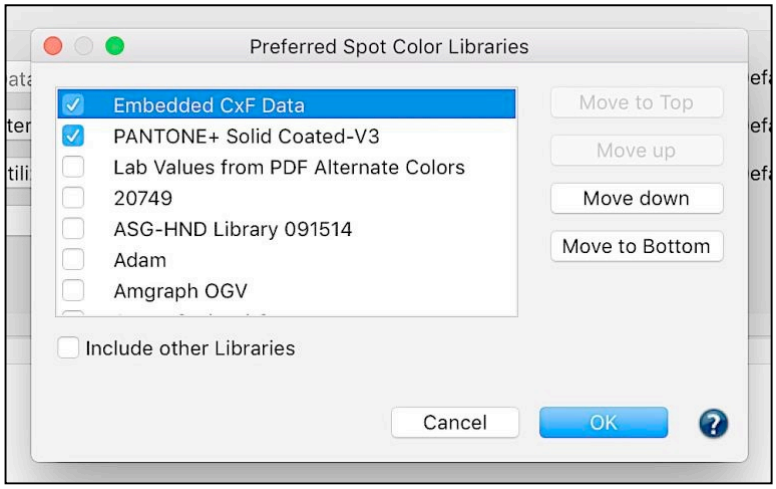
IV. Spot Color Handling in ZePrA

Digital label and package printing normally requires conversion of spot colors to printer process colors. To begin, click on the **Spot Colors** tab in the selected **Configuration**.

To activate the spot color conversion options select **Convert Spot Colors** (Step 0 below).



1. **Spot Color Libraries:** Click on the settings button (three dots) to open the following box:



Select the color libraries you wish to be available to this configuration. Set the search order by moving their names with the **Move buttons** on the right. This prevents unintended spot color interpretations where colors of the same name, but different colorimetric value are found in more than one library.

Checking the **Include Other Libraries** box will preserve the search order while making all installed libraries available. This setting may cause unintended spot colors to be used and is best left unchecked in most workflows.

Choosing **Embedded CxF Data** will search a PDF for embedded CxF/X-4 spot color definitions, a recently adopted method of resolving ambiguous color names as well as embedding enhanced color information such as spectral tint and opacity data.

Note: Checking the **Lab values from PDF Alternate Colors** box will substitute colorimetric values associated with spot colors in a PDF by Adobe authoring applications. These values may or may not agree with a customer's expectations. **It is always preferred to enter spot colors directly in the Spot Color Libraries window or use embedded CxF measurement data, where available.**

1. **Undefined Spot Colors:** This sets the preference for treatment of missing or misnamedcolors. The setting **Move to Error Folder** assures that the job will not be processed andwill be flagged for further attention.

2. **Calculation Method:** This setting determines the balance between accuracy and number of output channels, or inks, which can in turn affect printing speeds and click charges. For packaging and label work the **Visual Match** setting gives excellent accuracy and printability and is ideal in many cases.

3. **Gamut Warning:** This provides the option of setting an accuracy threshold for flagging or stopping jobs that contain out-of-gamut spot colors.

4. **Spot Color Editing window:** This dialog allows users to override automatic spot color processing for specific colors when special treatment is needed, such as aliasing/substitution, exclusion from conversion, or editing of the process build.

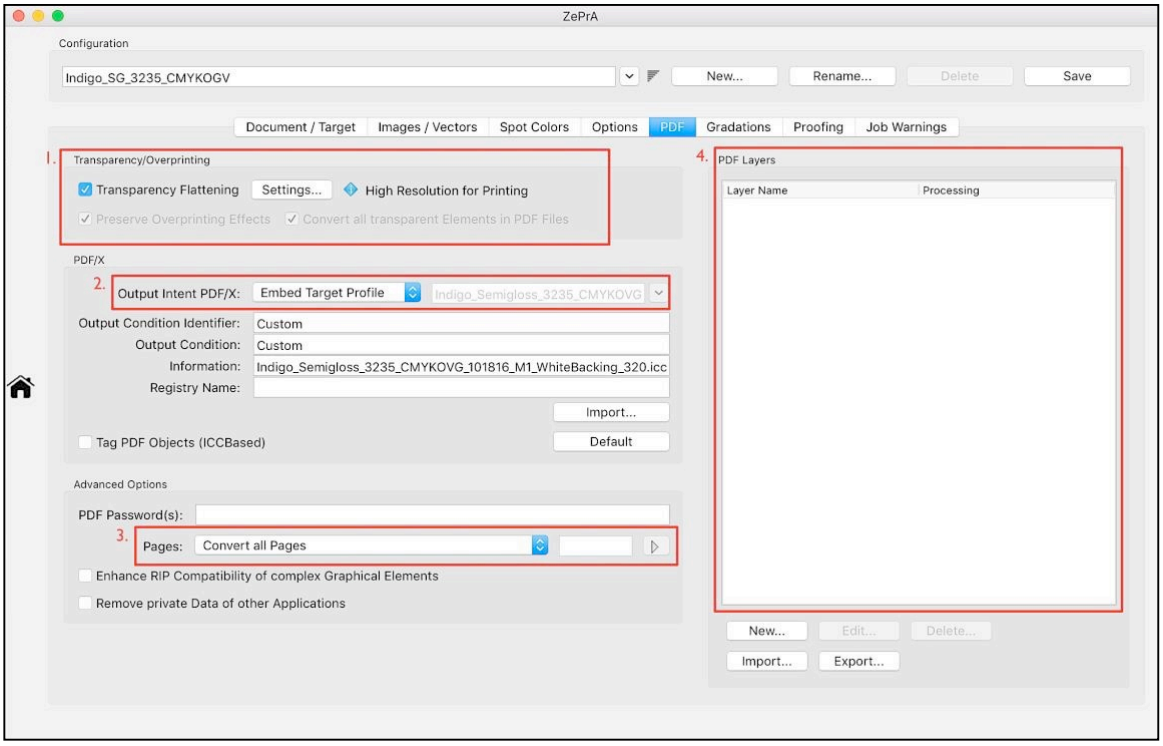
5. **New:** This opens the editing dialog. Select the name of a color, as it will appear in a job, that will require a processing exception. Colors may be selected from within the lists of installed color libraries or by typing the color name in the search box. For further advice consult your ColorLogic application specialist.

6. **Iterate:** This button launches the spot color optimization tool used for improving the matching to reference values. This gives considerably improved spot color matches withvery little effort. Details can be found in the Addendum and in the online help files.

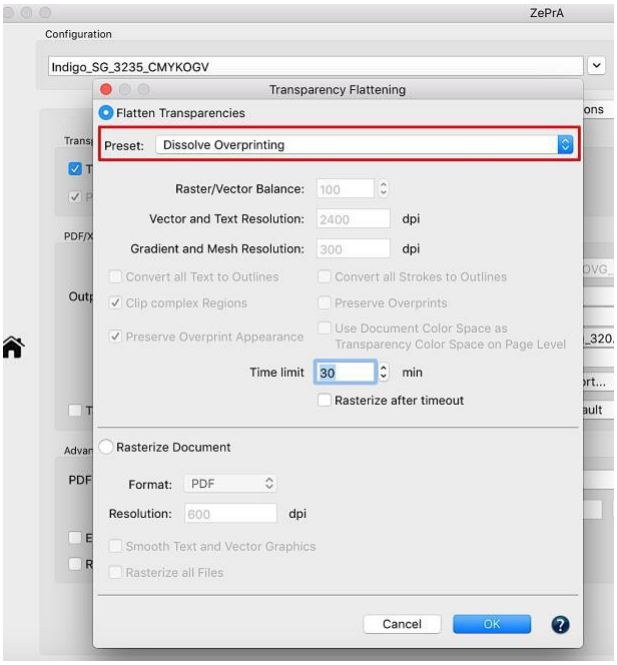
The remaining buttons in the **Spot Colors** window, **Special Options**, **CIE Conversion**, and **Printing Sequence** can be left at default values.

Click on Options. The settings shown here are suitable for digital printing. Note that the option for exempting type and vector graphics is unchecked: These are normally preserved in the SmartLink conversion.

Click on PDF. The following window will open:



1. **Transparency flattening:** Flattening may be required for accurate color conversion. The setting **High Resolution for Printing** is a reliable compromise between file size, accuracy, and processing speed. A further refinement, **Dissolve Overprints**, may be accessed by clicking on the **Settings** button:



2. The **Dissolve Overprinting** preset preserves overprint appearance while removing the overprint attribute, thus assuring consistent printed appearance. Rasterization is applied selectively, as needed. Use this preset if spot colors are to be converted and transparencies are present in the document.

3. **Output Intent/PDF/X: Embed Output Profile** should be preselected by Auto Setup.

4. **Pages:** This specifies pages or page ranges to be converted.

5. **PDF Layers:** ZePrA supports ISO 19593-1:2018 (Processing steps for packaging and labels). It is common practice in the packaging industry to place nonprinting functional layers in PDFs for use in other steps in the production of the final product. These layers can contain non-printing PDF objects and metadata important for processing steps like die cutting, embossing, or creasing. This window allows processing steps and rules to be defined forspecified PDF layers.

   For more information on this and other advanced PDF features please consult the online documentation and your ColorLogic application specialist.

The remaining tabs of the **Configuration** screen are as follows:

Gradations: This allows the selection of tone curves created in the **Gradations** global settings box (**Home: Gradations**). This is not normally used in an Indigo workflow.

