

# Large Format Graphics

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## Information Bulletin

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### Colorado M series Onyx profiling Guide

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#### Introduction

This document describes how to create Media and ICC-profiles (also called Media models) for the Colorado M series, running on system software version V4.0 and Onyx Software 22.0. The latest Onyx driver is available in the ONYX Printer & Profile Download Manager.

The Colorado has four print mode categories which require different settings, namely: Gloss, Matte, FLXfinish<sup>+</sup> & White. Therefore, each category is described in sub-chapters.

Before creating a new profile, please check whether an existing profile for the media is available via [graphiPLAZA](#)

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## 1. General Information

### 1.1 Known limitations & compatible media

Please note that both from hardware point of view and properties of the media itself there are some limitations.

Media with the following properties can be used with the Colorado M series:

- Transparent/Clear media without opaque liner can now be used.
  - White markers are available and side edge detection can be disabled
- Media with a dark matt/black backside/liner can now be used
  - White markers are available and media handling sensors can detect the media.
- Colored media can be used with White Markers
- Very textured media can be used due to the addition of Robust Markers. Can be used with both Black and White markers.

Media with the following properties cannot be used with the Colorado M series:

- Open structure media without a liner
- 

Please observe the following details regarding dimensions:

- Maximum weight of 1 roll: 50kg / 110lb
- Maximum roll diameter: 220mm / 8,7"
- Roll width: Between 279mm / 11" and 1625mm / 64"
- Roll core diameter: 76mm or 3"

### 1.2 General

Before loading the media, a media profile needs to be defined in the RIP. Once the media is defined and all relevant data is entered, the media profile will be pushed to the printer. Only after the media is known on the printer, the media can be loaded.

Before loading the media measure the following details:

- Media width
- Total Media thickness, including the liner if applicable
- The outer diameter of the core the media is supplied with<sup>1</sup>

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<sup>1</sup> The outer core diameter is needed for automatically determining the remaining media length on the core.

### 1.3 Print surface temperature settings

General rule of thumb for print surface temperature:

Print mode type Media type	Gloss	Matte	Backlit	FLXfinish <sup>+</sup>	White
Porous /uncoated media	X	24	24	X	24
Other media	24	24	32	21	36

X: This combination is not recommended

Typical for the white ink application is that all these modes are used at 36C print surface temperature.

An exception is for porous uncoated media: it is advised to print at 24C, also for the Backlit print mode.

### 1.4 Re-using media profiles & Generic media profile

#### 1.4.1 Re-using Colorado 1630 profiles

The Colorado 1630 CMYKSS media profiles can be used for the Colorado M series (both M3 and M5). Standard Colorado 1630 profiles first need to be converted to a CMYKSS media profile, before it can be used for the Colorado M-series.

The Colorado 1630 CMYKSS media profiles can be imported into the ONYX media manager of the M-series and will be automatically converted to the correct media profile for M3 & M5. The media profiles for C1650 cannot be used for the M-series.

#### 1.4.2 Generic Media profile

With the Colorado M series generic media profiles have been created. With these generic media profiles around 80-90 percent of the media is covered. For media that does not result in a satisfied output, it is recommended to create a media profile with print modes from scratch. How to make print modes from scratch is described in the following chapters.

The media profiles will be supplied per media category. Each media profile will have the standard vacuum settings per category, a standard media thickness and an average OCP value for Gloss print modes.

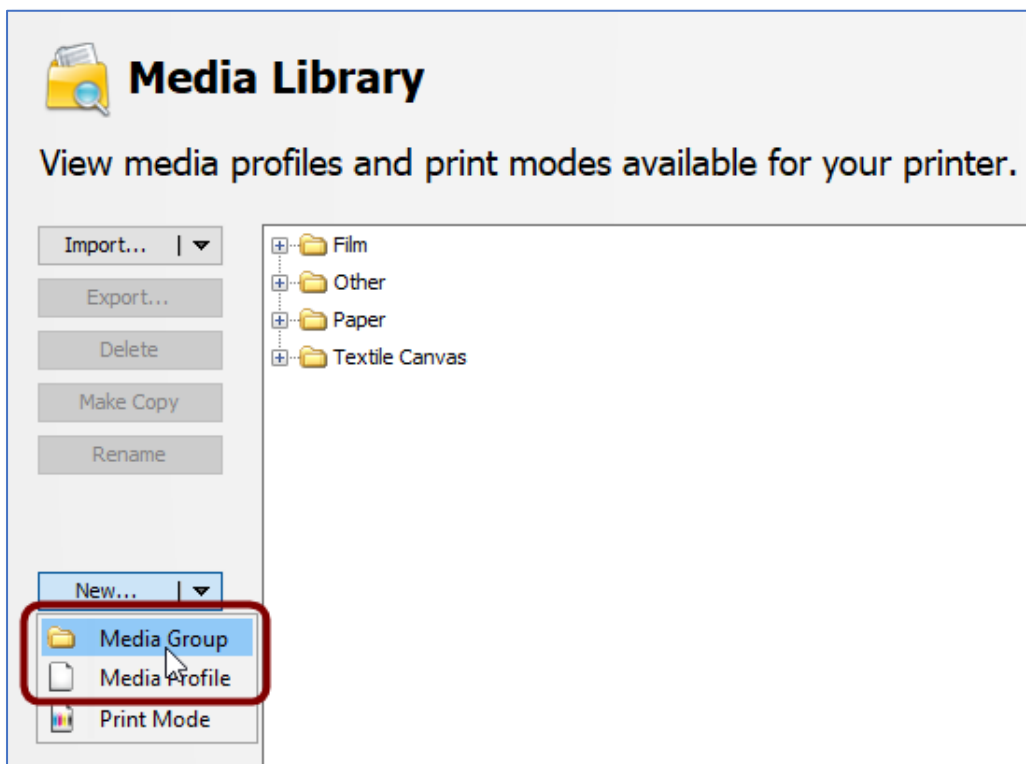
When using the generic media profile it is advised to make a copy and rename it to your preference. Change the media thickness to the correct thickness of the used media and check if the OCP setting is sufficient. In some cases the vacuum settings need to be adjusted. Next to that, delete any unwanted print modes.

## 2. Defining the media

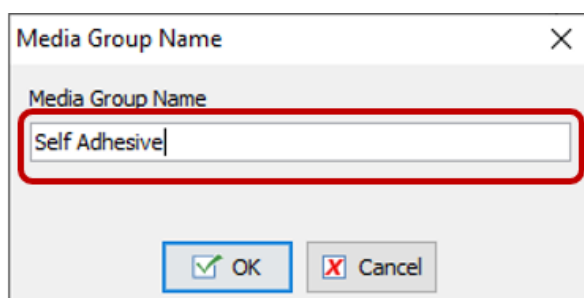
Before starting the profiling process, the media needs to be defined in the ONYX Media Manager and pushed to the printer.

Open ONYX Media Manager

Select an existing media group or create a new media group by clicking the drop-down menu next to “New...”-button and select “Media Group”. Do not forget to select the newly created media group in case the new profile needs to be added to this new media group. Note: Media can be moved if it is placed in the wrong group.



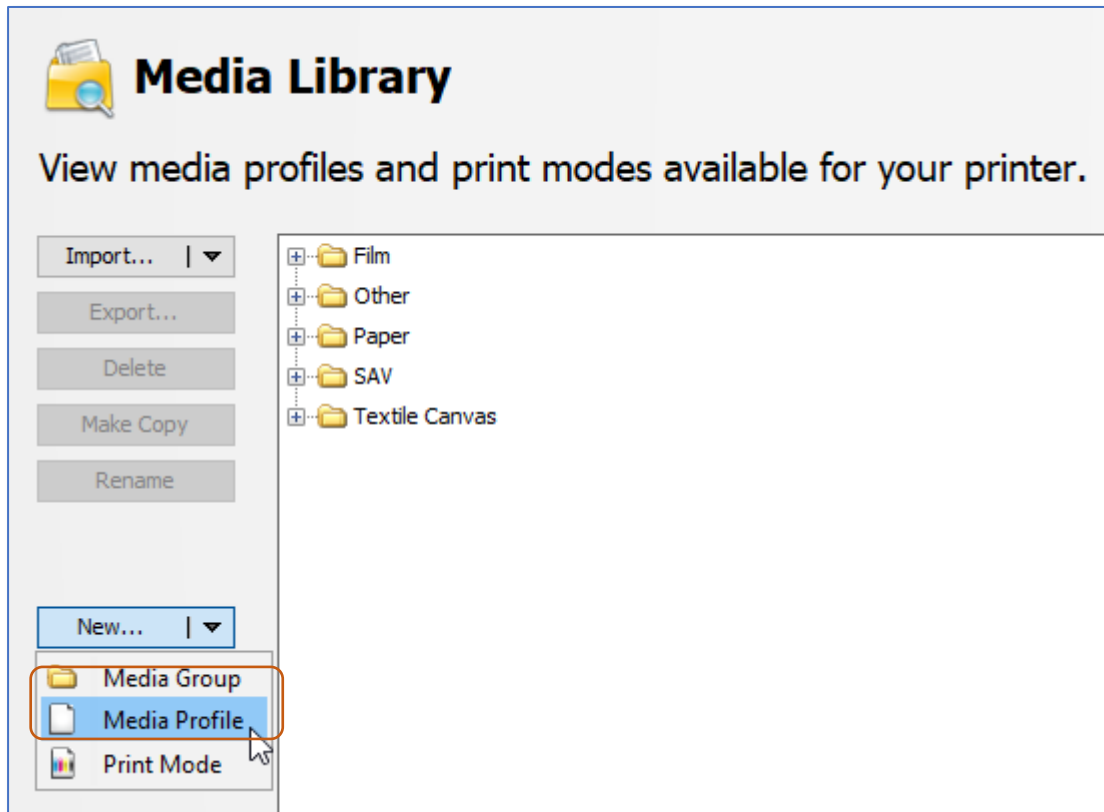
Enter the Media Group Name and press the OK button.



