



Creating Custom Media Configurations in KPS Inkjet Software

April 2018

The purpose of a media configuration is to ensure that the proofer images with color accuracy.

A media configuration:

- Provides Kodak Proofing Software (KPS) with all the color content files and data required by a specific printer model to optimize print quality for a specific media type at a specific printing mode (ink type, resolution, and so on).
- Contains specific tolerances appropriate for that combination of resources.
- References signed proofer profiles (also known as paper profiles).

Media configurations are required software resources for consistent and correct processing and imaging of proofs. When you set up the processing of input files via a proofer hot folder or in workflow software, you must designate a suitable media configuration.

You can:

- Download and install media configurations provided by Kodak. See Partner Place Answer ID [68827](#).
- Create your own custom media configurations, using the information in this presentation. The Kodak Proofing Software Precision Color Media Configuration wizard is included in all Kodak MPI Inkjet products. It guides you through the process.
- Purchase a service that will create a custom media configuration for you and train your staff to create more custom media configurations. Ask your sales or service representative about *SD-1489 US&C KODAK MATCHPRINT Inkjet Proofing Systems Implementation Service for Custom Media Configurations*.

When do you need a Custom Media Configuration?

You must have a media configuration for every combination of printer, ink, resolution, print standard, and media that you are using.

- If you are using a media for which no factory configuration exists, you must create a custom media configuration for it.
- If you wish to target a proofer to a print standard for which no media configuration exists or use a resolution for which no media configuration exists, you will need a custom media configuration.
- If you are using a media for which a media configuration exists, but you want to apply substrate emulation effects such as Paper Grain and Mottle or cardboard emulation, you can edit the existing media configuration and save it as a custom media configuration.
- After creating a custom media configuration, you will also need to create a custom proofer profile, sometimes called a paper profile. After editing an existing media configuration and saving it as a custom media configuration, for optimum color results, you should also create a custom proofer profile.

How long does it take?

Creating a media configuration for a custom media can take several hours, depending on the need for printer preparation and some choices that you make, such as media type, resolution, and dry time. The total time required is typically about 4-6 hours.

When creating a media configuration, a number of targets will be printed for visual evaluation:

- Paper feed adjustment
- Total Ink Limit

Additional charts are printed to characterize the device:

- Single Ink Limit
- Gray Balance charts (2)
- Characterization Chart

And, finally, a printer Calibration Chart is printed.

If you are using a printer with an inline spectrophotometer, your active participation is needed only for printer setup and visual evaluations; the spectrophotometer takes the measurements automatically. This requires 1-2 hours.

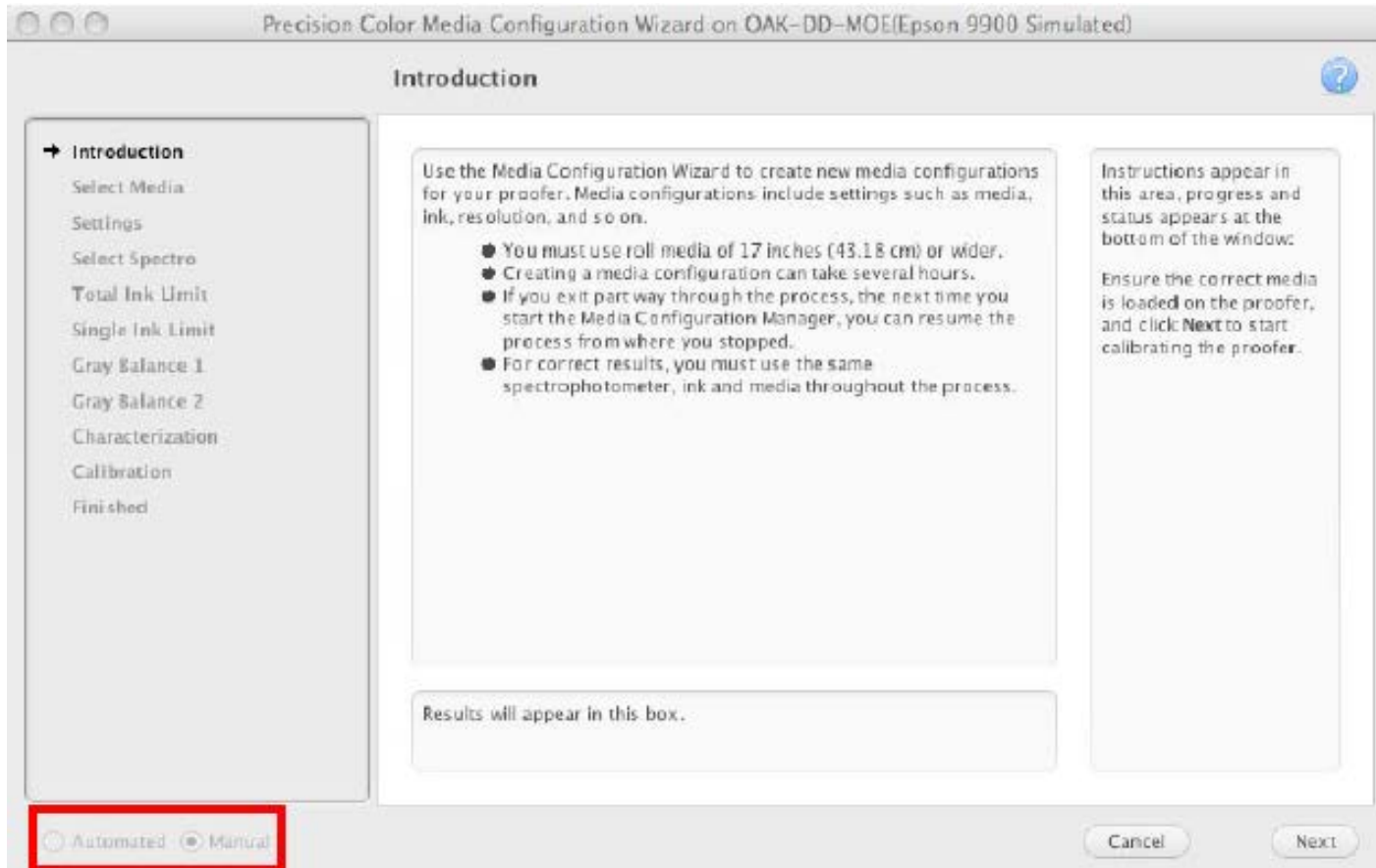
If you are using an offline spectrophotometer, additional active participation is required to measure charts.

How do I prepare?

Before you start the process of creating a custom media configuration:

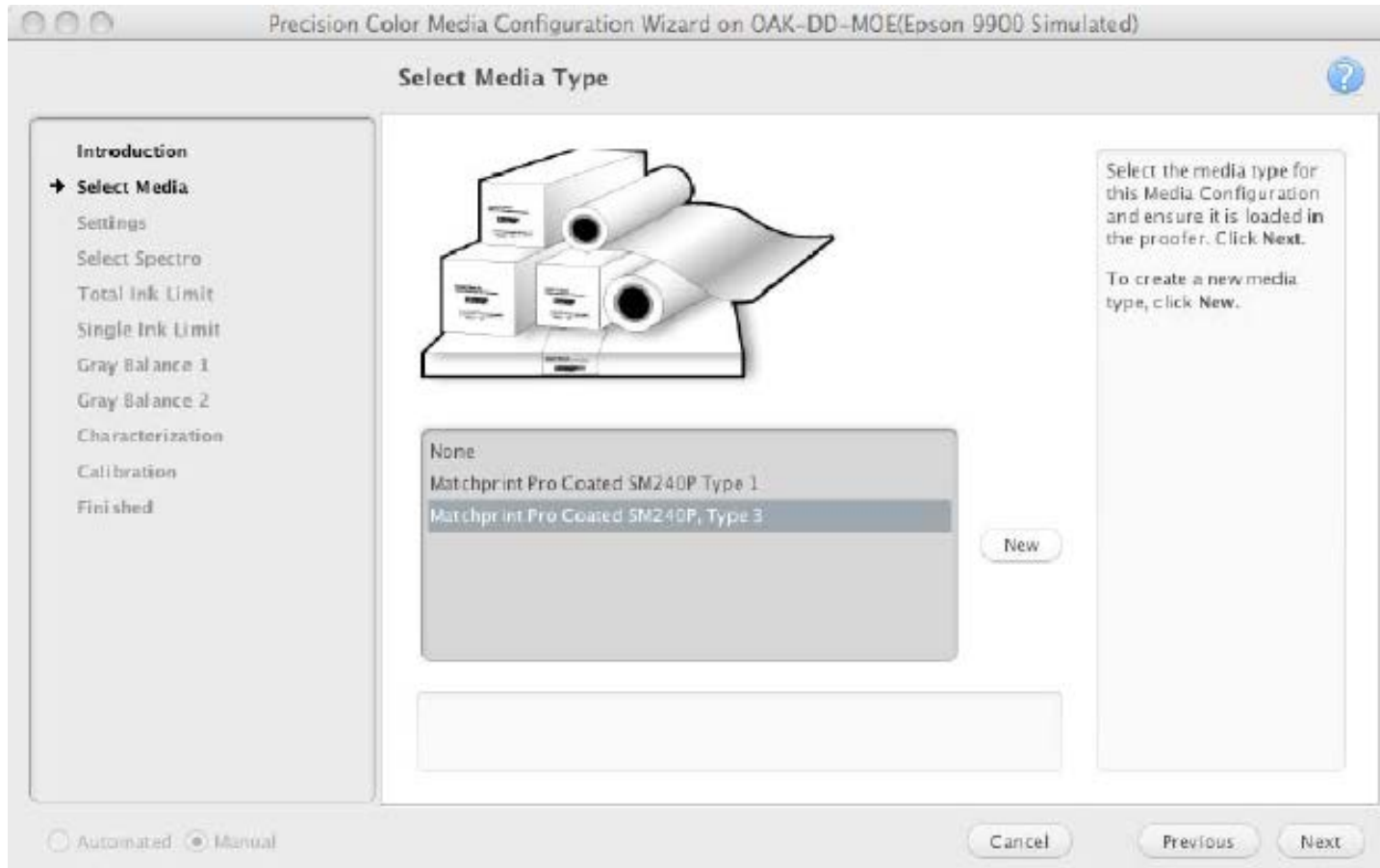
- Load the proper media into the printer, ensuring that you have enough media to complete the process—including calibration and creating a paper profile.
- Ensure that you have an adequate supply of ink.
- If your printer has been idle for a long time, run a test print.
- Run a nozzle check test, and clean if needed.
- Run the inline spectrophotometer alignment procedure.

Step 1: Introduction



This presentation uses an Epson printer equipped with the SpectroProofer inline spectrophotometer option (which can partially automate the configuration process) as an example. The steps are similar for other printers.

Step 2: Select Media Type



Select the media type for this Media Configuration and ensure it is loaded in the proofer. Click **Next**.

To create a new media type, click **New**.

Step 3: Set up basic properties

The screenshot shows a software window titled "Precision Color Media Configuration Wizard on OAK-DD-MOE(Epson 9900 Simulated)". The main area is "Media Configuration Setup". On the left is a navigation pane with the following items: Introduction, Select Media, Settings (highlighted with a right-pointing arrow), Select Spectro, Total Ink Limit, Single Ink Limit, Gray Balance 1, Gray Balance 2, Characterization, Calibration, and Finished. The main configuration area contains several settings, each with a dropdown menu or a text input field: Name: Custom Media 1; Ink Type: Epson® UltraChrome™ HDR Ink (Photo Black Mode); Resolution: 720X720; Workflow Print Direction: Uni-directional; Microweaving: Appropriate; Platen Cap: Minimum (0.8); Vacuum Intensity: 100 percent; Cutting: Front Panel Setting. On the right side of the main area, there is a help text box that reads: "Type a meaningful name for this media configuration, up to 100 characters; for example, Comm Glossy 720X720. Enter the settings for this Media Configuration. The Ink Type you select must be loaded on the proofer. Click Next." At the bottom of the window, there are radio buttons for "Automated" and "Manual" (selected), and three buttons: "Cancel", "Previous", and "Next".

The wizard's online help provides descriptions of the basic properties. Settings will vary depending on the printer model.

The next six slides give information about things to consider when configuring the settings.

Step 3: Considerations for basic properties

Ink Type

Specifies the name of the ink type

Matte Black ink normally works best on matte-coated or uncoated papers. Photo Black ink works best on semi-matte and glossy coated media. Some printer models require you to remove one type of ink in order to install the other, which can use significant amounts of ink. To remove the need to swap inks (thereby increasing productivity and reducing waste), consider selecting the ink type that is most appropriate and compatible with the primary media you plan to use. Note that for Matte Medias you may need to choose the Matte Black in in order to have a large enough gamut to hit color standards. With Photo Black, images may appear “washed out” or may have poor tone reproduction in the “shadows” or darker colors.

Resolution

Specifies the resolution

Resolution is usually a trade-off between smoothness of vector artwork and print speed. Raster artwork is affected less when using lower resolutions. Consider the type of work to be produced when choosing a resolution.

- Most imposition work should be run on low resolutions 3x3, 7x3 (actual resolutions 360x360, 720x360)
- Most contract proofing is run at middle-range resolutions 7x7, 14x7 (actual resolutions 720x720, 1440x720)
- Halftone emulation proofing runs best at high resolutions 14x7, 14x14 (actual resolutions 1440x720, 1440x1440).



Step 3: Considerations for basic properties

Workflow Print Direction

For printers like the Epson Stylus Pro, you can select Uni-directional (unidirectional) to print in only one direction. This will improve print quality, but reduce printing speed. This option is recommended for media configurations that you want to use with the Certified Process for Color Confirmation.

Select Bi-directional (bidirectional) to print in two directions. This will lessen print quality, but increase printing speed. With some printers and media configuration resolutions, you cannot use the Certified Process for Color Confirmation with media configurations that use this option because color shifts can occur.

Notes:

- You cannot edit this option after the media configuration has been created for Epson Stylus Pro printers at 720x720 and higher resolution and 1440x720 and higher resolution.
- On some printer models, image artifacts are more obvious with Uni-directional printing than they are with Bi-directional printing.



Step 3: Considerations for basic properties

Microweaving

A higher microweave improves print quality, but reduces printing speed. Depending on the choices given, select **Default** or **Appropriate**. In general, there is little improvement if you select something other than Default or Appropriate.

Platen Gap

Change this setting if you are using unusually thick or thin paper. Platen Gap works in conjunction with the Platen Gap setting on the printer hardware. For quality proofing media, the most common choice for this setting is **minimum**. In most situations, the printer panel should be set to a middle-range or standard setting. Selecting something else may limit the printer's capacity to handle the platen gap setting that comes from the KPS media configuration. Refer to the printer documentation and/or media manufacturer's documentation to help you select the best setting.

For Matte Media, it is recommended to set the Platen Gap to the **High** (2.1) setting. This will prevent head strikes as the Media swells different amounts depending on ink load and temperature/humidity conditions.