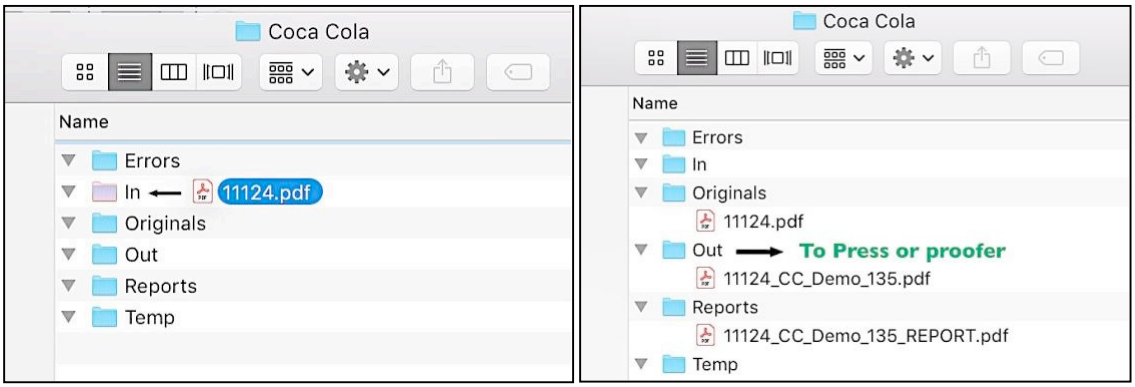
Proofing: First introduced in ZePrA v. 8, this feature is of great potential interest to users of multicolor extended-gamut (ECG) presses such as the Indigo with Indichrome OGV inks. This advanced feature requires knowledge of proofing systems, including pass-through workflows in inkjet RIPs. Please consult your ColorLogic application and proofing specialist for guidance.

Job Warnings: Clicking on this tab reveals a list of all the active and inactive warnings available to users of the configuration. (Editable with right-click/Control-click.)

Save the configuration. This completes the basic setup of a ZePrA processing configuration.

V. Processing Jobs in ZePrA

Job processing in ZePrA is simple and automatic. Once the hot folder directories have been specified in the **Queues** dialogue (P. 4) jobs may be submitted by dragging or saving to the **Input** folder and collected in the **Output** folder. The **Output** folder can subsequently be used as a hot folder for a different device or process.



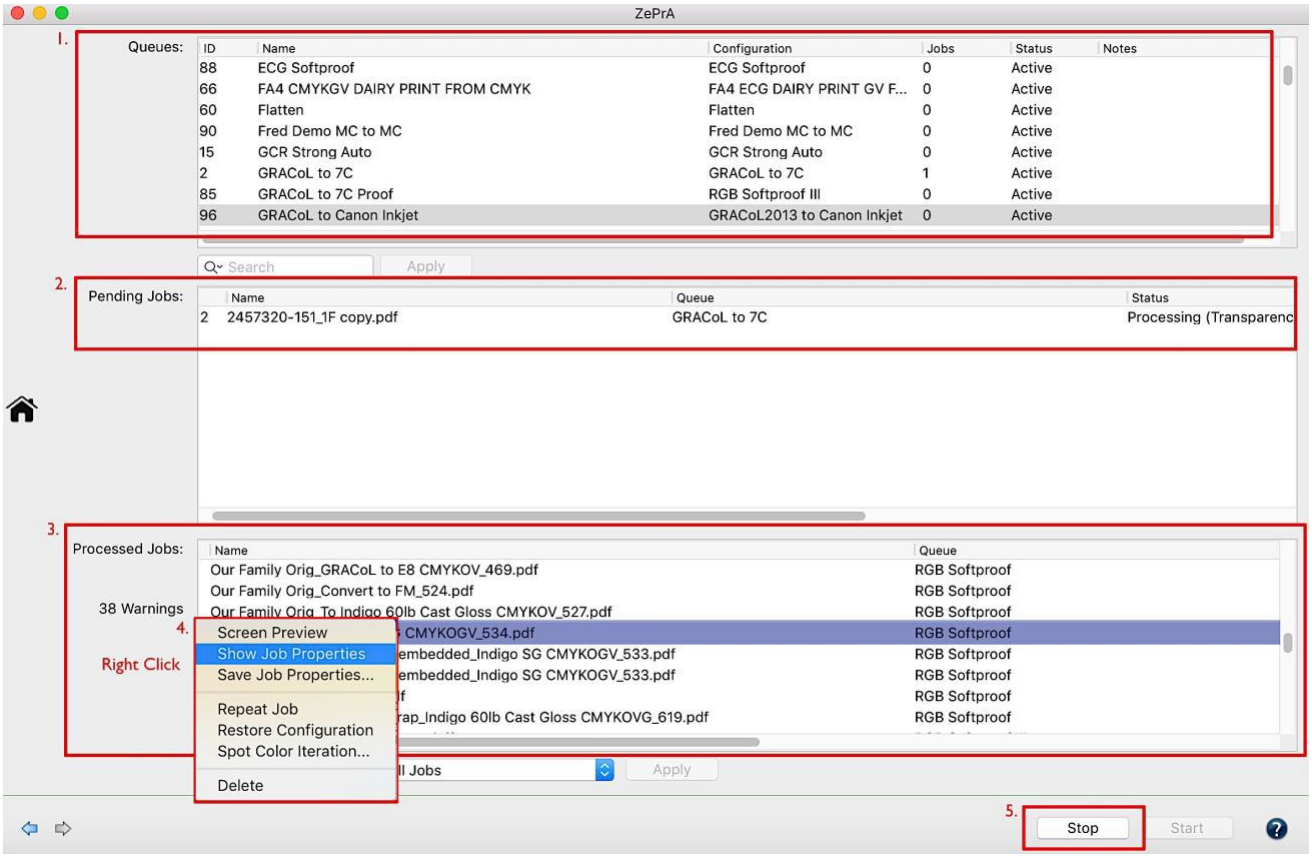
Submission Result

Note that the input folder can also be accessed in the **Overview** window with a right-click/Control-click on the name of a queue and choosing **Open Folder.**

ZePrA processing can be easily automated in the press workflow using, Hybrid CLOUDFLOW, Esko Automation Engine, Enfocus Switch, Kodak Prinergy RBA, and similar tools.

VI. Managing Jobs in The Overview Window

From the **Start** menu select **Overview.** The following screen will open:



The main elements of this screen are as follows:

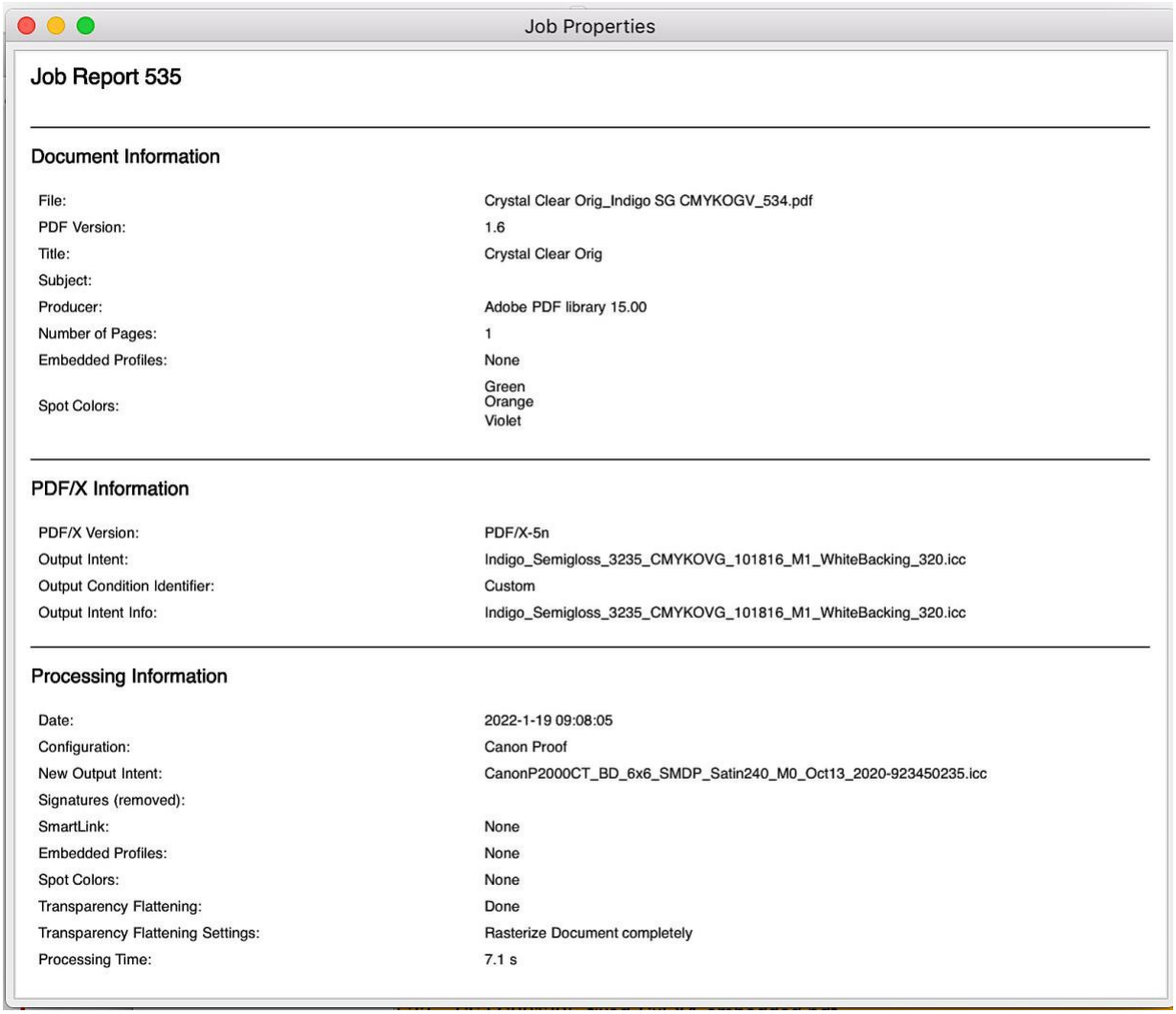
1. **Queues:** This gives an inventory of all processing queues, their activity status, and the number of jobs currently waiting or being processed in each queue. Double-clicking on a queue here opens the associated configuration settings window.

2. **Pending Jobs:** This gives the name and job **ID** of each job being processed, which queue is processing it, and its processing status.