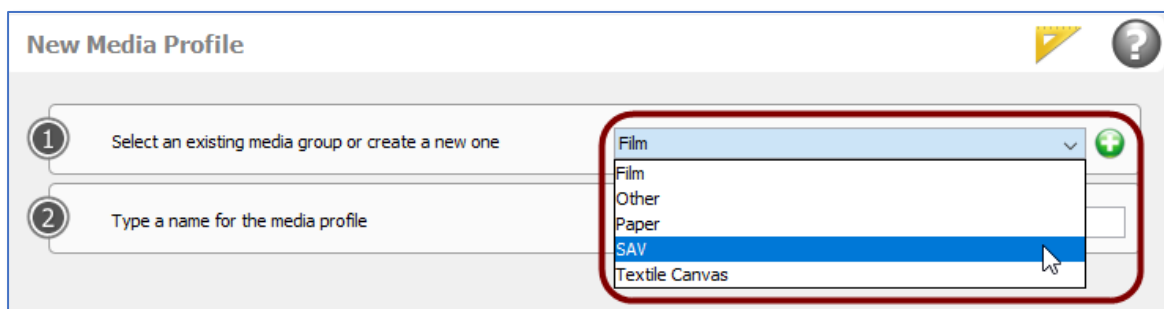
Create a new media profile

## 2.1 Defining Media Profiles

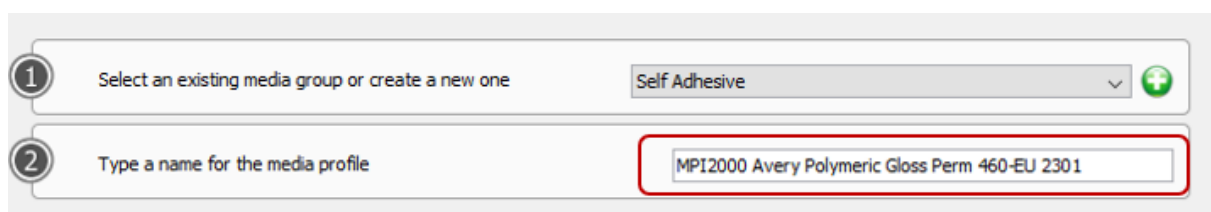
Click the drop-down menu next to the “New...”-button and select “Media Profile”.



Select an existing media group or create a new media group by clicking on the drop-down menu on the right side next to the list with available media groups.

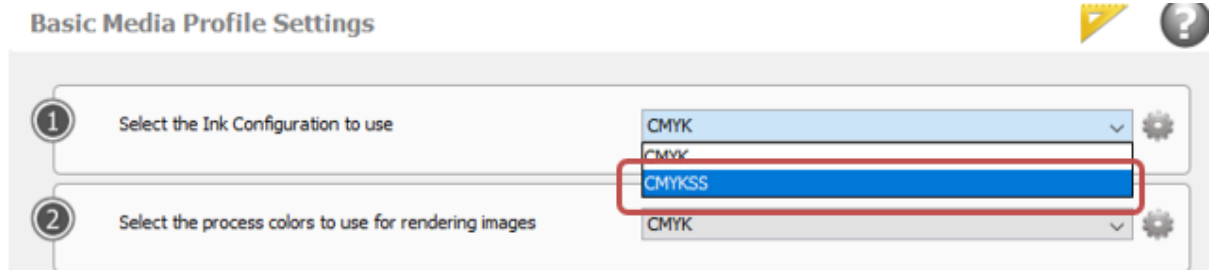


Enter the name for the media profile. It is recommended to follow the Media Profile Naming convention.

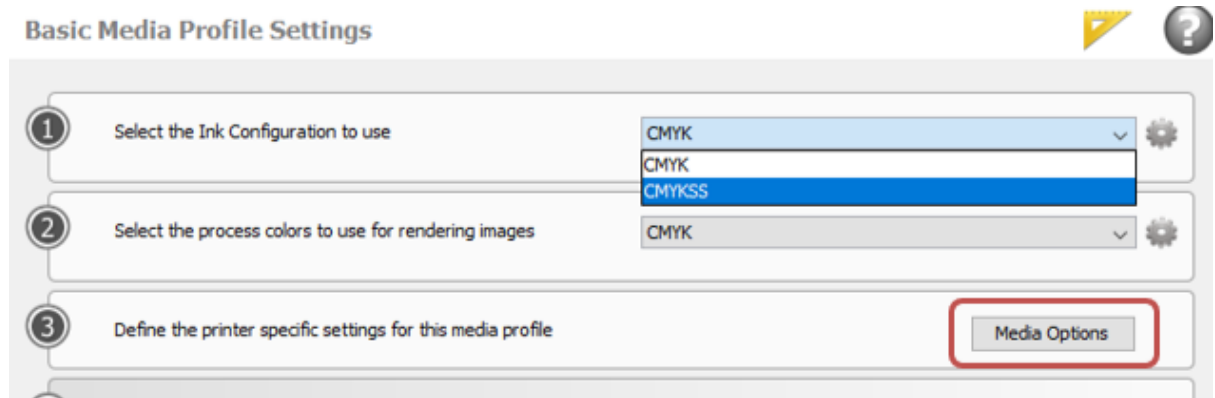


Click Next

Set the Ink Configuration to CMYKSS instead of CMYK.



Click on Media Options (Button on line 3)



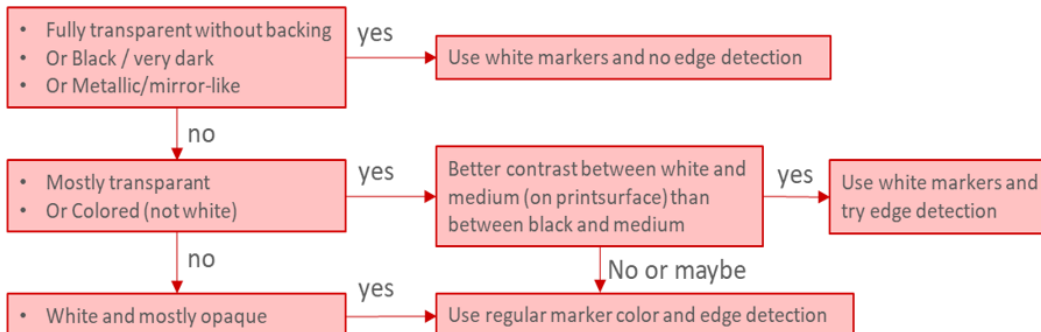
A form will pop-up allowing you to enter all the information relevant for the media. Please check the details about each of the individual settings in [Appendix V](#).

Note: You must be connected to the printer otherwise “Media Options” will not pop-up.

When selecting the right “Media Category” all values are updated with the default settings for the selected Media category/type. Please note that the Media Thickness needs to be changed from the default and maximum value of 800 µm and make sure to select the right media detection settings.

To select the right media detection settings use the following graph:

Medium:





Media Characteristics

Media Type Name: Self Adhesive Generic Profile 460-EU 2301

Media Category: Self adhesive

Auto Media Advance

Automatic Advance Correction: Normal

Print Gap: Medium

Zone A Vacuum Strength: 70

Zone B Vacuum Strength: 40

Zone C Vacuum Strength: 40

Zone D Vacuum Strength: 40

Zone E Vacuum Strength: 40

Winding Tension: No tension bar

Requires Manual Loading

Suitable for Printer/Cutter

Outer Core Diameter: 85

Media Thickness: 800

Moist Sensitivity: 0

Use White Markers

Suitable for Side Edge Detection

Layout Preview  Printer Does Copies (Only for "Print Jobs Individually")

OK Cancel

Only after setting the value for the Media Thickness, the OK button becomes active and the media settings can be saved.