Step 3: Considerations for basic properties

Vacuum Intensity	<p>This setting enables you to increase the vacuum intensity for thicker paper and decrease it for thinner paper. The typical setting is 100%.</p> <p>For thinner media, consider lowering the vacuum intensity to improve image quality and avoid artifacts. This setting is the vacuum intensity during printing and does not affect the load vacuum. When loading paper, it is possible to change the vacuum intensity from the printer panel. For thinner media, especially in sheet form, it will be easier to load if the load vacuum intensity is turned lower.</p>
Cutting	<p>This setting specifies whether to cut the paper automatically. Making a specific selection here overrides the printer panel settings. It is a best practice to select front panel setting so that you will be able to control the cutting preference at the printer panel.</p>
Cutting pressure	<p>This setting enables you to decrease the cutting blade pressure for thinner paper to make a cleaner cut. This setting is not available on all printer models.</p>
Check DeltaE94 Tolerance	<p>This setting is no longer used, but may appear for some printers. Leave it at the default setting.</p>



Step 3: Considerations for basic properties

Drying Time per pass	This setting specifies the time in milliseconds between each pass of the print head to allow the ink to dry on the page. To improve image quality for non-paper substrates (such as vinyl or film) it may be desirable to allow extra dry time between each pass.
Drying Time per page	Specifies the time in seconds between each page to allow the ink to dry. This setting can be changed later by editing the media configuration. In some situations, it may be desirable to allow some dry time between proofs/pages. If a proof with wet ink is cut and drops into the catch bin, there is a chance that the wet ink will smear. If you are proofing on a non-paper substrate OR with a high ink volume OR in a high-humidity environment, it may be necessary to allow some dry time per page to prevent damage to the finished proof.
Paper Thickness	An incorrect paper thickness setting may cause vertical banding or other image artifacts on the page. If you can measure the paper thickness, do so. Then, from the menu, select the next larger value. Your media vendor's technical documentation may also list paper thickness. If you cannot measure the thickness, try dividing the media weight in grams per square meter by 1000. For example, a good starting paper thickness selection for a 200 gsm might be 0.2 mm. If you see artifacts on the initial media configuration proofs, start over and adjust this setting.



Step 3: Considerations for basic properties

Minimum wait time before measurement

In any type of printing process, there is a period of time immediately after imaging in which the printed image will change color. This is commonly referred to as “dry back”, “curing”, or “stabilization”. For some printing processes, especially those like inkjet proofing which use water-based inks, this stabilization can be quite long—between 15 and 20 minutes. Humidity can also affect stabilization time—high humidity environments will increase stabilization time. To capture the most repeatable and consistent measurement data, it is important to take this stabilization period into account. This setting is a way to enforce a specific wait-time before measuring to make sure that you have allowed the proof to stabilize.

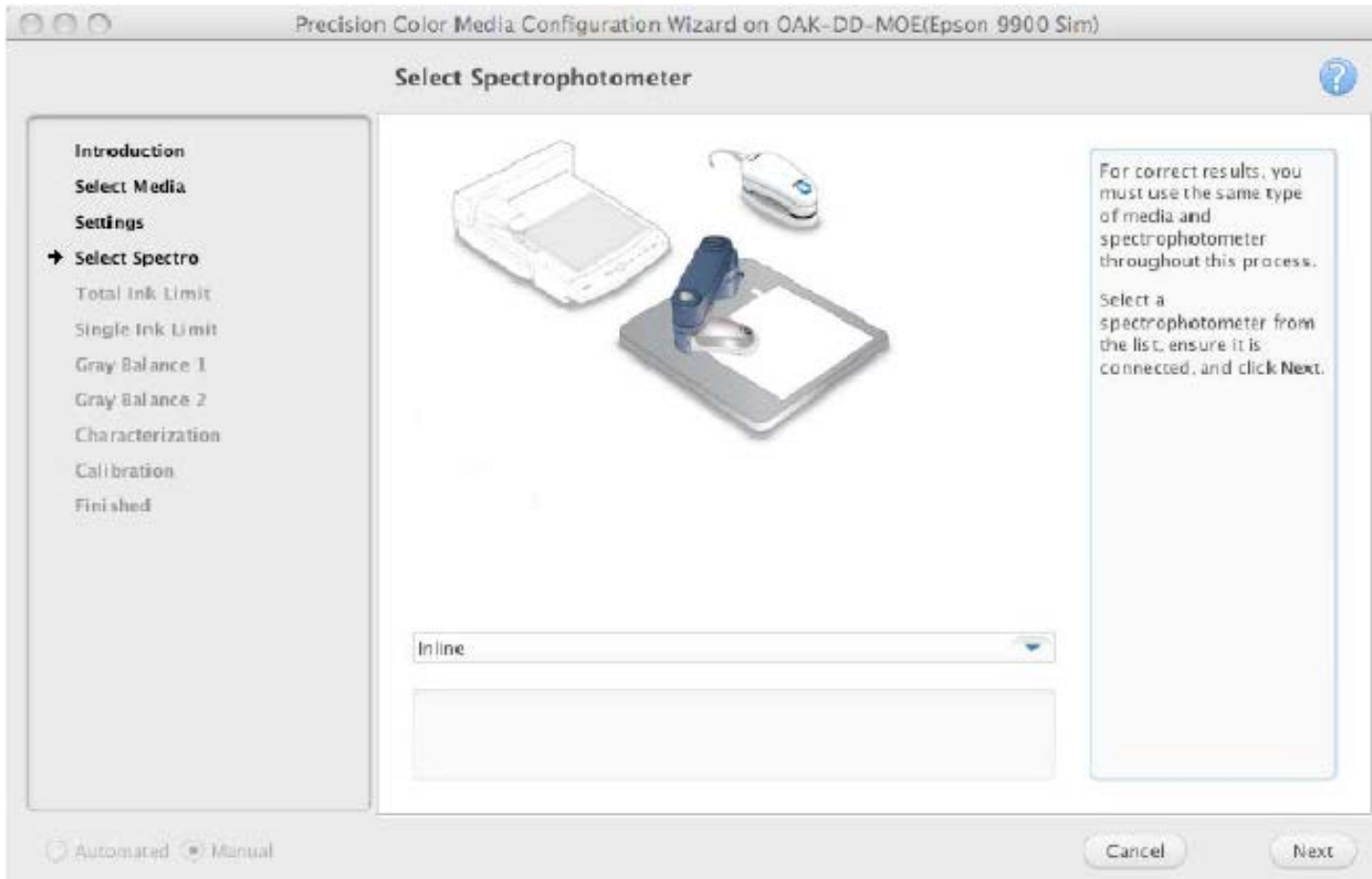
Maximum wait time before measurement

As proofs age over time and in different lighting conditions, the colors on the proof can change. It is important to not measure proofs that are too old, that have been exposed to too much direct light, or that have been exposed to adverse environmental conditions. It is generally best to measure a proof within a short time period after it is printed.

This setting allows you to enforce a maximum proof age for any measurement proofs. A value that is too small will require that an operator be ready to measure proofs too soon after printing. A value that is too large could allow a proof to shift color depending on the lighting and environmental conditions. A good suggested value for this setting is 120 minutes.