3. **Processed Jobs:** Like the **Pending Jobs** window, this lists every job that has been processed and the name of the queue that processed it. This field has a job search function; please see the online help documentation.

4. **Contextual Menu (right click, control-click):** This gives various options for the highlighted processed job. **Screen Preview** opens a true-color preview image of the job.**Show Job Properties** and Save Job properties respectively display and save a job report. (See illustration below.) **Repeat Job** processes the job again. **Restore**

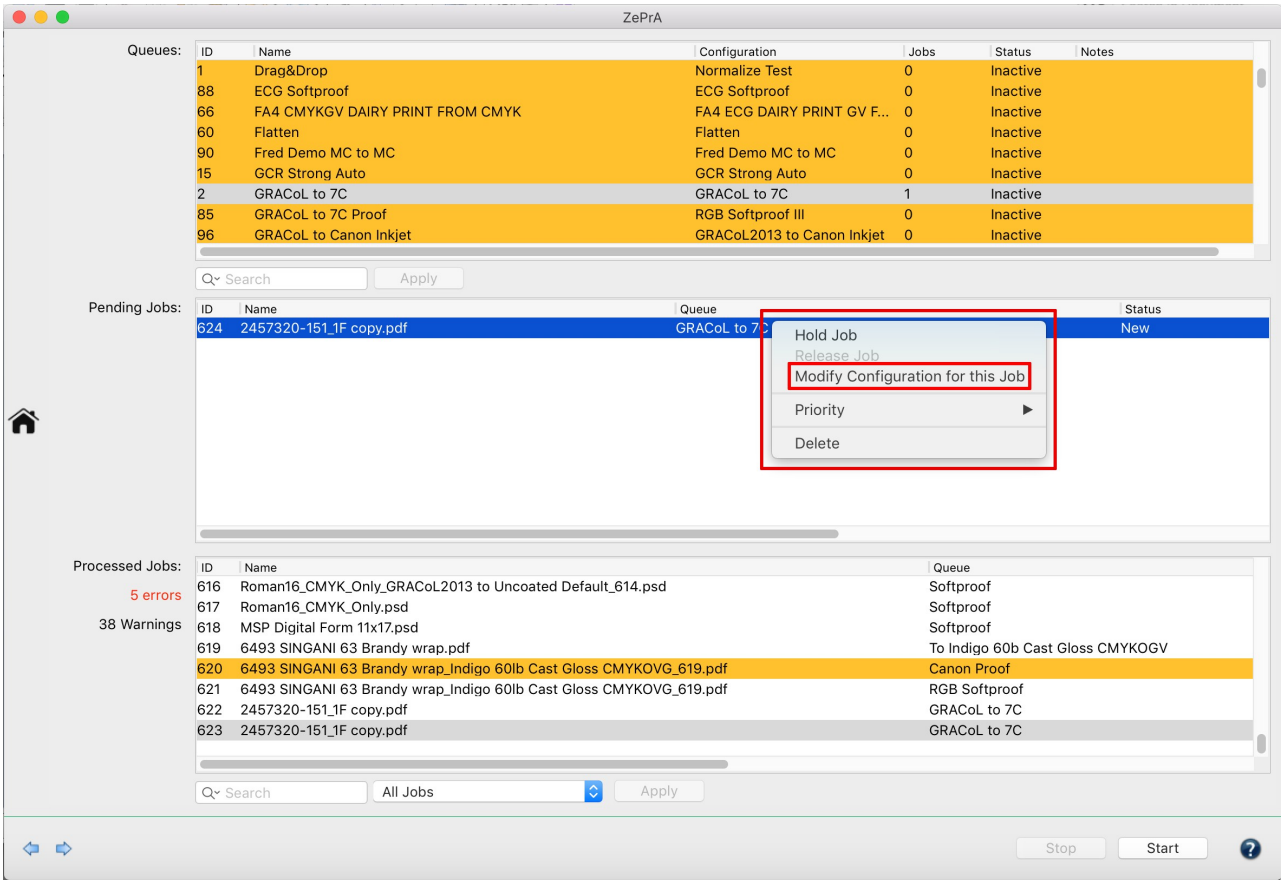
Configuration restores and saves the configuration of the selected job even if that configuration has been deleted. **Spot color Iteration** launches the Spot Color Iteration tool; this is covered in the Appendix. **Delete** removes the selected job from the Processed Jobs list.



The Job Properties Report

5. **Stop and Start.** These buttons stop and restart all job processing. The **Stop** button makes available additional job options shown below.

Modify Configuration for this Job is especially useful in providing an opportunity to make on-the-fly changes in the processing settings for the selected job alone, without creating a global change or additional configuration.


ZePrA
Queues:
ID Name Configuration Jobs Status Notes
1 Drag&Drop Normalize Test 0 Inactive
88 ECG Softproof ECG Softproof 0 Inactive
66 FA4 CMYKGV DAIRY PRINT FROM CMYK FA4 ECG DAIRY PRINT GV F... 0 Inactive
60 Flatten Flatten 0 Inactive
90 Fred Demo MC to MC Fred Demo MC to MC 0 Inactive
15 GCR Strong Auto GCR Strong Auto 0 Inactive
2 GRACoL to 7C GRACoL to 7C 1 Inactive
85 GRACoL to 7C Proof RGB Softproof III 0 Inactive
96 GRACoL to Canon Inkjet GRACoL2013 to Canon Inkjet 0 Inactive
Search
Apply
Pending Jobs:
ID Name Queue Status
624 2457320-151_1F copy.pdf GRACoL to 7C New
Hold Job
Release Job
Modify Configuration for this Job
Priority
Delete
Processed Jobs:
5 errors
38 Warnings
ID Name Queue
616 Roman16_CMYK_Only_GRACoL2013 to Uncoated Default_614.psd Softproof
617 Roman16_CMYK_Only.psd Softproof
618 MSP Digital Form 11x17.psd Softproof
619 6493 SINGANI 63 Brandy wrap.pdf To Indigo 60b Cast Gloss CMYKOGV
620 6493 SINGANI 63 Brandy wrap_Indigo 60lb Cast Gloss CMYKOVG_619.pdf Canon Proof
621 6493 SINGANI 63 Brandy wrap_Indigo 60lb Cast Gloss CMYKOVG_619.pdf RGB Softproof
622 2457320-151_1F copy.pdf GRACoL to 7C
623 2457320-151_1F copy.pdf GRACoL to 7C
Search
All Jobs
Apply
Stop
Start

Addendum: Advanced Feature Overview

I. Profile Updating with CoPrA

CoPrA is ColorLogic's industry-leading profile creation software, providing output and DeviceLink profiles of the highest quality available. CoPrA XXL makes output profiles for RGB, CMYK, grayscale, CMY and multichannel ECG devices such as 7-color Indigo presses. The "SP" version, included with the ZePrA, is identical with the full retail version but with the limitation of serialized profiles that are restricted to use in a co-licensed ZePrA color server.

CoPrA's Update Profile tool allows creation of optimized ICC printer profiles without the need for color management expertise, allowing the generation of a highly accurate updated profile with just a few color measurements. The chief application of this tool for digital press users is compensation for color output variations caused by changes in press condition or substrate. The chief difference between CoPrA's profile updating process and conventional reprofiling lies in the speed of the process and the feedback provided to the user. The brevity of the process is made possible by ColorLogic's spectral prediction model, allowing the use of small charts. Using a strip-reading spectrophotometer such as an X-Rite i1, any user can update a printer profile in 5-7 minutes, making possible frequent updates (e.g., before any color-critical print job), assuring repeatability of results without any need for iterative corrections or proofing on press. The updated profile can be saved to a shared synchronizing folder (ZePrA/Preferences/Auto-Import Folder), allowing ZePrA to update its configuration and immediately resume printing.

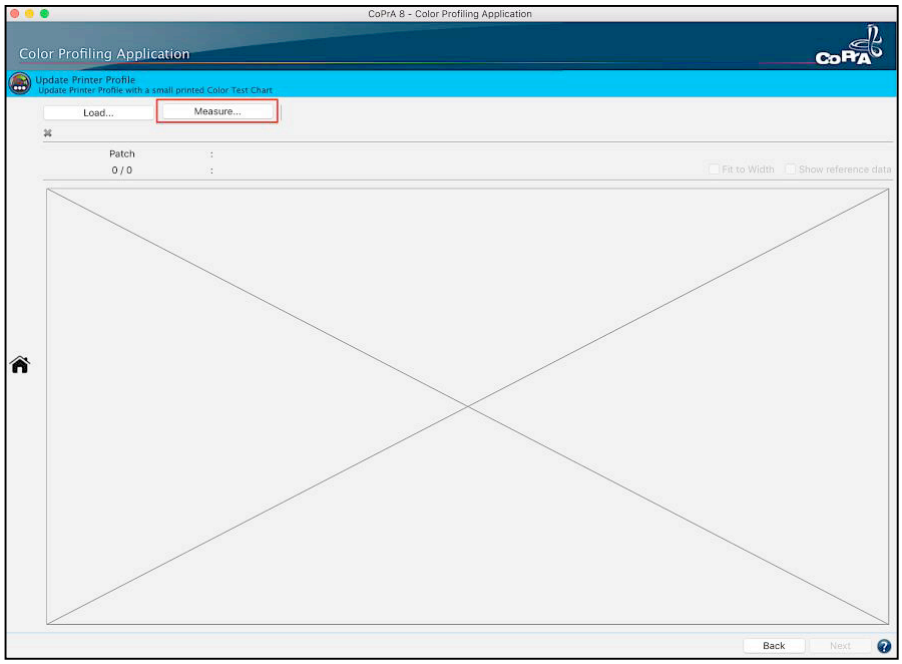
Note that profile updating works best where the original, or "reference" profile is of high quality. CoPrA is the best choice for making such profiles. For further information on CoPrA, please visit https://onlinehelp.colorlogic.de/en/copra-update-profile/ or consult a ColorLogic application specialist.

The following procedure will update all color output from a single processing queue, including converted spot colors, and can be performed by a press operator without the need to access the ZePrA application.