Click OK.

**Note:** See [appendix V](#) to get detailed information regarding each setting.

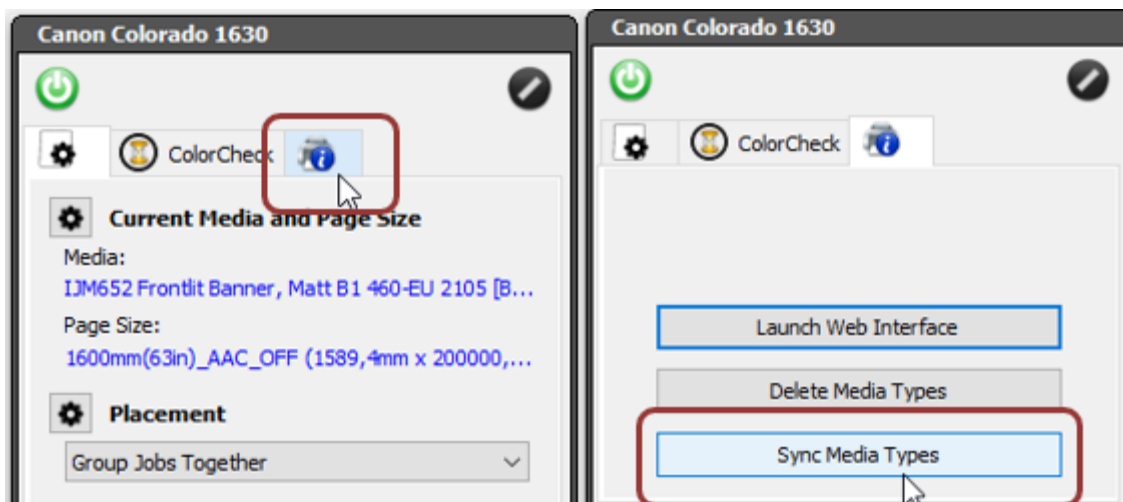
After filling in the right media profile settings, make sure to also open and close ‘Spot color setup’ in order to go to the next page.

**Note:** In the Spot color setup you will see that 2 spot colors will be recognized.

If wanted, you can change the displayed colors of Spot1 and or Spot2 by going to edit.. This will not have any effect on the output, it’s only a matter of preference.

## 2.2 Load & Calibrate the media

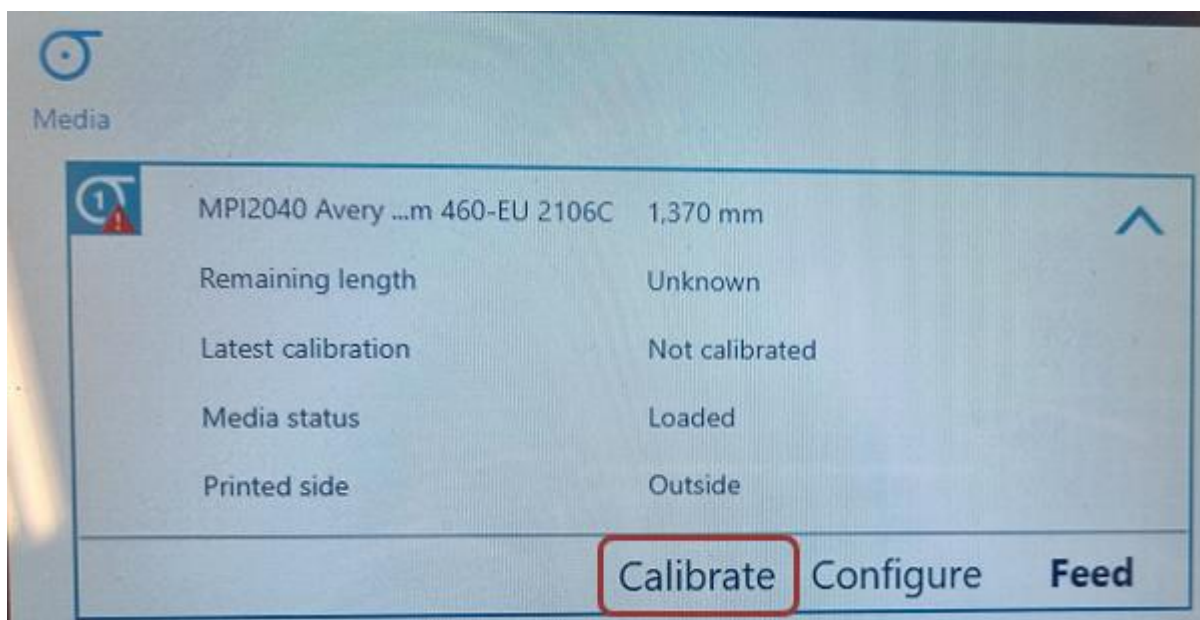
Go to the RIP Queue after the media has been created and click on the “i” icon on the top right and click on Sync Media Types.



Load the media into the printer after the Media Types have been synchronized and select the correct media name and media width on the LUI.

Calibrate the media.

Example:



Note: The Red triangle with exclamation mark is an extra reminder that the Media is not calibrated.

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## 3. Creating a Media Profile

After all media characteristics have been set correctly the color profiling process can be started. Gloss, Matte & White print modes require different profiling processes. Therefore, the procedure on how to create an ICC profile for Gloss and Matte print modes is split into different chapters.

To see which print modes are recommended per media category go to [Appendix IV](#).

Do note: all print modes can be printed Bi-directional (default) and Mono-directional, in case of print artifacts caused by Bi-directional printing. Choosing Mono-directional will result in a lower print speed, around ~60% of the default speed.

### 3.1 Creating a Media Profile for Glossy Print modes

For creating an ICC profile for the Glossy print modes one additional value Optimized Color Profiling (OCP) needs to be set before we can start with the profiling process. To determine this value, one chart needs to be printed with a linear profile. This additional value and related printing of the test chart is not required for the Matte print modes.

Creating an ICC profile for Glossy Print modes on Colorado M Series includes the following steps:

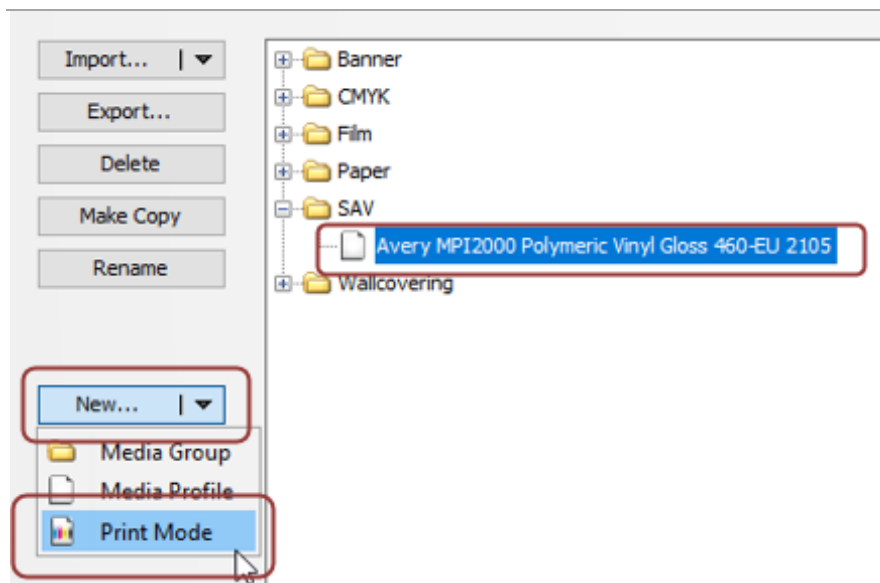
1. Select the print mode and configure print mode parameters if applicable
2. Determine the OCP-setting with using the Gloss Specialty print mode.
3. Measuring and setting the value for the ink restrictions
4. Measuring the calibration values
5. Setting the ink limits
6. Setting the ICC profile settings and generate the ICC-profile

Click on the desired media and create a new print mode.