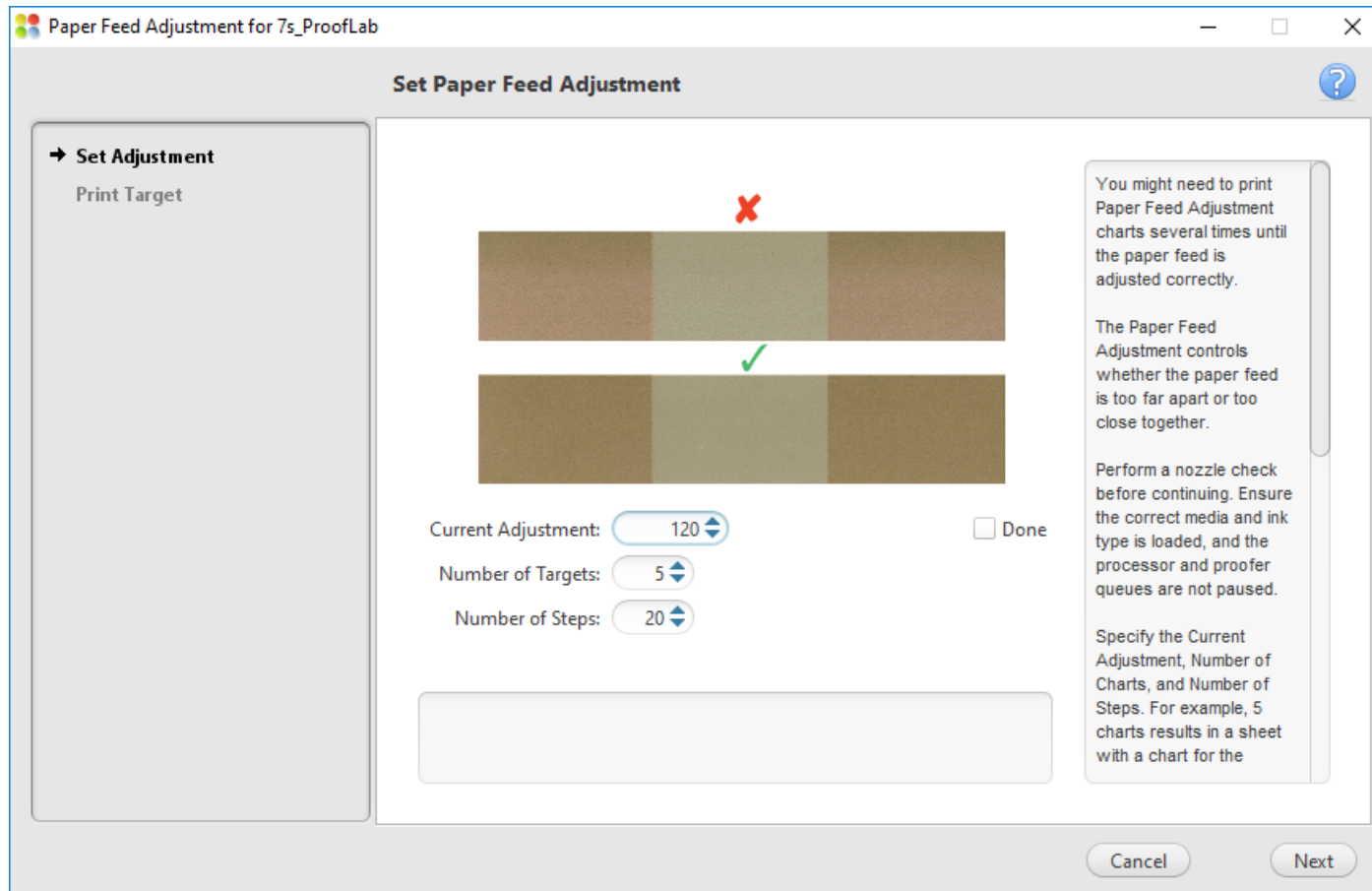


Step 4: Select Spectrophotometer



1. From the list, select a spectrophotometer.
2. Ensure that the spectrophotometer is connected.
3. Click **Next**.

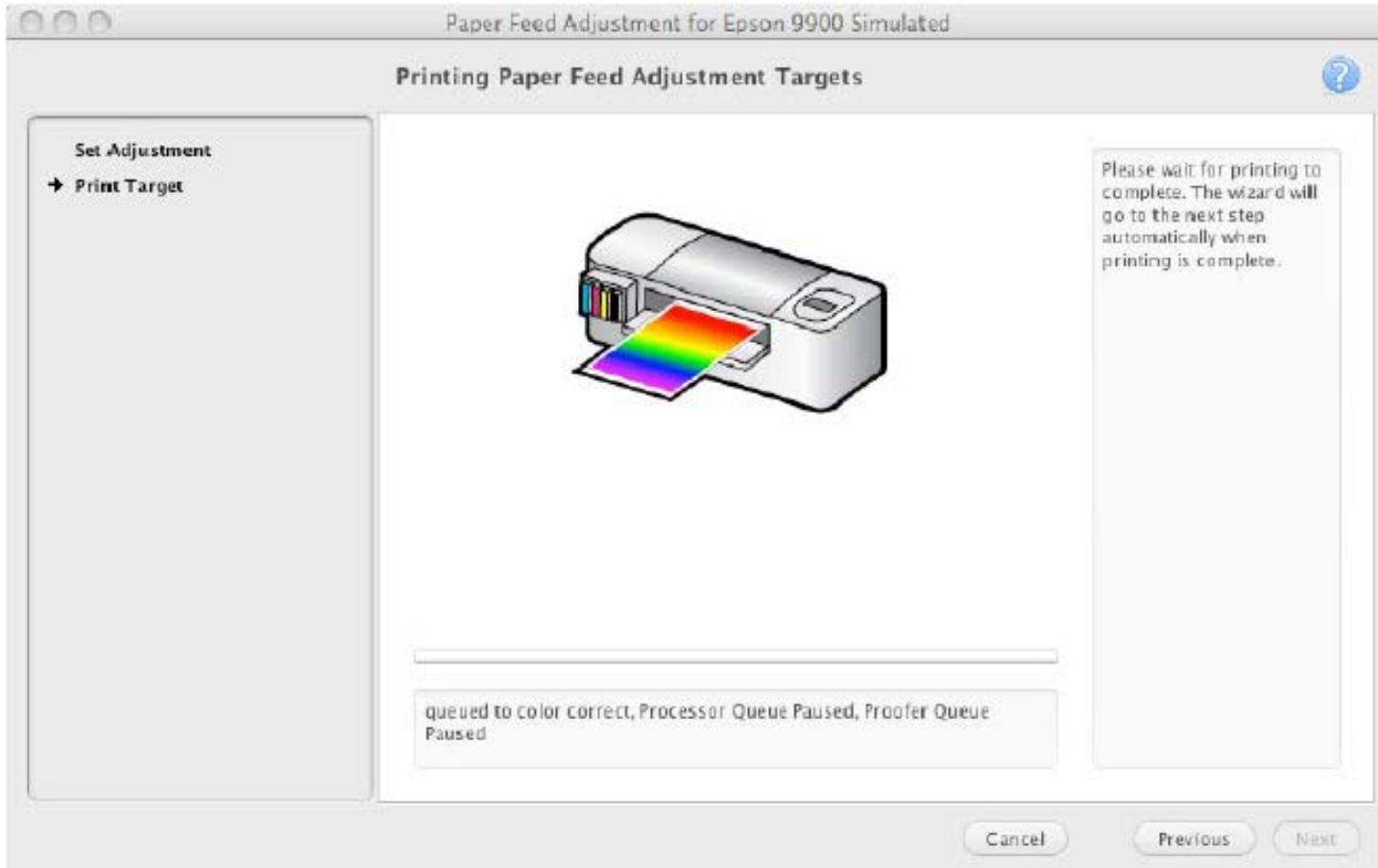
Step 4: Print targets for paper feed adjustment



The Paper Feed Adjustment step determines whether the paper feed is too far apart or too close together.

You may need to print Paper Feed Adjustment targets several times until the paper feed is correctly adjusted.

Step 4: Print targets for paper feed adjustment



Wait for the printing to complete.