1. **Print a preselected chart** for the specific press configuration to be updated (CMYK, CMYKOV, etc.) These charts can be found in the CoPrA application folder in **Test Charts/Update Profile**. Be sure that DFE color management is disabled, as it normally is for ZePrA-processed jobs.

2. **Launch the CoPrA** application and select **Update Profile**:

3. Click **Measure**. (**Note**: Chart measurements may be separately made and opened using the **Load** button.)

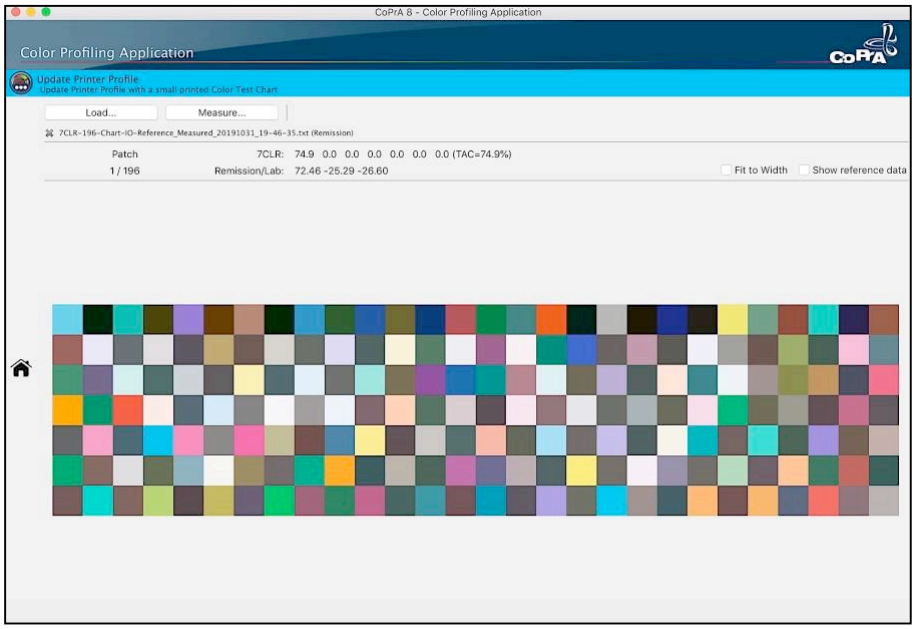


a. Select **File: Available Charts** to choose the reference file for the chart that was printed.

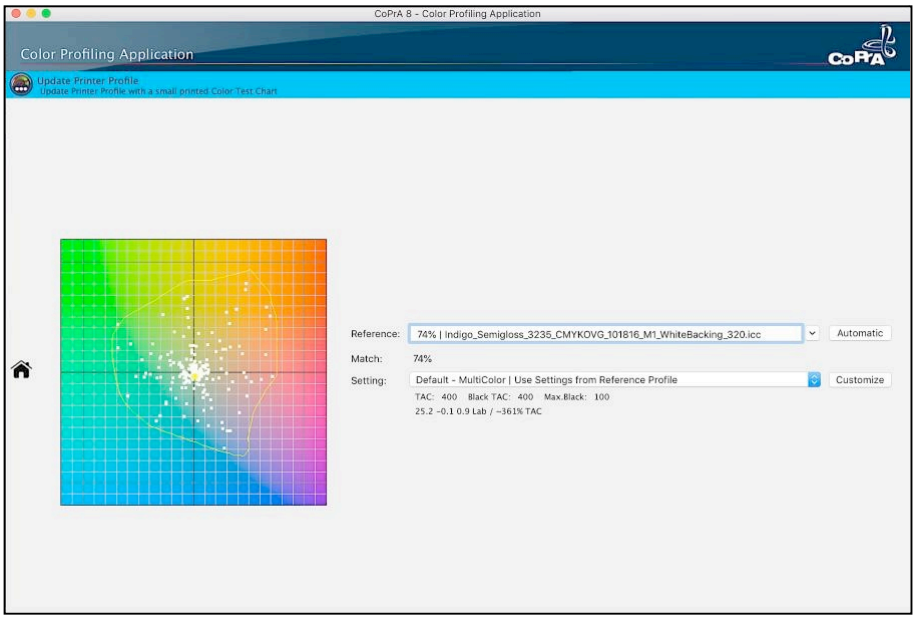
b. Select the measuring instrument. Supported models include X-Rite i1Pro, 1iO, iSis, and most Konica-Minolta and Barbieri spectrophotometers.

c. Configure the instrument. Click on **Options** and select appropriate settings (direction, rows/columns/patches, etc.) and measurement condition (M1/2/3)

d. Follow the prompts to measure the chart. When this is completed, you will be returned to the CoPrA **Profile Update** window:

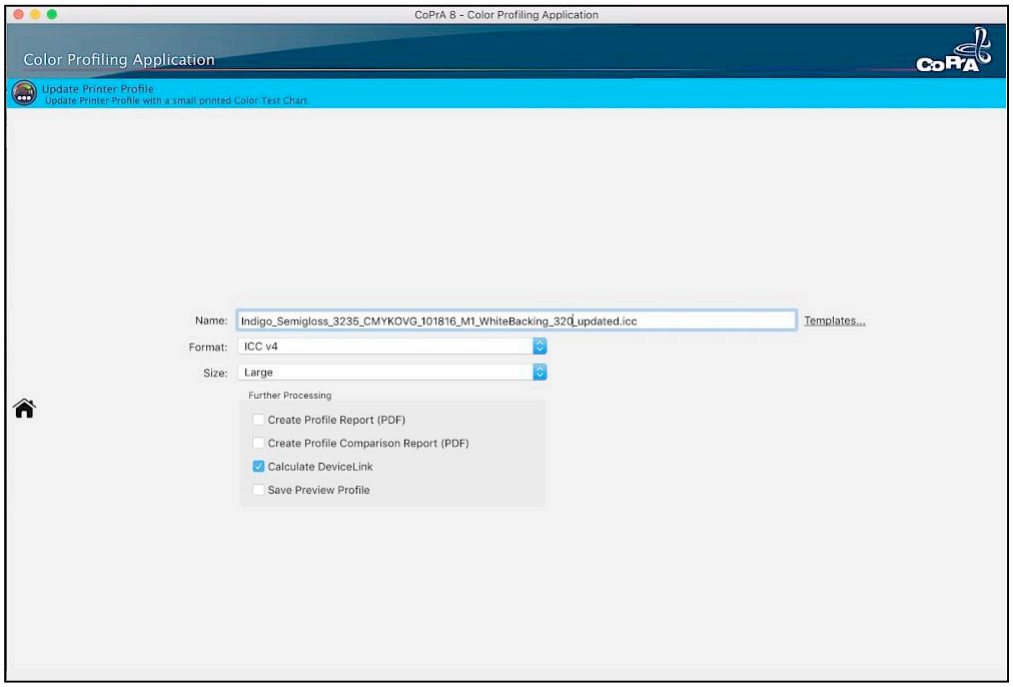


4. **Click Next** and choose a reference profile to update. Note that CoPrA will attempt to guess this by automatically selecting the profile that is the closest match to the measured values. Check this carefully and override this choice by selecting the actual intended profile from the dropdown list, if necessary.



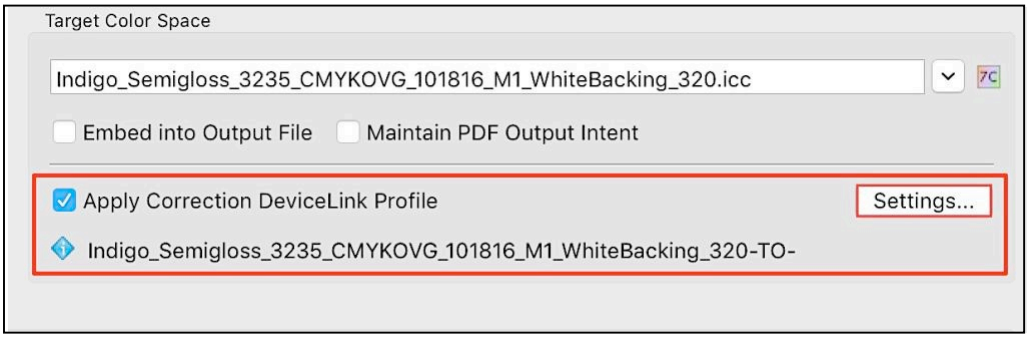
Note: It is recommended to update a profile when the reported match is 85% or lower.

5. Click **Next** for the **Save** dialog box. Choose a modified name for the updated profile. It is recommended that a naming **Template** be created in CoPrA so that an appropriate name extension is consistently added, and the update profile is automatically overwritten. Select **Calculate DeviceLink**. Be sure that the destination be either the system profiles folder or the ZePrA auto-import folder. **This correction DeviceLink Profile will be implemented in ZePrA in the following steps**.

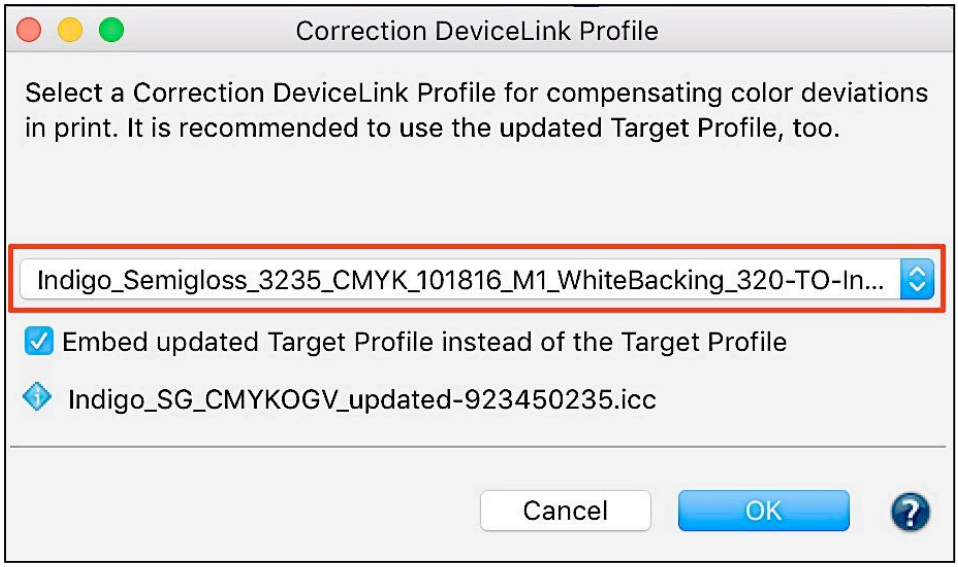


6. **In ZePrA,** open the configuration to be updated. Open the **Document/Target** window.