To see the recommended build settings for Gloss print modes, go to [Appendix I](#)

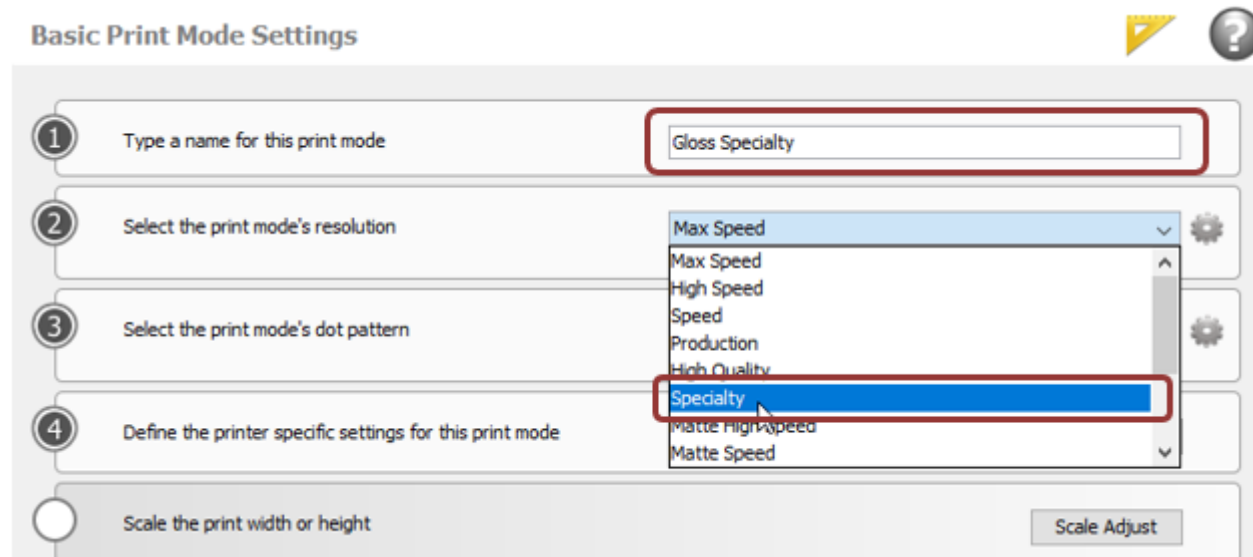
How to create a print mode will be described in this section via text and screenshots, it is also possible to watch this [video](#).

Click on New... & click on Print Mode



Select the print mode (and configure print mode parameters if applicable)

Enter the print mode name and select the concerning print mode from the list. For all Gloss-modes we recommend adding "Gloss" in front of the print mode name, so all Gloss print modes are listed together in Media Manager.



Click Next

Click on Mode Options (button on line 4)

**Basic Print Mode Settings**

- Type a name for this print mode:
- Select the print mode's resolution:
- Select the print mode's dot pattern:
- Define the printer specific settings for this print mode:
- Scale the print width or height:

For the Glossy print modes, we recommend starting with the default print mode settings. Only in case of artefacts or issues with the print performance changing the print modes settings may be helpful.

Accept all the default values.

Ensure the value for “Optimized Color Profiling:” is set to 1.

**Mode Options**

Device: Canon Colorado 1630  
 Media: Avery MPI2000 Polymeric Vinyl Gloss 460-EU 2105  
 Media Type: Avery MPI2000 Polymeric Vinyl Gloss 460-EU 2105  
 Mode: Specialty

Print Surface Temperature:

Pre-cure Power:

Through-cure Power:

Step Correction:

Optimized Color Profiling:

Click OK.

Click Next.

### 3.1.1 Determine the OCP-setting

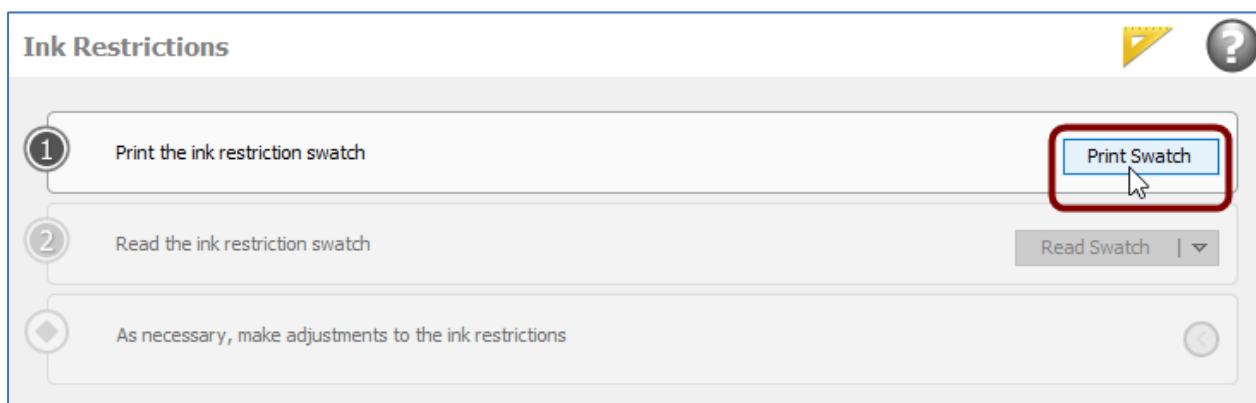
For creating a color profile for a glossy print mode, the OCP-setting (Optimized Color Profiling) needs to be determined and set. For determining this setting, M-series OCP testchart\_V1 (Smart Ink Limiting Chart) needs to be printed with a linear profile. In order to create a linear profile, an ink restriction table is needed. It is possible to watch a [video](#) on how to create a linear profile.

**The OCP-setting needs to be determined for Gloss Specialty only.**

The determined OCP value from Gloss Specialty can be used for all other Gloss print modes, except Max Speed this print mode can always be kept at OCP level 1 due to the low amount of ink placed.

Print and measure the Ink Restrictions Swatch

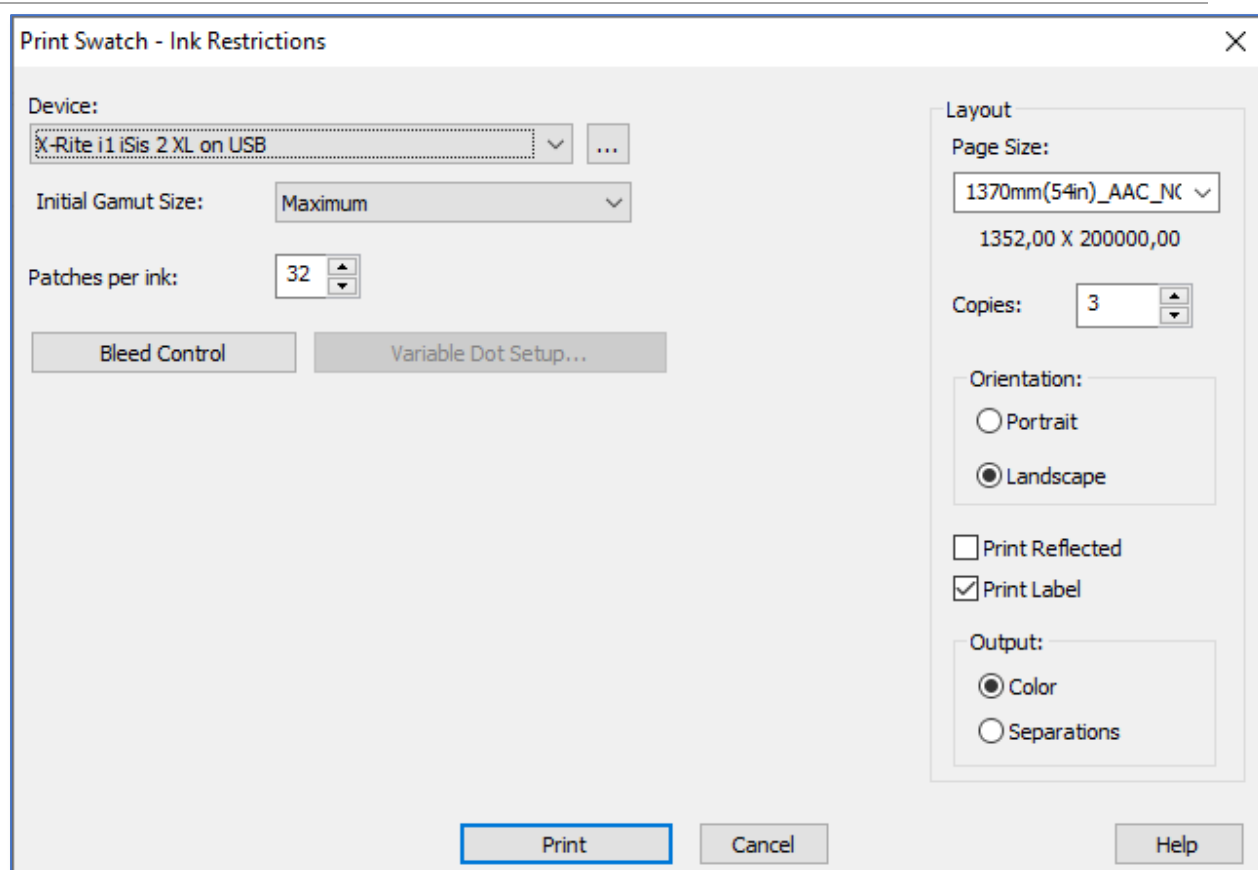
Click on Print Swatch (button on line 1)