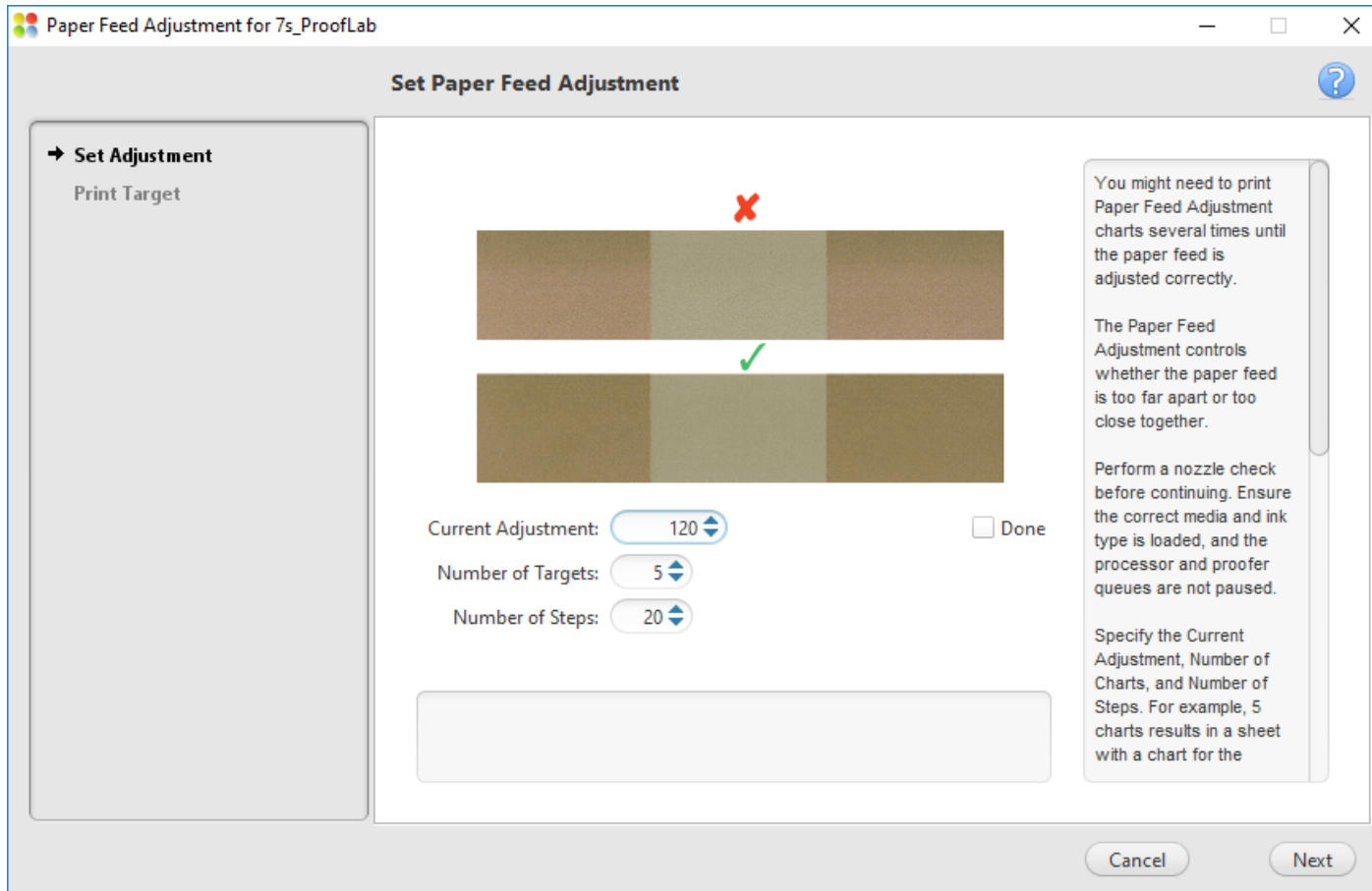
The wizard proceeds to the next step automatically when printing is complete.

Step 4: Examine printed Paper Feed targets

Printer and resolution	Paper Feed Adjustment target	What to look for
Epson printers using media configurations with a resolution of 720x360 dpi	The target contains gray patches of varying color.	<ul style="list-style-type: none"> ➤ Light stripes indicate the paper feed adjustment is too large. Dark stripes indicate that it is too small. ➤ Look for light or dark stripes along the gray patches. The gray patches should be smooth from left to right and top to bottom, with no equally-spaced horizontal lines (stripes) from top to bottom. ➤ Look for color differences between the top and bottom of the patches. The image in the wizard below the x shows patches with color that changes from top to bottom—this is an undesirable target. Patch color should be uniform.
Epson printers using media configurations with resolutions of <ul style="list-style-type: none"> ➤ 2880x1440 ➤ 1440x1440 ➤ 720x1440 ➤ 720x720 	The target contains gray patches of varying color.	<p>Graininess and color changes across a patch indicate too much or too little paper feed adjustment.</p> <p>When examining the target, look for uniform gray patches and smooth grain across the row.</p>
All other Epson printers, media configurations, and resolutions	The target contains a blue gradation.	<ul style="list-style-type: none"> ➤ Light stripes indicate the paper feed adjustment is too large. Dark stripes indicate that it is too small. ➤ The vertical spacing differs for different resolutions. ➤ Look for light or dark stripes along the gradation. The gradation should be smooth from left to right, with no equally-spaced horizontal lines (stripes) from top to bottom.



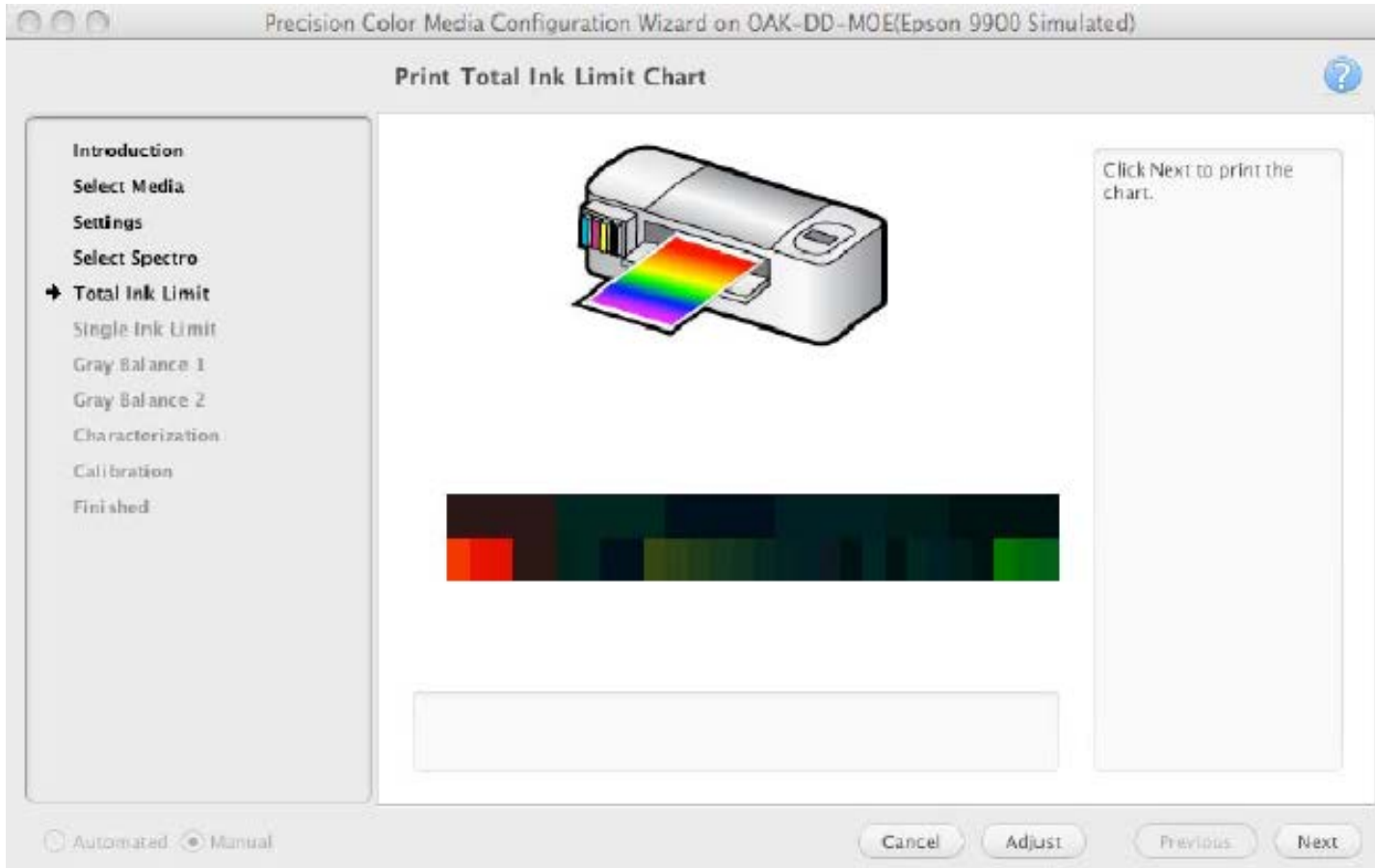
Step 4: Make paper feed adjustments



After the paper feed targets are printed and you have chosen the best value:

1. Enter the best value into the **Current Adjustment** box.
2. Select the **Done** checkbox.
3. Click **Next**.

Step 5: Print Total Ink Limit charts



After printing the Total Ink Limit charts, inspect them for artifacts. Tilt the media to better see artifacts. Select the highest total ink limit with the fewest artifacts.