   If a correction device link has been made and saved to the profiles folder, the **Apply Correction DeviceLink Profile** check box will be active in the **Target Color Space** window. Checking this box will cause the name of an available correction DeviceLink to appear:



7. **Click on Settings.** The following box will open. Select the name of the updated output profile just created in CoPrA and make sure to activate the checkbox **Embed updated Target Profile instead of the Target Profil**e:



Click **OK** and **Save** the configuration. The ZePrA Queue is now configured for profile updating.

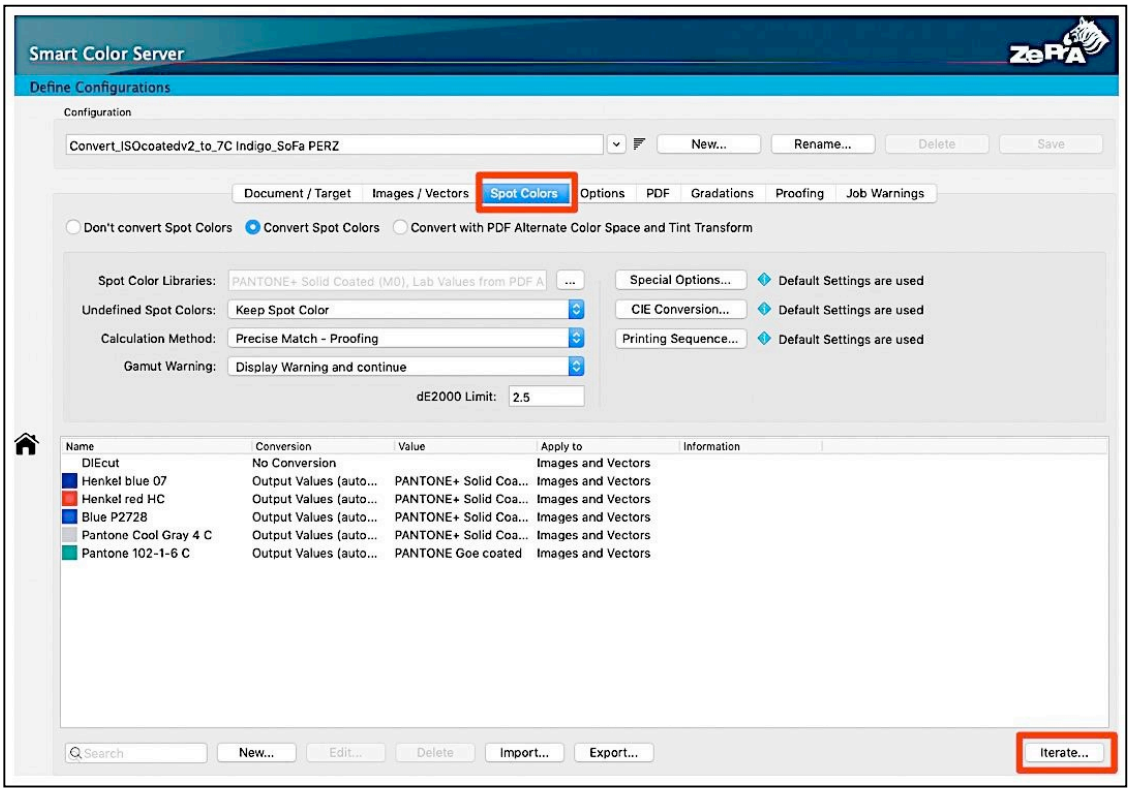
Reminder: Provided that each subsequent updated version of the correction DeviceLink profile is written over the previous one the processing queue will be updated automatically without any need for the user to select the newer profile in ZePrA. The naming template in CoPrA simplifies this process by eliminating naming errors. This is extremely beneficial in environments in which a press operator without ZePrA access is tasked with updating profiles to maintain consistent color output.

II. Optimizing Spot Color Reproduction in ZePrA

Reproducing spot colors is an important component of digital label and package printing. The HP Indigo series presses, with their optional gamut-expanding Indichrome inks, are especially well suited to this task, but their success depends on both consistent color output and accurate calculation of the process-color simulation. CoPrA's **Update Profile** tool is a quick and accurate way to maintain consistent color output. However, while ZePrA's spot color calculations are highly accurate, inevitable imperfections in the print process can produce a difference between calculated and subsequently printed values. These differences can be reduced by use of ZePrA's **Spot Color Iteration** tool. This tool's efficiency is made possible by ColorLogic's spectral prediction model. In most cases accuracy is dramatically improved in a single iteration, with optimal results obtained in just two or three rounds, as contrasted with refinement methods based on "brute-force" trial-and-error routines. In addition, there is no practical limit to the number of colors that can be optimized together; for example, an entire Pantone library can be processed in a single operation. This tool is automatic and wizard-driven. Note that the calculation method used is that already chosen in the Spot Color tab of the active ZePrA configuration.

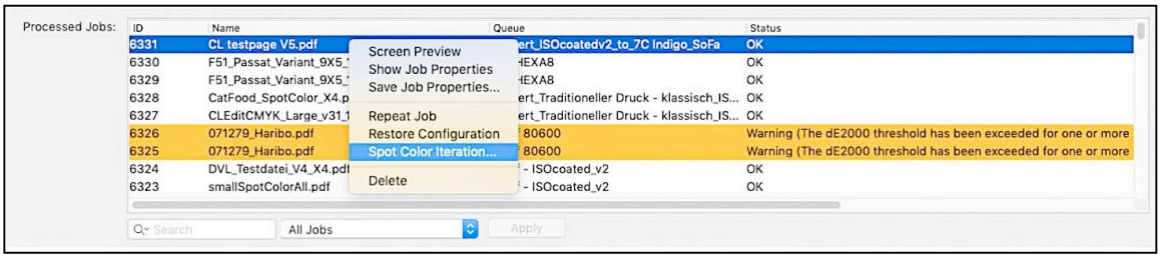
Spot Color Iteration in ZePrA: Procedure

1. Open the **Spot Color Iteration Wizard**, from the **Spot Colors** tab under **Configurations** (Configurations > Spot Colors > Iterate at the bottom of the window).



Second method: Choose **Spot Color Iteration** from the **Tools** menu.

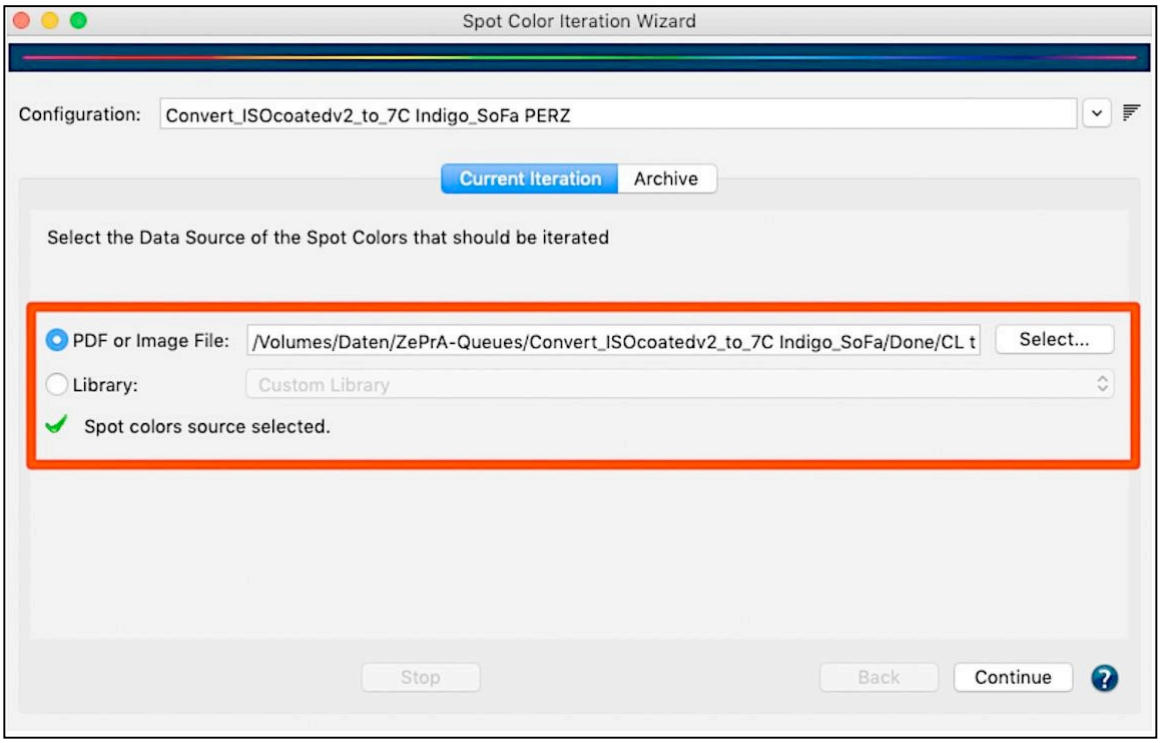
Third method: If a job with spot colors has been converted via a queue and the associated configuration is set to **Convert Spot Colors**, the **Spot Color Iteration Wizard** can be started by right clicking on this job in the **Processed Jobs** section of the **Overview** windowand selecting **Spot Color Iteration:**