Check the following settings in the Print Swatch - Ink Restrictions dialog:

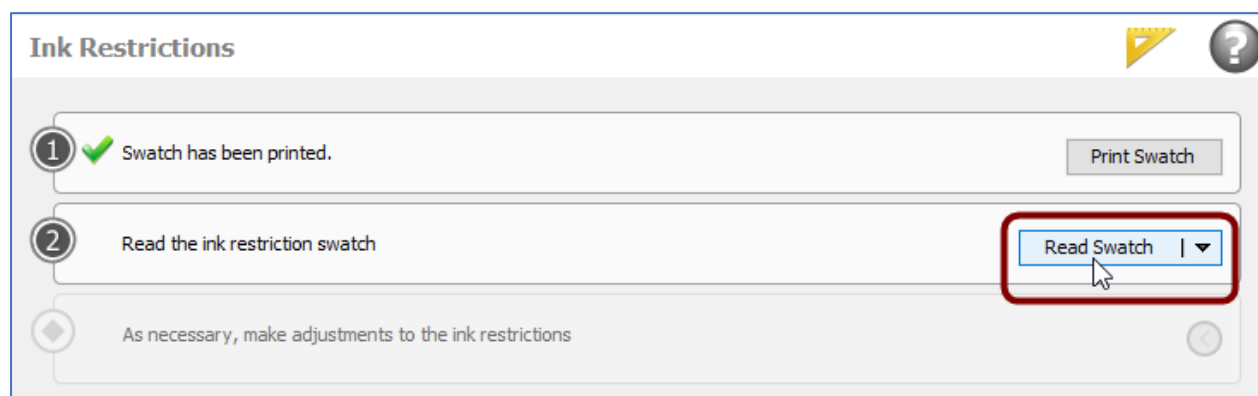
- **Device:** Ensure you select the Spectrometer which is connected to your PC/laptop
- **Initial Gamut Size** should be set to “Maximum”
- **Patches per ink** is preferably set to a value which ensures all patches of each individual color are printed on a separate line (this depends on the used Spectrometer).
- Select the right **media size**. Please check the size of the media being loaded.
- Set the **number of copies** to 2 or if possible more; typically the number of swatches which can be printed next to each other in one line. This depends on the width of the used media. This prevents the need for reprinting the swatch in case of media damage or pollution at a certain part of the media.
- Ensure the checkbox for **Print Label** is selected and the output is set to “Color”

Click Print.



After the Swatch with the color patches is printed, cut out a copy which is free of damages or pollution and feed this swatch into the Spectrophotometer.

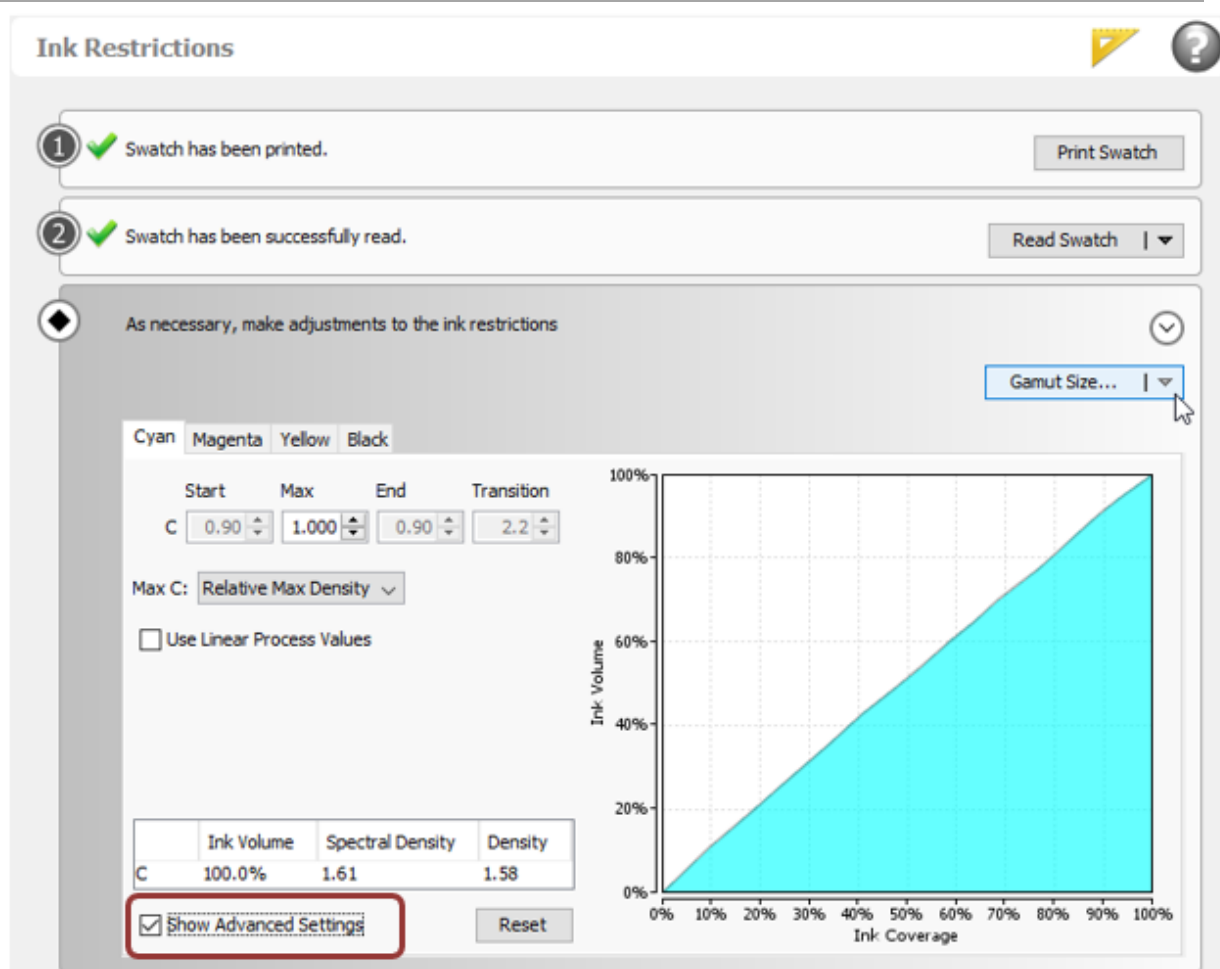
Click on Read Swatch (button on line 2)



After all values are read, expand the section showing the results of the measurements.

Select the check box "Show Advanced Settings" (left bottom) which makes the settings available for generating linear profile.



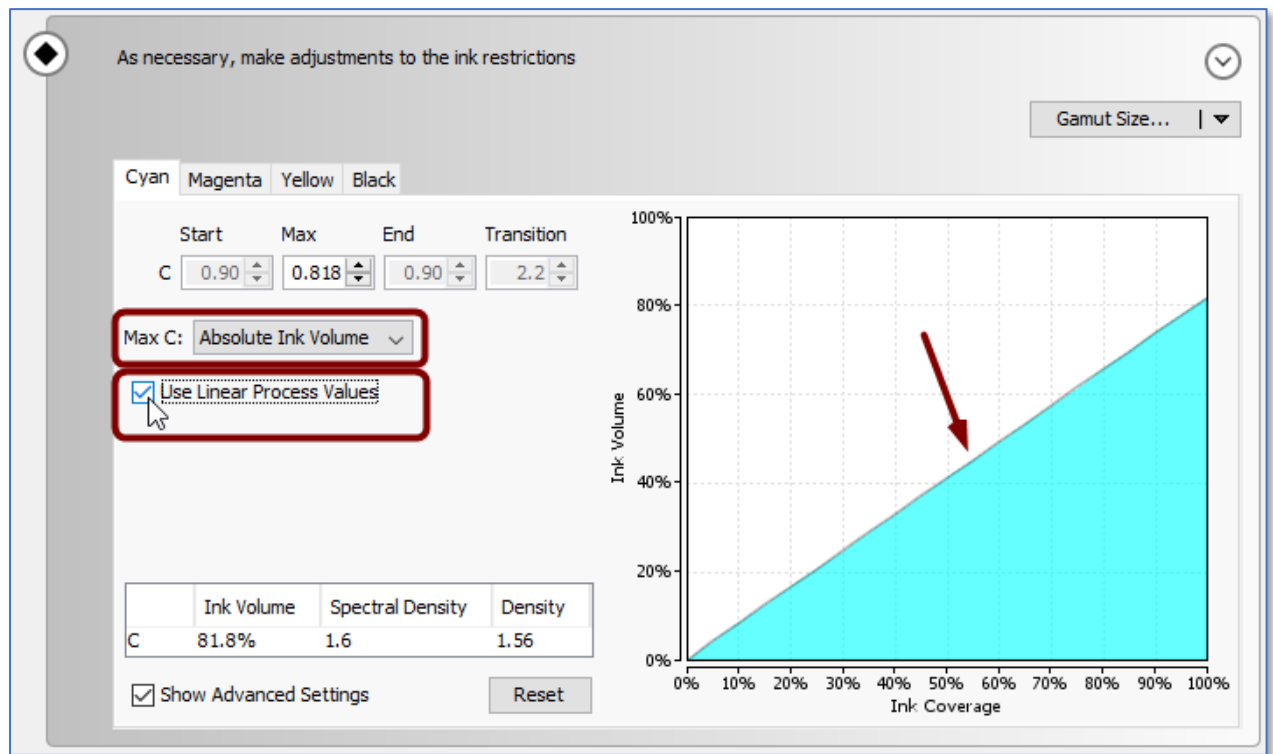


Now for each color (Tabs Cyan / Magenta / Yellow / Black)