A high total ink limit provides the largest gamut and the most artifacts. A very low total ink limit provides the smallest gamut and artifacts can appear when too little ink is used.

The types of artifacts depend on the media. The following tables list common artifacts for different types of media. Media may exhibit more than one type of artifact.

Step 5: Common Total Ink Limit artifacts

Media Type: Matte media printed at low resolution

Banding	Patches appear to have stripes in them. The patches should look uniform.
Media puckers/Cockle	Media that is saturated with ink can pucker. When the media puckers too much, the media can touch the imaging head, and the contact leaves a mark on the proof. The media should have enough ink for a wide gamut, but not too much ink. Media puckers are easily seen on the back of the media.
Mottling	Patches appear grainy or spotty. The patches should look uniform.

Media Type: Clear media

Puddling	Patches have puddles of ink in them. An ink puddle forms when two or more drops of ink merge into a puddle or pool.
Tackiness	Patches are sticky to the touch. On clear media, patches will stay a little tacky, but they should be almost dry to the touch.



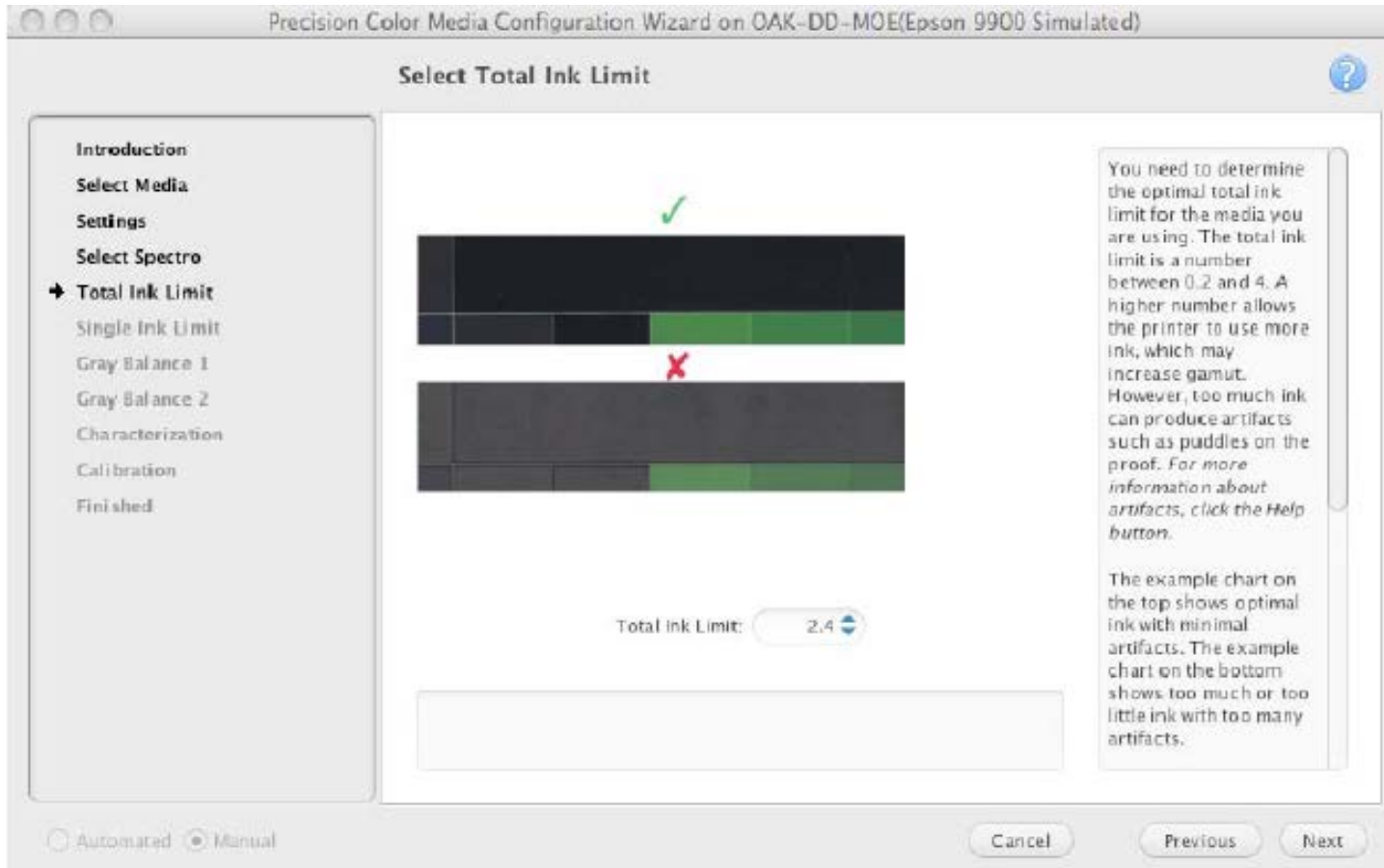
Step 5: Common Total Ink Limit artifacts

Media Type: Higher quality media

Center green patches appear to have foggy or frosted streaks	The green patches in the center of the chart appear to have streaks in them. The patches should look uniform.
Heavily inked patches appear foggy or frosted	Heavily inked patches have a dull appearance or may show a differential gloss effect. The patches should look shiny.
Mottling	Patches appear grainy or spotty. The patches should look uniform.
Tackiness	Patches are sticky to the touch. Patches should be dry to the touch.



Step 5: Set Total Ink Limit



After the Total Ink Limit charts are printed and you have determined which one has the largest total ink limit number with the fewest artifacts:

1. Enter the best value into the **Total Ink Limit** box.
2. Click **Next**.

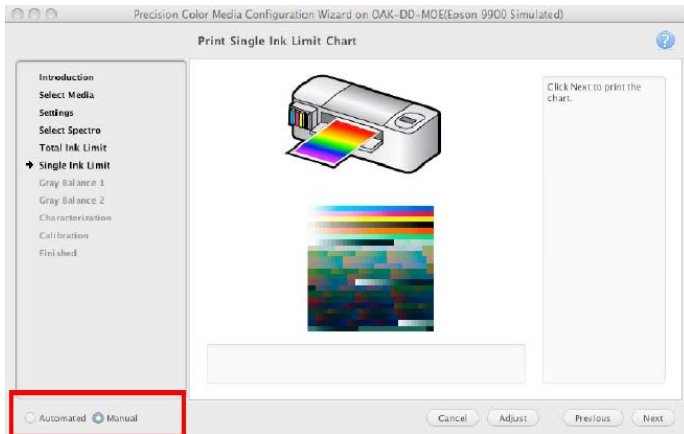
Next steps

- If you have an Epson printer with the SpectroProofer inline spectrophotometer option, processing from this point forward is fully automated. The remainder of the process will take about two hours.
- If you are using an offline spectrophotometer, you will need to print and measure these charts, and the process will take longer to complete.
 - Step 6: Single Channel Ink Limit Chart
 - Step 7: Gray Balance Chart 1
 - Step 8: Gray Balance Chart 2
 - Step 9: Characterization Chart
 - Step 10: Calibration target