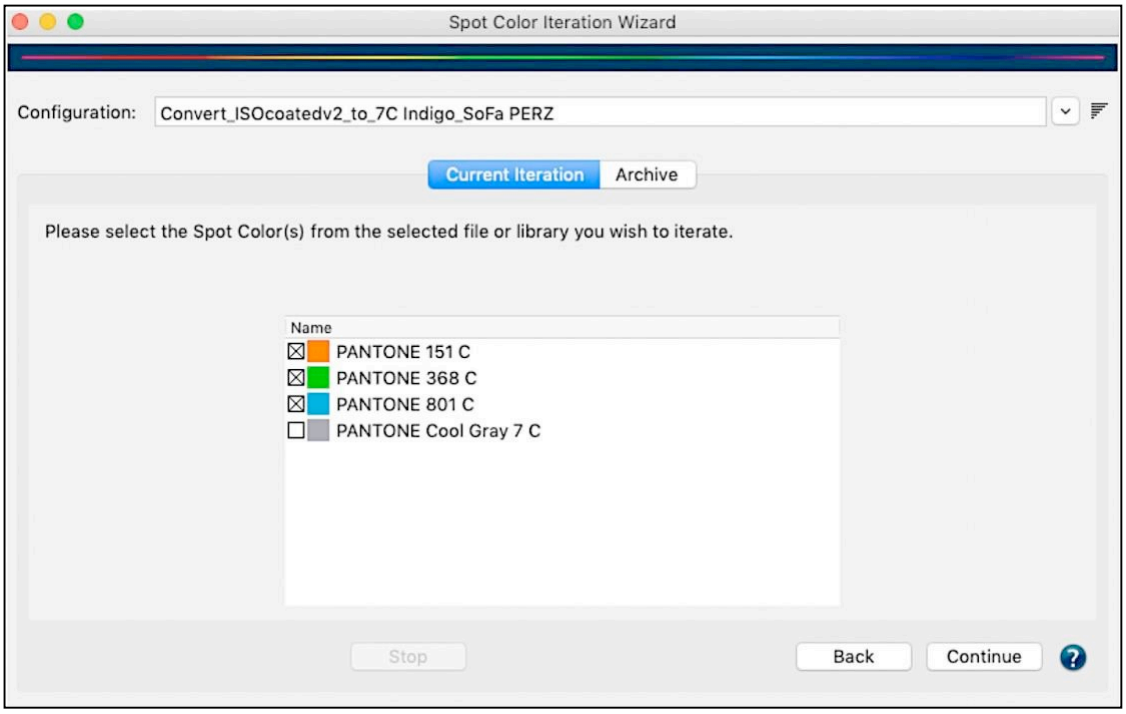
Click **Continue.**

2. Select the Configuration you would like to use for printing. The option **Convert Spot Colors** must be enabled in this configuration. Note that when the iteration is initiated from the **Overview** window the configuration is preselected.

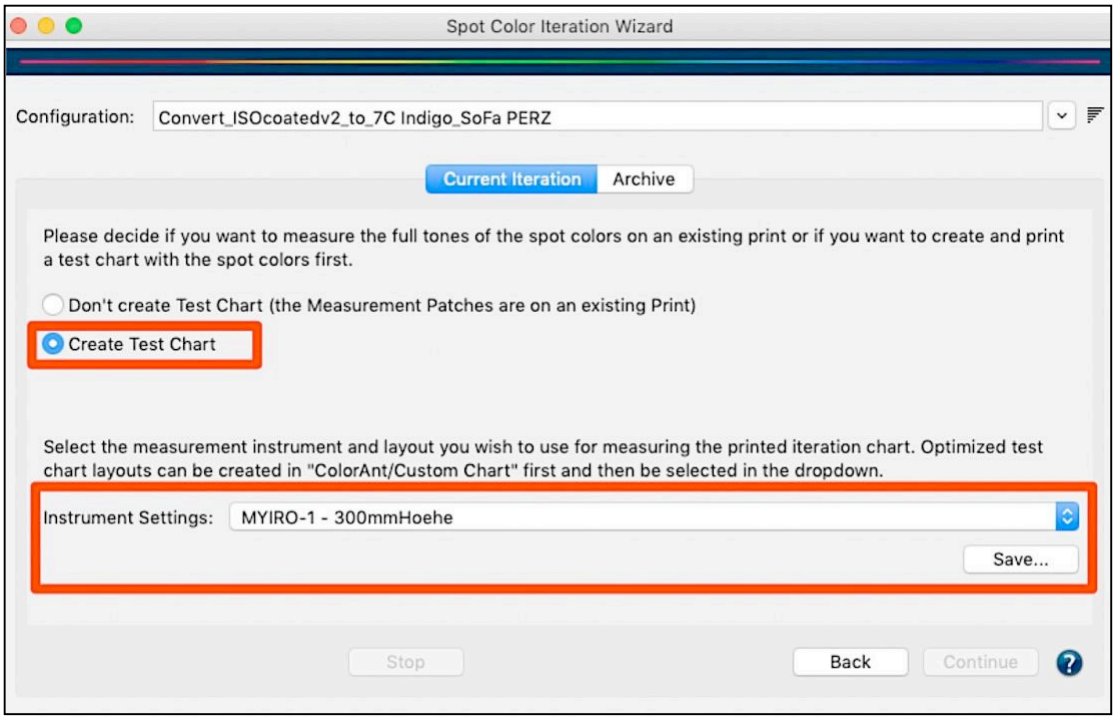
3. Select the source of the spot colors you would like to optimize. You can choose either a PDF or image file containing spot colors or an entire spot color library. Then click **Continue**.



4. Select one or more spot colors for iteration. All spot colors of the selected library, PDF or image file will be automatically extracted and displayed. Disable the colors that are not to be iterated. By default, all spot colors are preselected.

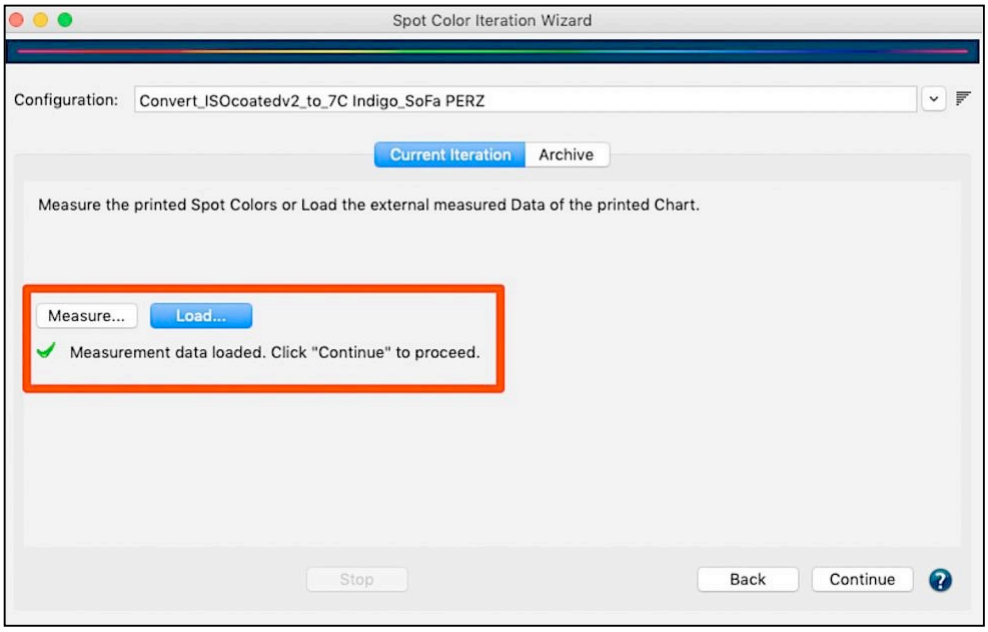


5. Select **Create Test Chart** and choose the instrument and layout settings. Click **Save** to calculate the patch values. Watch for the green arrow and the prompt to continue. Alternatively, you may choose to import existing measurements and follow the prompts to continue the process.

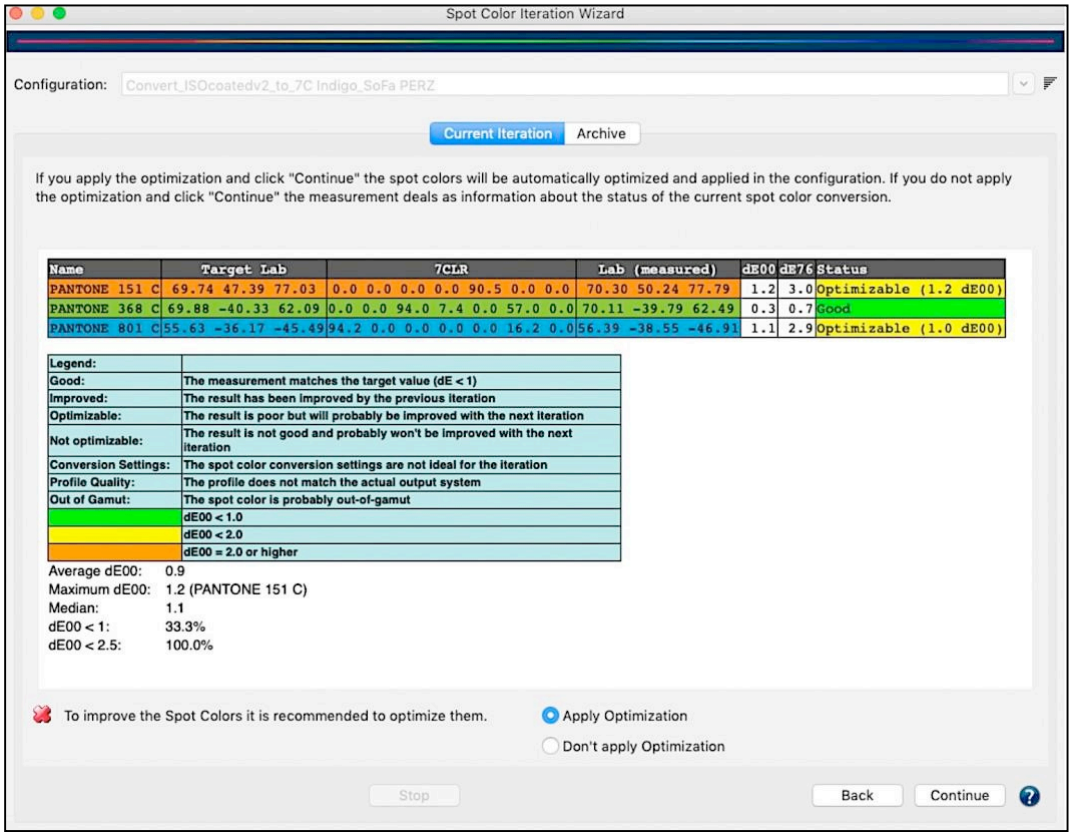


6. Print the chart without color management (as is normal when using ZePrA). Click **Continue.**

7. Click **Measure** to launch the Measure Tool application; the chart layout will appear. Select the measuring device, connect it, and follow the prompts for setup, calibration, and measuring the chart just printed. When the measurement is complete click **Transmit and quit** to return to the ZePrA iterate window to confirm that the measurement is loaded.