- Set Max. value to “Absolute Ink Volume” and
- Select the check box “Use Linear Process Values”

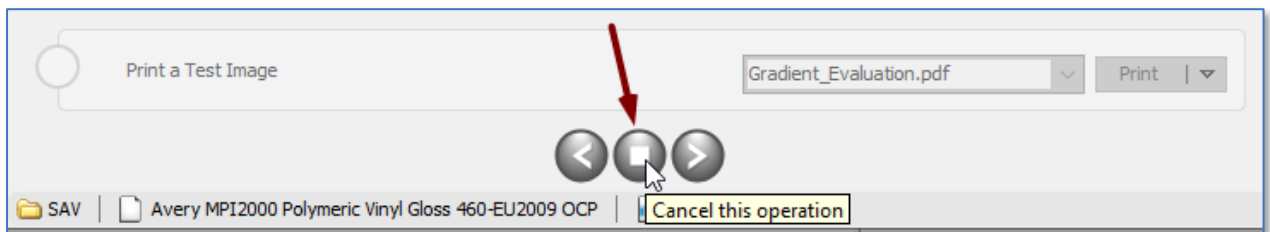
After adjusting these values, the slightly curved diagrams showing the Ink Volume and related Ink Coverage, will change into a straight line.

Note: For all Gloss print modes the curve will look straight or slightly curved, except for gloss High Speed. The curve of the Gloss High Speed print mode can be a lot more curved compared to the other print modes.

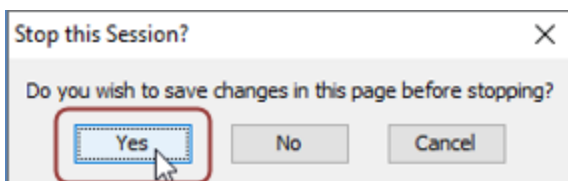


Click Next.

In the next screen click on the stop/cancel button in the middle.



Click Yes to stop the profiling process at this point and save the linear profile.

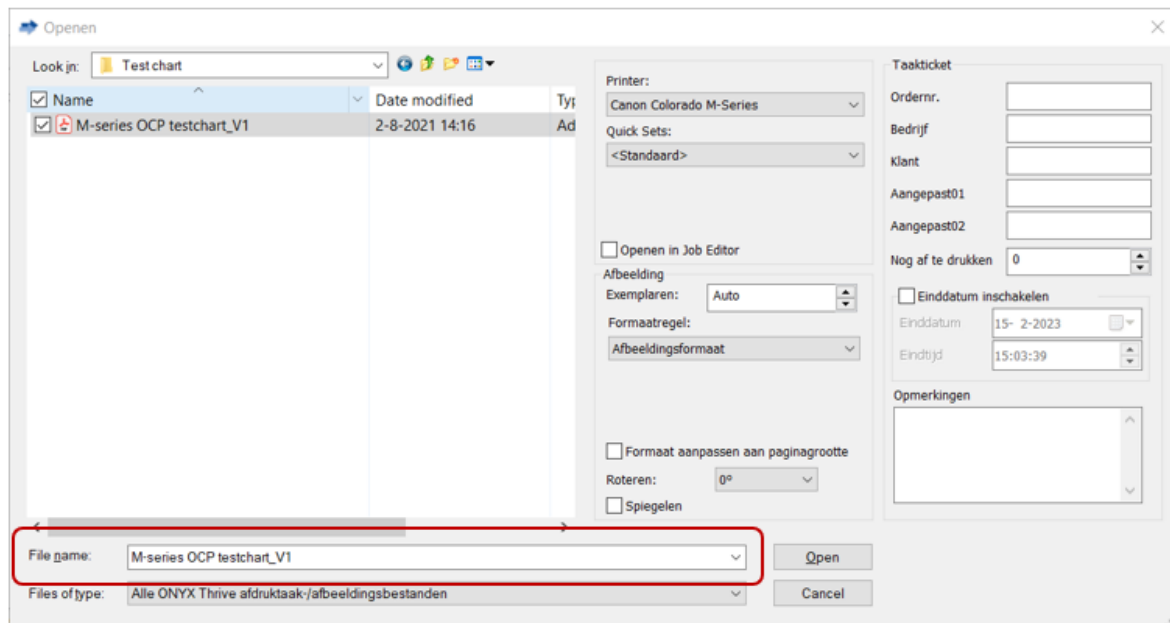


### 3.1.1.1 Print OCP test-chart

In order to determine the OCP level, a test-chart “M-series OCP testchart\_V1” needs to be printed after creating a linear profile. The test-chart consists of 25 patches with 5 different Colors and each Column represents an OCP level (1 to 5). The “M-series OCP testchart\_V1” can be downloaded from the [Colorado Support Tools](#) page on GraphiPLAZA. Again you can watch a [video](#) on how to determine the OCP.

Open ONYX Job Editor

Select and open “M-series OCP testchart\_V1”



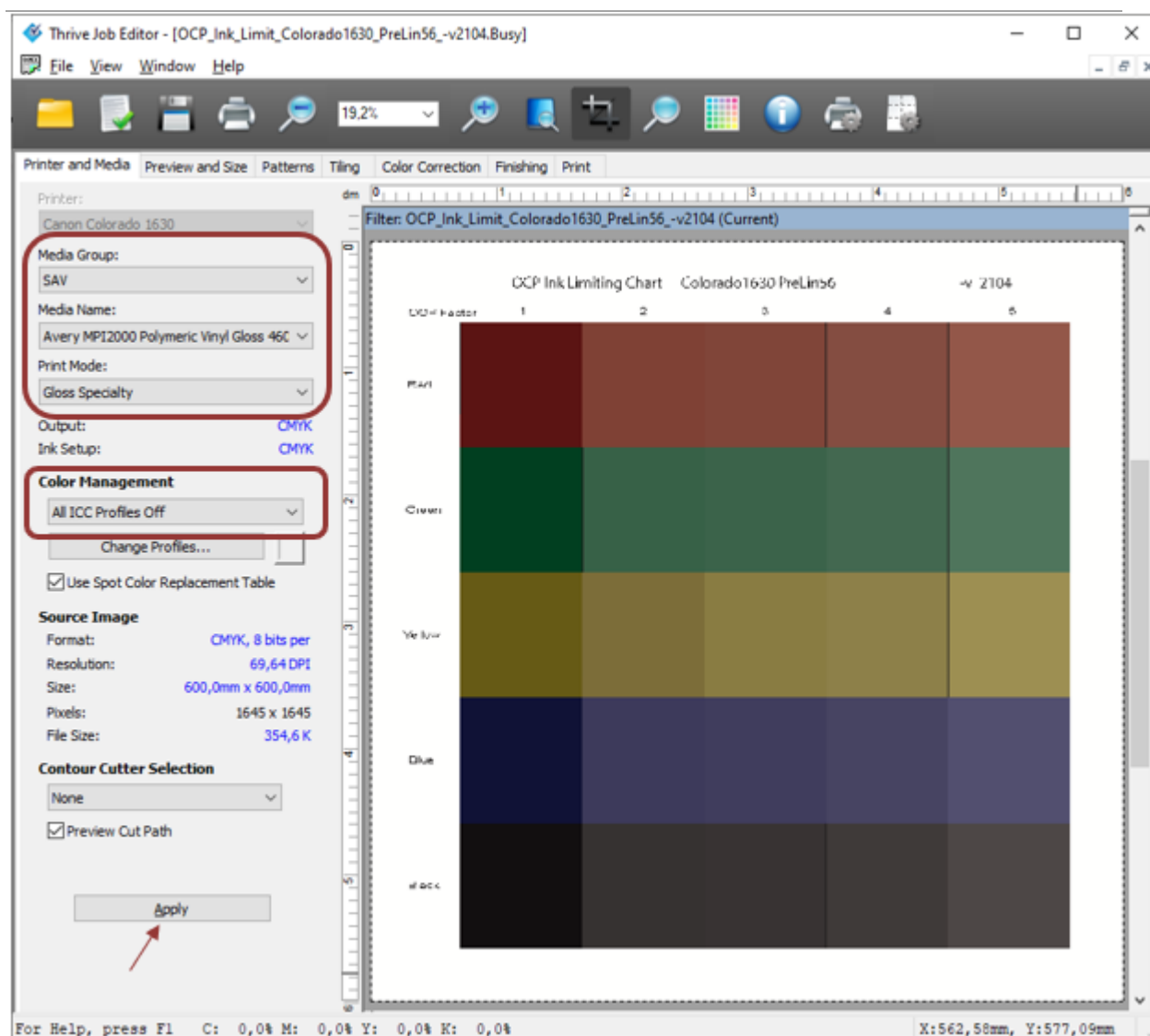
Select the right media and print mode:

- Media Group: In this example “**SAV**”
- Media Name: In this example “**Avery MPI2000 Polymeric Vinyl Gloss 460-EU2105**”
- Print Mode: In this example “**Gloss Specialty**”

Ensure to set in Color Management “All ICC Profiles Off”.

For determining the right value, it is recommended to print the file in “portrait”-mode

Click Apply



Submit the Job

### 3.1.1.2 Analyzing the OCP test-chart

The best way to analyze the test-chart is by watching it from the right side (column indicated by "5") into the direction of the left side.

Try to find the most left column which is free of wrinkle. The number printed about the most left column, which is free of wrinkle, represents the value which needs to be selected for "Optimized Color Profiling" in the print mode settings.



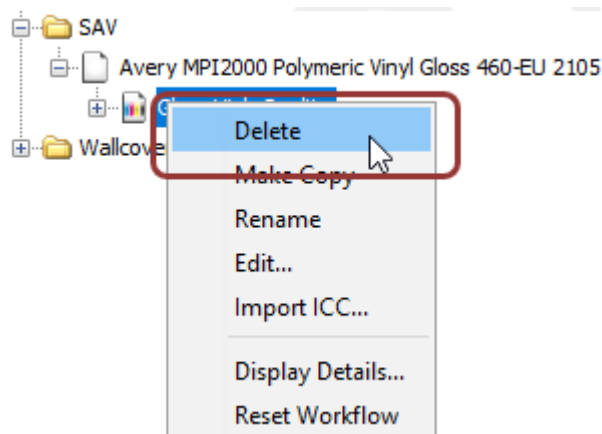
Please note that the level of wrinkling heavily depends on the used media. Some media are more sensitive while other media are completely free of this artefact.

In case of doubt, we recommend choosing the lower value. The values from the test chart are in fact maximized values, based on colors that may not be used when printing regular images. If the wrinkle-artefact still is visible, the OCP-setting can be raised with a very limited impact on the total color profile. For most applications, raising the value from 2 to a higher value may not show any significant color differences.

### 2.2.1.1 3.1.1.3 Changing the OCP setting

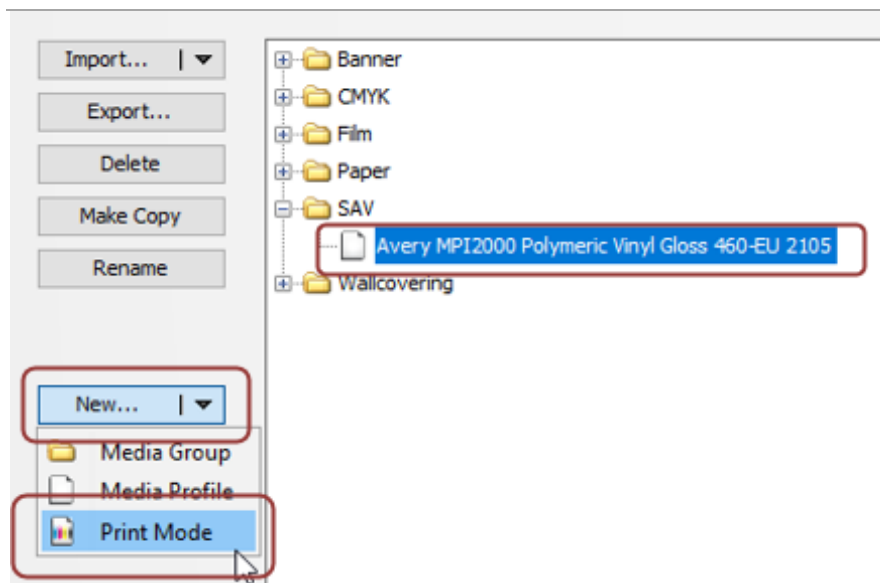
Delete the print mode with the linearization profile after determining the OCP level and start fresh. A [video](#) is available for this part.

Right click on the print mode and click on Delete.

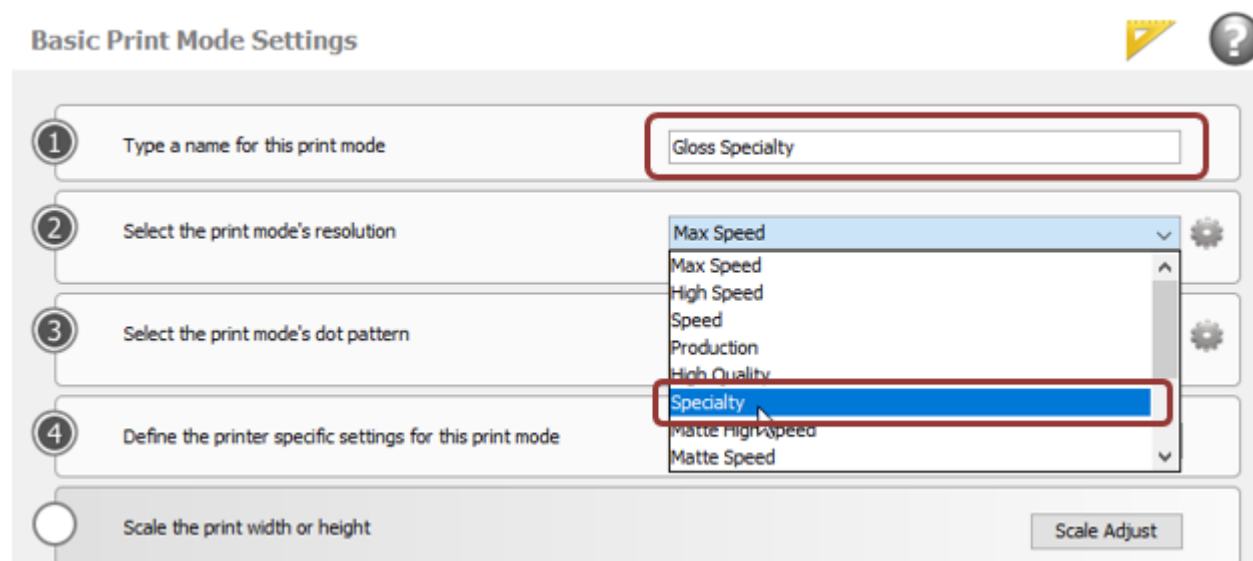


Create a new print mode.

Select the media profile, click on New... and click on Print Mode.



Enter the print mode name and select the concerning print mode from the list. For all Gloss-modes we recommend adding "Gloss" in front of the print mode name, so all Gloss print modes are listed together in Media Manager.



Click Next

Click on Mode Options (button on line 4)

**Basic Print Mode Settings**

- 1 Type a name for this print mode
- 2 Select the print mode's resolution
- 3 Select the print mode's dot pattern
- 4 Define the printer specific settings for this print mode
- 5 Scale the print width or height

Change the OCP level which has been determined, in this example OCP 2.