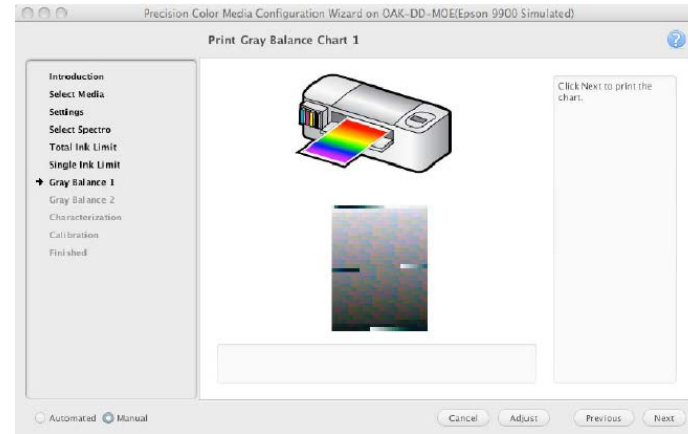


Steps 6 – 10: Click Next to print each chart

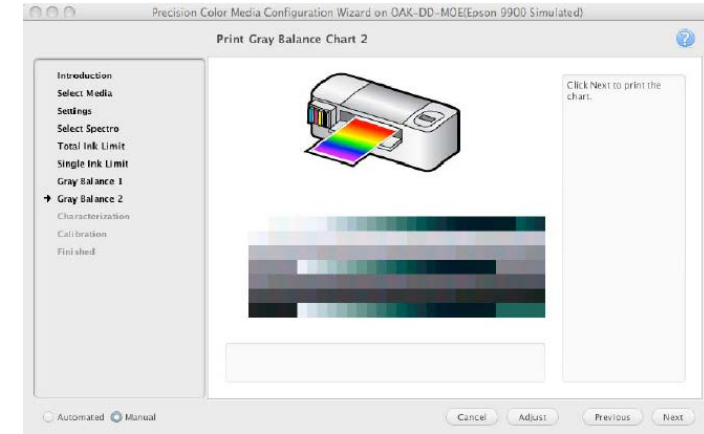
Step 6: Single Ink Limit chart



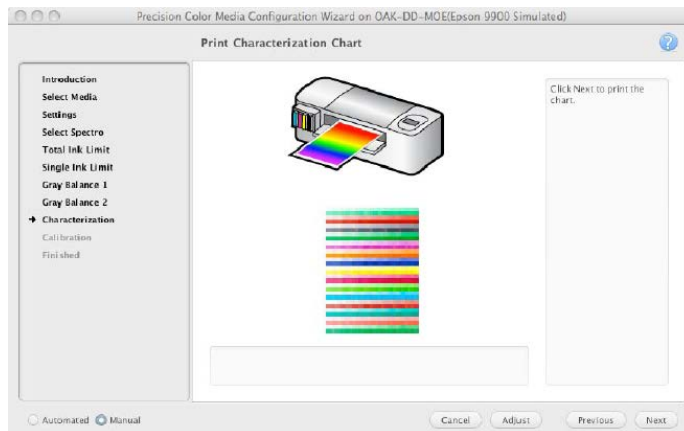
Step 7: Gray Balance chart 1



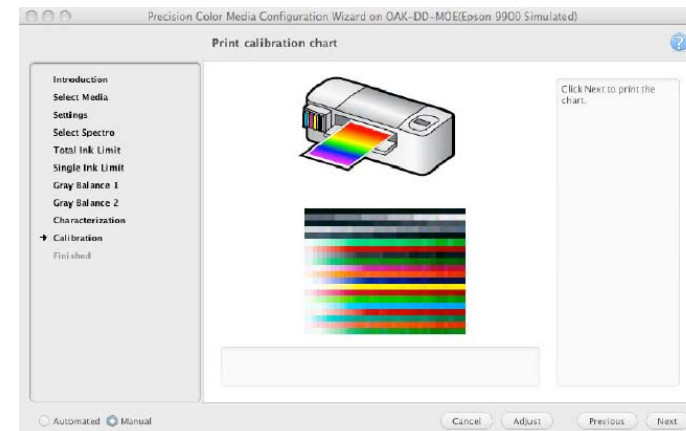
Step 8: Gray Balance chart 2



Step 9: Characterization chart



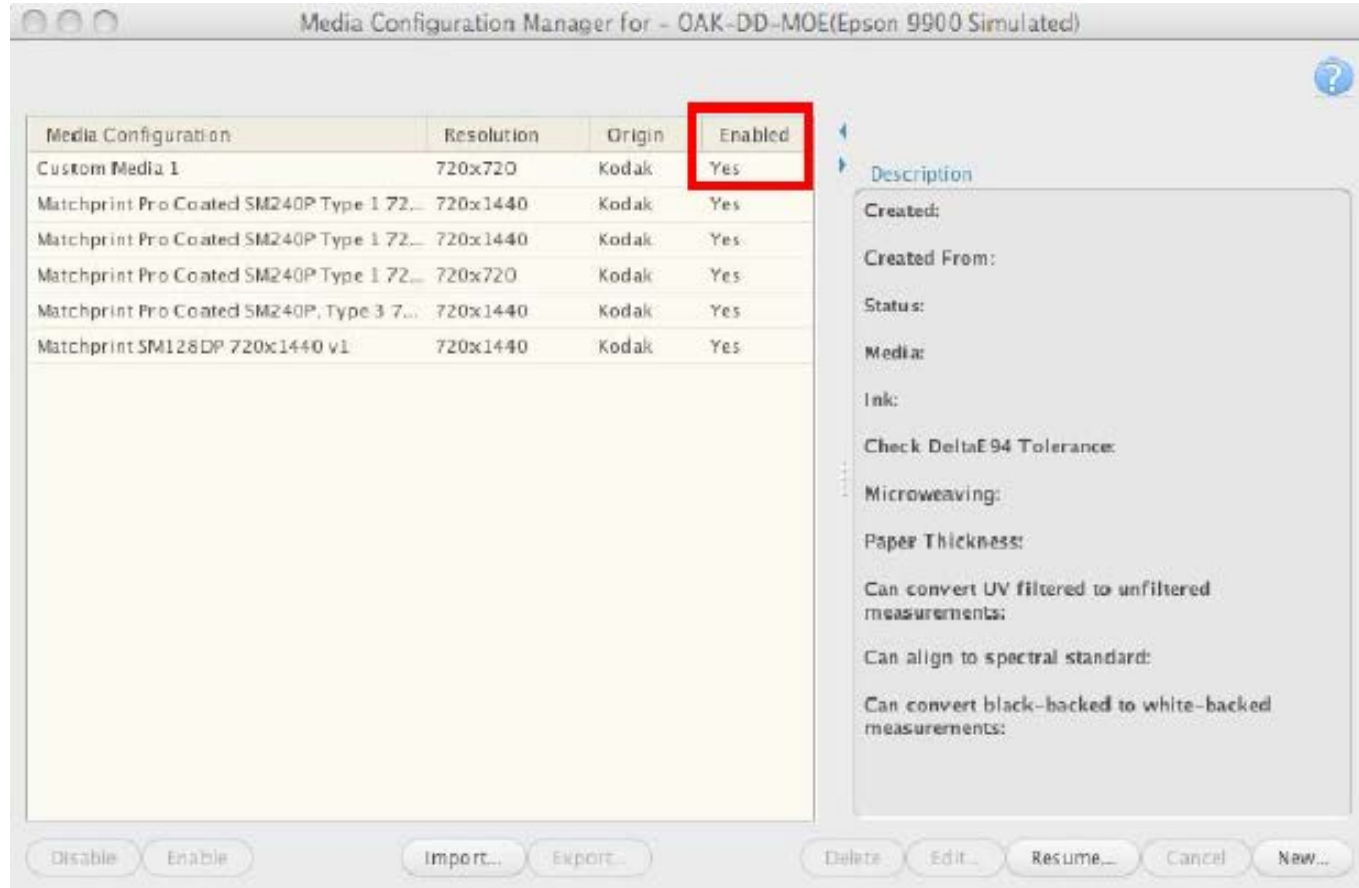
Step 10: Calibration chart



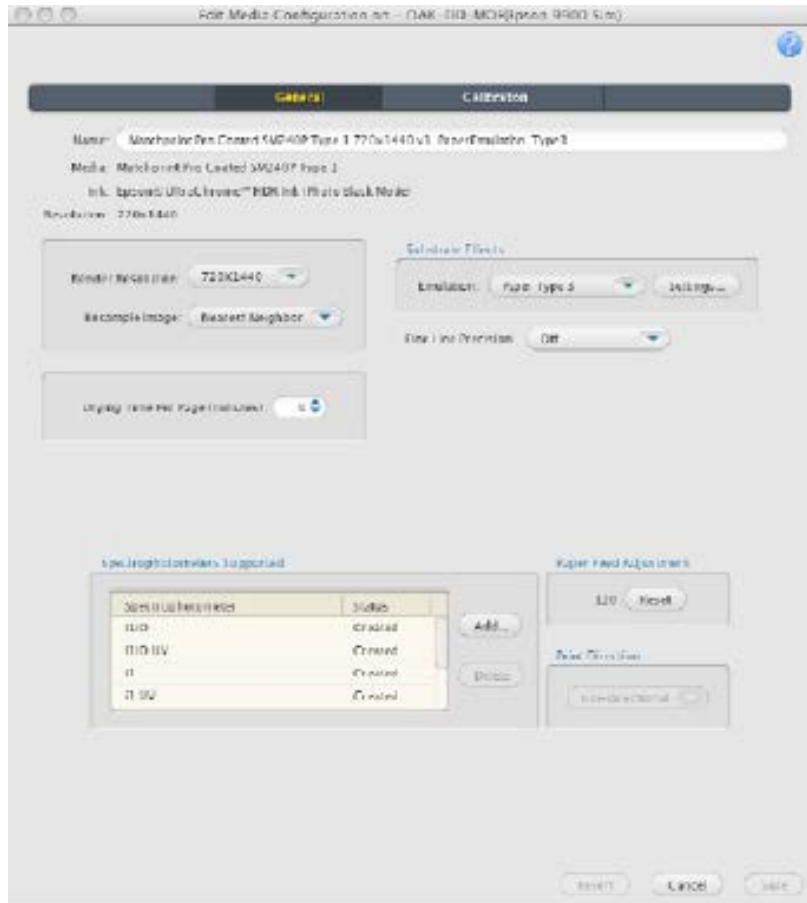
Step 11: Click Done to exit the wizard



Media configurations are automatically enabled and calibrated



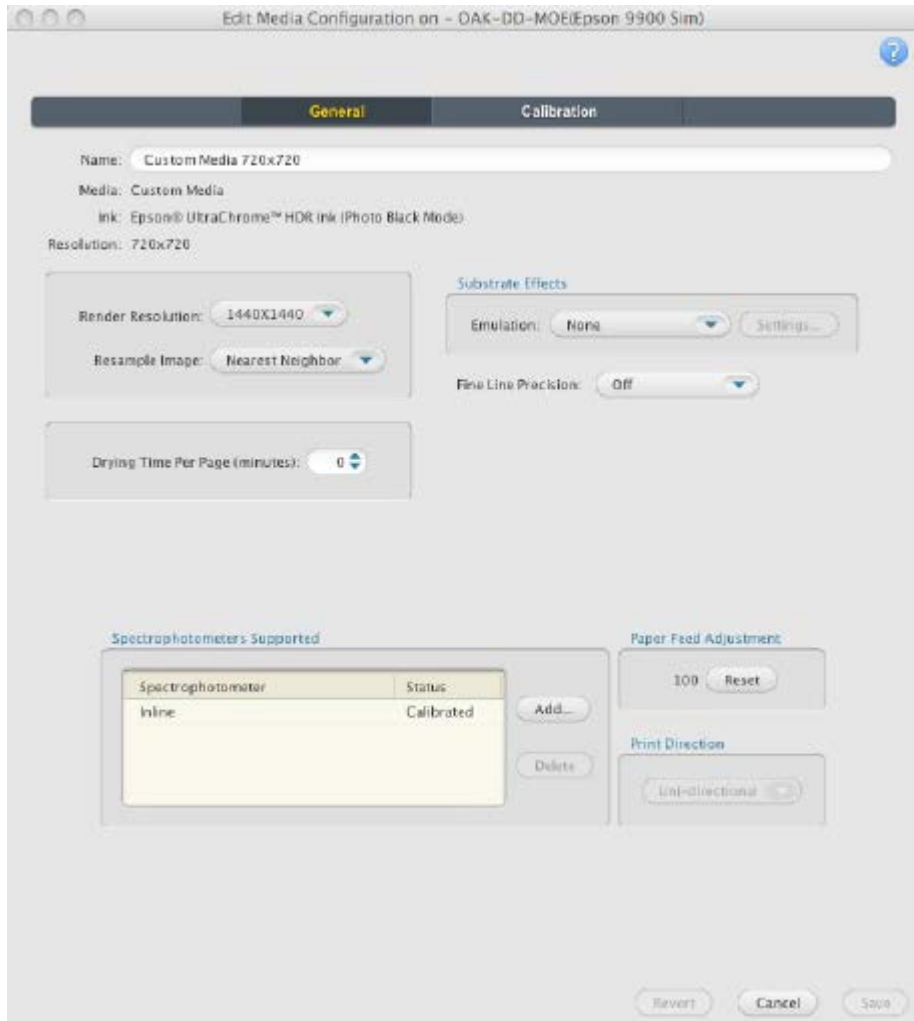
Customize the media configuration



You may wish to customize an existing media configuration to:

- Enable simulation of substrate effects such as fine-line precision, paper grain, press mottle, or cardboard emulation.
- Customize calibration settings.

Editing media configurations: General tab



- If you edit the **Drying Time**, **Fine Line Precision**, or **Corrugated Simulation** parameters, you should recalibrate the proofer before creating an ICC profile.
- To reduce processing time, you can select a lower value for **Render Resolution**. To allow for autorotate, you can select a symmetrical resolution for **Render Resolution**.
- If you edit a Kodak media configuration, you will need to save it with a new name. To use it with the Certified Process for Color Confirmation, you will need to re-sign profiles.

Editing media configurations: Calibration tab

The screenshot shows the 'Edit Media Configuration' dialog box for an Epson 9900 Sim. The 'Calibration' tab is selected. The interface includes a 'Use Automated Calibration' checkbox, a table for ΔE Tolerance Thresholds, an 'Effort' section with a 'Don't optimize more than this number of tries' spinner set to 5 and radio buttons for 'Immediately' and 'when no further optimization improvement is likely (lowest error)', an 'Ink Drying Time before Measuring' section with spinners for 'Offline Spectro Calibration Chart (minutes)' and 'Inline Spectro Calibration Chart (minutes)' both set to 15, and a 'Calibration Status' section with radio buttons for 'Uncalibrated (Factory Default)' and 'Last Calibration : 2010-04-01 12:47:06 PM, Calibrate in 7 days'. At the bottom are 'Revert', 'Cancel', and 'Save' buttons.