8. Examine the report. Note that the wizard gives a simple binary choice: **Apply Optimization** will update all colors listed in the report as optimizable; **Do not Apply Optimization** will halt the process.



9. Repeat Steps 4 though 7 as needed, until either satisfied with the results or no further improvement is possible. Note that after each round of optimization the active ZePrA configuration is updated, with the new spot color output values appearing as exceptions in the **SpotColors** window.

For a more detailed description and instructions consult ZePrA's online help document.

III. Knowing the Limits of the Possible: Spot Color Reporting in ZePrA

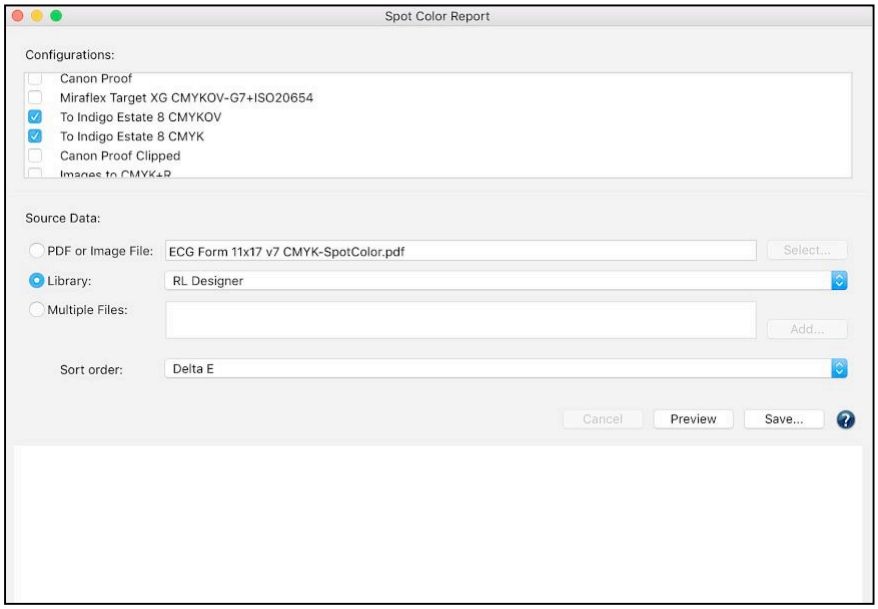
Spot color matching accuracy on a digital press is inevitably constrained by the limitations of its process inks, both in their purity as single colors and in the "additivity failure" of their overprinted colors. Even when using auxiliary gamut-expanding colors such as Indichrome orange, green, and violet, many spot colors are simply out of gamut. It is therefore critical that those who interact with customers as well as those who plan production know as early as possible which colors can be reproduced satisfactorily using the specified press, inks, substrate and color conversion method.

ZePrA XXL's **Spot Color Report** tool employs a powerful and sophisticated set of features that make this task easy. These include:

- Ability to compare multiple press/ink and processing configurations and report which will be the most successful overall
- Reporting on individual jobs or entire color libraries
- Exporting of reports in multiple formats
- Exporting of converted colors as spot color libraries (CGATS, XML, CxF) for use in process control instruments and applications

Procedure:

From the Home screen select **Spot Color Report.** The following dialog appears:

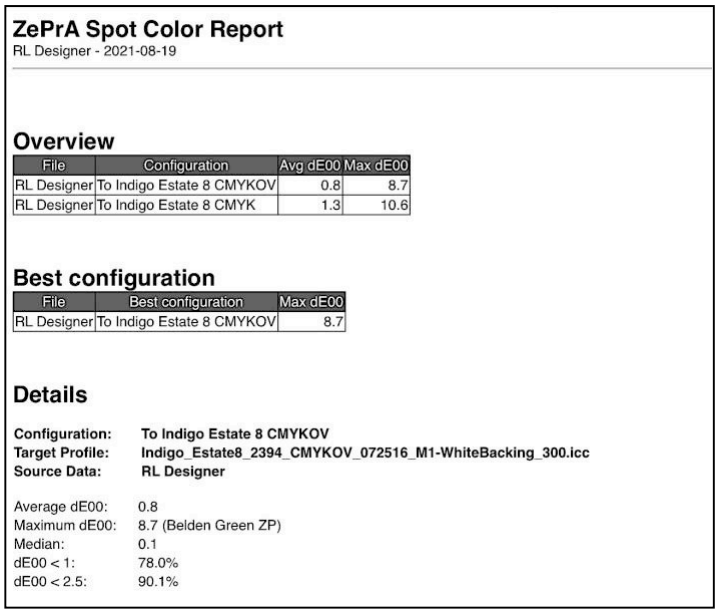


1. **Configurations:** Choose one or more configurations to be used for calculating the results. In this case we've selected three versions of a print environment, each with a different ink configuration: CMYK, CMYKOV, and CMYKOGV.

2. **Source Data:** Select either a **PDF or Image File** or **Library** containing the colors of interest.

3. **Sort Order:** If looking for results specific colors, choose **alphabetical**; if looking for the best or (more likely) worst outcomes choose **deltaE**.

4. **Preview** provides an inline report. Alternatively, **Save…** creates and saves an exhaustive report containing overall as well as specific results:



ZePrA Spot Color Report
RL Designer - 2021-08-19

Overview

File	Configuration	Avg dE00	Max dE00
RL Designer	To Indigo Estate 8 CMYKOV	0.8	8.7
RL Designer	To Indigo Estate 8 CMYK	1.3	10.6

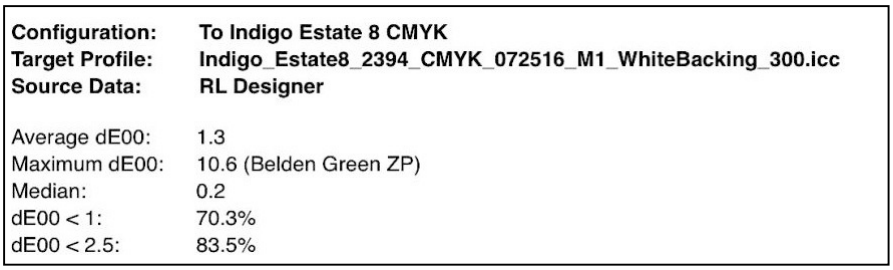
Best configuration

File	Best configuration	Max dE00
RL Designer	To Indigo Estate 8 CMYKOV	8.7

Details

Configuration: To Indigo Estate 8 CMYKOV
Target Profile: Indigo_Estate8_2394_CMYKOV_072516_M1-WhiteBacking_300.icc
Source Data: RL Designer

Average dE00: 0.8
Maximum dE00: 8.7 (Belden Green ZP)
Median: 0.1
dE00 < 1: 78.0%
dE00 < 2.5: 90.1%



Configuration: To Indigo Estate 8 CMYK
Target Profile: Indigo_Estate8_2394_CMYK_072516_M1_WhiteBacking_300.icc
Source Data: RL Designer

Average dE00: 1.3
Maximum dE00: 10.6 (Belden Green ZP)
Median: 0.2
dE00 < 1: 70.3%
dE00 < 2.5: 83.5%