	Average	Maximum	Standard
Default	1.0	2.0	ΔE_{94}
Current	1.0	2.0	ΔE_{64}

Edit calibration parameters as desired.

Create a Paper Profile

After creating a media configuration, create a paper profile:

1. Create a hot folder or virtual printer with all ICC color management turned off.
2. Print a target from ColorFlow software or from your profiling application (such as the IT8 or ECI).
3. Unless you are using an inline spectrophotometer, measure the target with the same device that you used to create the media configuration.
For best color results, the filter used to create the paper profile should match the one used to create the Simulation profile.
4. Using the Proofer Administrator application, import the profile.
5. If desired, sign the profile to set the profile category.

If you are using ColorFlow for Kodak Proofing Software, see the Implementation Guide for Matchprint Inkjet for details on creating a paper profile.



Back up data

Once you have created the custom media configuration and paper profile, back up your data.

- Use the Proofer Administrator to back up the system.
- Or, export the custom media configuration and paper profile and manually back them up on a different server.



Tip: Sheet media with Epson printers

When you use an Epson printer, an offline spectrophotometer, and sheet media with the Precision Color Media Configuration wizard, set the front panel of the printer to roll media while you create the media configuration.

The roll media setting stops the printer from ejecting the sheet after each chart prints, and you can print multiple charts on one sheet. After you complete the media configuration, use the front panel of the printer to select sheet media again.