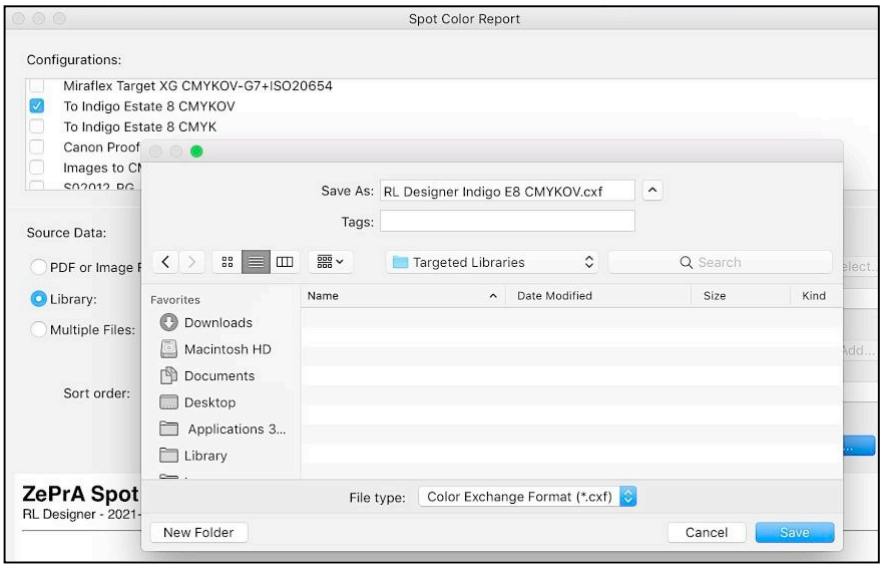
Mt Veeder Rich K ZP	RL Designer	20.00 0.00 0.00	100.0 69.2 32.2 100.0 0.0 0.0	21.73 0.02 -0.15	1.2	1.7	
Essentia 151 CE	RL Designer	68.00 40.00 52.00	0.0 0.0 0.0 15.4 88.7 0.0	68.42 37.85 52.49	1.3	2.2	
Coffaro LtGreen ZP	RL Designer	56.80 -53.00 27.39	95.3 0.0 100.0 0.0 0.0 0.0	57.16 -56.50 31.08	1.5	5.1	
Swine 217 ZP	RL Designer	78.80 25.50 -3.77	0.0 39.3 0.0 0.0 0.0 0.0	79.81 26.88 -5.79	1.5	2.6	
Creme Purple ZP	RL Designer	19.30 14.10 -19.01	56.2 75.3 0.0 71.5 0.0 100.0	21.89 13.60 -18.66	1.8	2.7	
Nichelini Green ZP	RL Designer	35.00 -24.00 22.00	100.0 0.0 98.2 0.0 92.4 0.0	36.69 -21.48 19.75	2.0	3.8	
Boomtown Cream ZP	RL Designer	93.20 0.10 7.40	0.0 0.0 11.9 0.0 0.0 0.0	96.29 -0.58 7.26	2.1	3.2	
Terreno BlackU ZP	RL Designer	30.10 0.60 3.05	0.0 0.0 0.0 100.0 0.0 0.0	28.94 0.30 0.66	2.4	2.7	
Spirit Green ZP	RL Designer	59.60 -57.20 0.84	100.0 0.0 67.6 0.0 0.0 0.0	57.16 -53.60 0.57	2.4	4.4	
SlowPress Copper ZP	RL Designer	32.00 17.00 23.00	0.0 0.0 0.0 85.0 100.0 0.0	34.00 16.66 19.78	2.4	3.8	
Big City Red ZP	RL Designer	50.50 75.70 51.30	0.0 100.0 0.0 0.0 100.0 0.0	52.45 71.21 52.39	2.7	5.0	
Oakstone Red ZE	RL Designer	42.10 62.10 36.90	0.0 100.0 0.0 30.8 100.0 0.0	43.57 55.39 38.23	3.2	7.0	out of Gamut
OneEight Black ZP	RL Designer	18.00 -0.00 -0.30	100.0 55.1 0.0 100.0 0.0 0.0	20.90 0.61 -2.83	3.2	3.9	
Singani Orange	RL Designer	55.00 79.00 70.00	0.0 83.4 100.0 0.0 100.0 0.0	55.65 67.43 58.05	3.2	16.6	out of Gamut
Rich K ZP	RL Designer	17.00 0.60 0.80	100.0 62.0 0.0 100.0 0.0 0.0	20.92 1.35 -2.43	4.2	5.1	out of Gamut
Capsule Red ZE	RL Designer	37.36 60.51 41.99	0.0 100.0 0.0 37.1 100.0 0.0	41.58 52.35 35.73	4.5	11.1	out of Gamut
Gregg Red ZP	RL Designer	32.00 50.00 21.00	0.0 100.0 0.0 56.2 84.8 0.0	36.18 40.66 19.80	4.7	10.3	out of Gamut
HP Black x2	RL Designer	10.00 0.00 0.00	100.0 50.0 0.0 100.0 0.0 53.1	19.86 0.93 -3.39	7.3	10.5	out of Gamut
Belden Green ZP	RL Designer	28.00 -28.00 35.00	100.0 0.0 100.0 0.0 100.0 0.0	33.65 -15.93 19.85	8.7	20.2	out of Gamut
Benziger K CE	Preserved	-	-	-	-	-	
Gold Foil	Preserved	-	-	-	-	-	
HP Spot Gold	Preserved	-	-	-	-	-	
Rich Black ZP	Preserved	-	-	-	-	-	
Starfield Bluelines ZE	Preserved	-	-	-	-	-	

Configuration: **To Indigo Estate 8 CMYKOV**
Target Profile: **Indigo_Estate8_2394_CMYKOV_072516_M1-WhiteBacking_300.icc**
Source Data: **RL Designer**

Average dE00: 0.8
Maximum dE00: 8.7 (Belden Green ZP)
Median: 0.1
dE00 < 1: 78.0%
dE00 < 2.5: 90.1%

Brut 7503DS ZP	RL Designer	87.00 0.30 2.40	0.0 0.0 6.5 15.9	87.09 -0.32 2.17	0.9	0.7	
Terreno 7406 ZP	RL Designer	80.70 13.30 67.98	0.0 27.7 100.0 0.0	80.91 14.88 71.55	1.1	3.9	
Greyscale Red ZP	RL Designer	41.20 39.20 25.00	0.0 100.0 100.0 45.7	40.75 39.07 26.75	1.1	1.8	
Mt Veeder Rich K ZP	RL Designer	20.00 0.00 0.00	100.0 70.9 33.7 100.0	21.61 0.01 -0.10	1.1	1.6	
Coffaro LtGreen ZP	RL Designer	56.80 -53.00 27.39	95.0 0.0 100.0 0.0	57.11 -56.28 31.04	1.5	4.9	
Benziger Gold ZP	RL Designer	61.70 12.70 54.80	0.0 34.1 100.0 33.0	62.73 12.15 50.80	1.5	4.2	
Swine 217 ZP	RL Designer	78.80 25.50 -3.77	0.0 39.8 0.0 0.0	79.65 27.27 -5.75	1.5	2.8	
Bliss 1205 ZP	RL Designer	92.00 4.20 43.00	0.0 8.9 58.2 0.0	88.93 2.75 42.46	2.2	3.4	
Starfield Blue ZE	RL Designer	24.10 -2.40 -16.30	100.0 55.5 0.0 80.6	26.56 -2.07 -14.24	2.2	3.2	
Boomtown Cream ZP	RL Designer	93.20 0.10 7.40	0.0 0.0 12.0 0.0	96.40 -0.75 7.30	2.3	3.3	
Sebright Grenache ZP	RL Designer	30.90 30.60 9.70	0.0 100.0 60.6 71.8	32.99 26.99 8.98	2.3	4.2	
Terreno BlackU ZP	RL Designer	30.10 0.60 3.05	0.0 0.0 0.0 100.0	28.95 0.30 0.66	2.4	2.7	
Spirit Green ZP	RL Designer	59.60 -57.20 0.84	100.0 0.0 67.8 0.0	57.14 -53.79 0.95	2.4	4.2	
Nichelini Green ZP	RL Designer	35.00 -24.00 22.00	79.7 0.0 100.0 71.2	37.00 -21.87 17.30	2.9	5.5	out of Gamut
SlowPress Copper ZP	RL Designer	32.00 17.00 23.00	0.0 78.3 100.0 77.9	34.32 15.25 18.50	3.0	5.4	out of Gamut
Walls Yellow ZP	RL Designer	76.00 14.50 72.00	0.0 30.0 100.0 0.0	79.97 16.54 70.34	3.2	4.8	
OneEight Black ZP	RL Designer	18.00 -0.00 -0.30	100.0 55.5 0.0 100.0	21.01 0.57 -2.89	3.3	4.0	
Coffaro Red ZP	RL Designer	34.30 41.50 19.95	0.0 100.0 80.1 55.6	37.49 34.76 17.52	3.6	7.8	out of Gamut
Rich K ZP	RL Designer	17.00 0.60 0.80	100.0 63.5 0.0 100.0	21.04 1.40 -2.46	4.3	5.3	out of Gamut
Creme Purple ZP	RL Designer	19.30 14.10 -19.01	94.1 100.0 0.0 64.1	24.81 11.47 -17.04	4.3	6.4	out of Gamut
Gregg Blue ZP	RL Designer	20.00 4.00 -22.00	100.0 81.6 0.0 67.1	26.31 3.68 -18.06	5.0	7.4	out of Gamut
Big City Red ZP	RL Designer	50.50 75.70 51.30	0.0 100.0 100.0 0.0	55.53 64.73 46.13	5.6	13.1	out of Gamut
Oakstone Red ZE	RL Designer	42.10 62.10 36.90	0.0 100.0 100.0 27.6	46.67 48.66 33.82	6.0	14.5	out of Gamut
Gregg Red ZP	RL Designer	32.00 50.00 21.00	0.0 100.0 76.3 53.7	38.20 36.18 16.80	7.0	15.7	out of Gamut
Singani Orange	RL Designer	55.00 79.00 70.00	0.0 100.0 100.0 0.0	55.53 64.73 46.13	7.0	27.8	out of Gamut
HP Black x2	RL Designer	10.00 0.00 0.00	100.0 56.2 0.0 100.0	21.01 0.64 -2.86	7.8	11.4	out of Gamut
Capsule Red ZE	RL Designer	37.36 60.51 41.99	0.0 100.0 100.0 34.3	44.56 45.23 31.25	8.0	20.0	out of Gamut
Belden Green ZP	RL Designer	28.00 -28.00 35.00	74.2 0.0 100.0 78.4	35.37 -18.25 15.86	10.6	22.7	out of Gamut
Benziger K CE	Preserved	-	-	-	-	-	
Gold Foil	Preserved	-	-	-	-	-	
HP Spot Gold	Preserved	-	-	-	-	-	
Rich Black ZP	Preserved	-	-	-	-	-	
Starfield Bluelines ZE	Preserved	-	-	-	-	-	

5. **Save results as a spot color library.** One of the most useful features of the **Spot Color Report** is its ability to export the predicted Lab values for each configuration as a color library:



Below: The ZePrA **Spot Color Report**'s exported Lab library can be imported and used in handheld instruments or process control software so that measured results can be weighed against expected values of spot color simulations calculated by ZePrA and approved by customers. In this case deltaE numbers suddenly become simple and meaningful.