**Mode Options**

Device: Canon Colorado 1630  
Media: Avery MPI2000 Polymeric Vinyl Gloss 460-EU 2105  
Media Type: Avery MPI2000 Polymeric Vinyl Gloss 460-EU 2105  
Mode: Specialty

Print Surface Temperature:

Pre-cure Power:

Through-cure Power:

Step Correction:

Optimized Color Profiling:

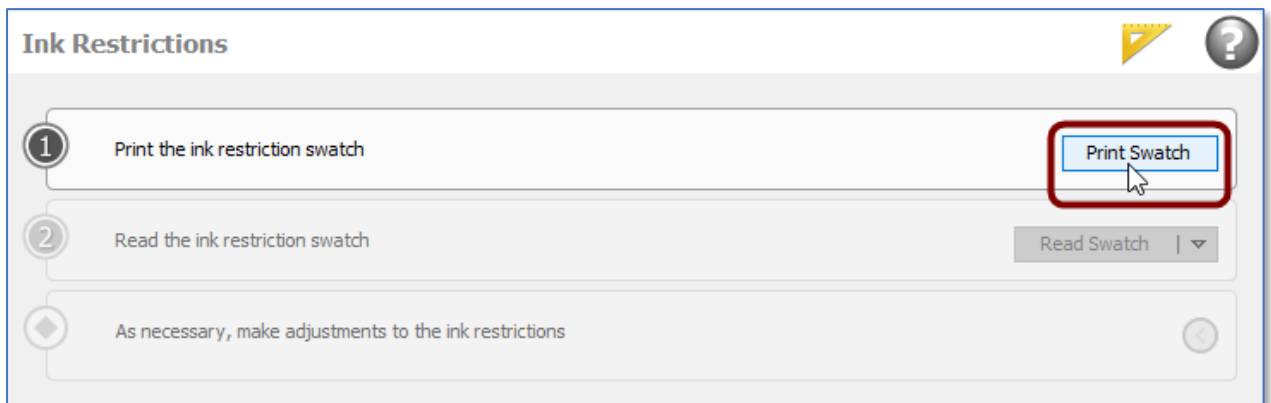
Click OK.

Click Next.

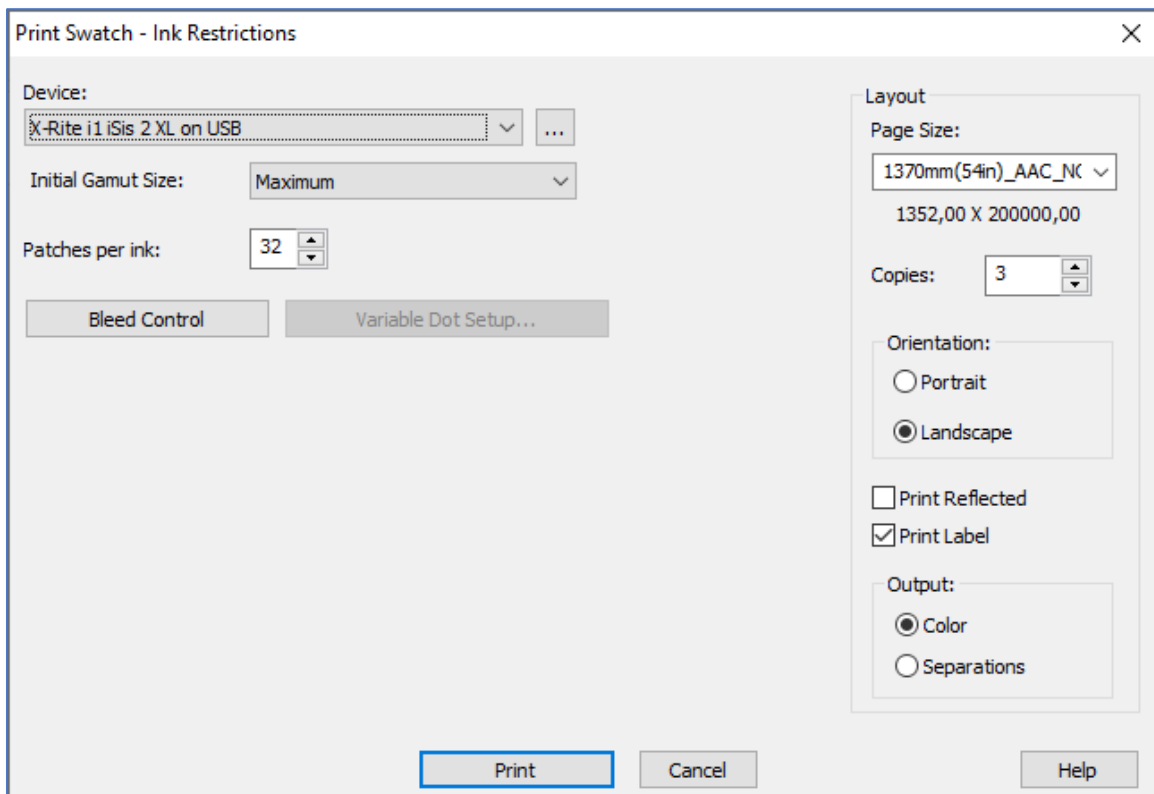
### 3.1.2 Measure ink Restriction

Print and measure the Ink Restrictions Swatch

Click on Print Swatch (button on line 1)



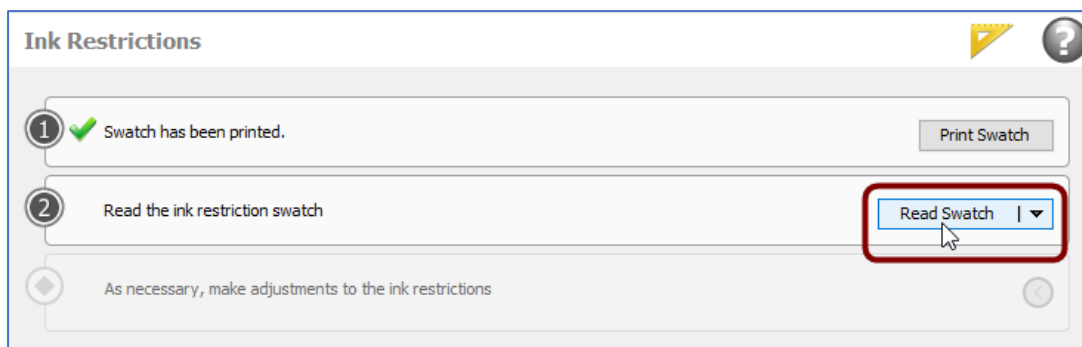
Click on Print (the previous settings have been saved).



After the Swatch with the color patches is printed, cut out a copy which is free of damages or pollution and feed this swatch into the Spectrophotometer.

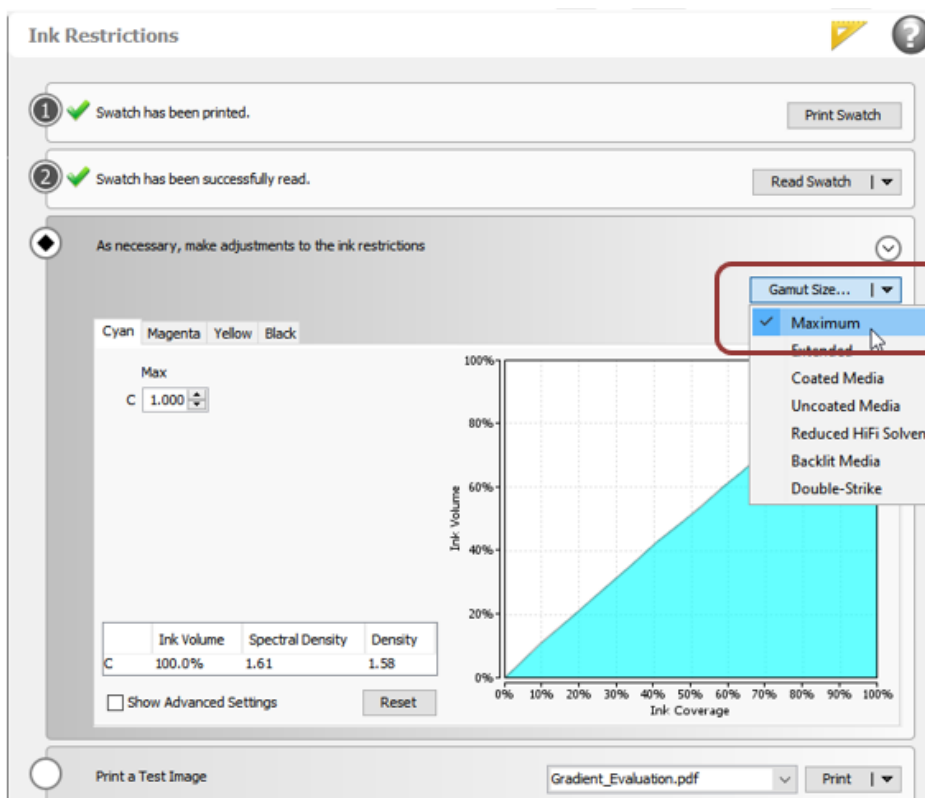
Click on Read Swatch (button on line 2)





After all values are read, expand the section showing the results of the measurements.

Click on Gamut Size... (button on line 3) and select Maximum.



Click Next.

### 3.1.3 Measure the Calibration

Print and measure the Calibration Swatch.

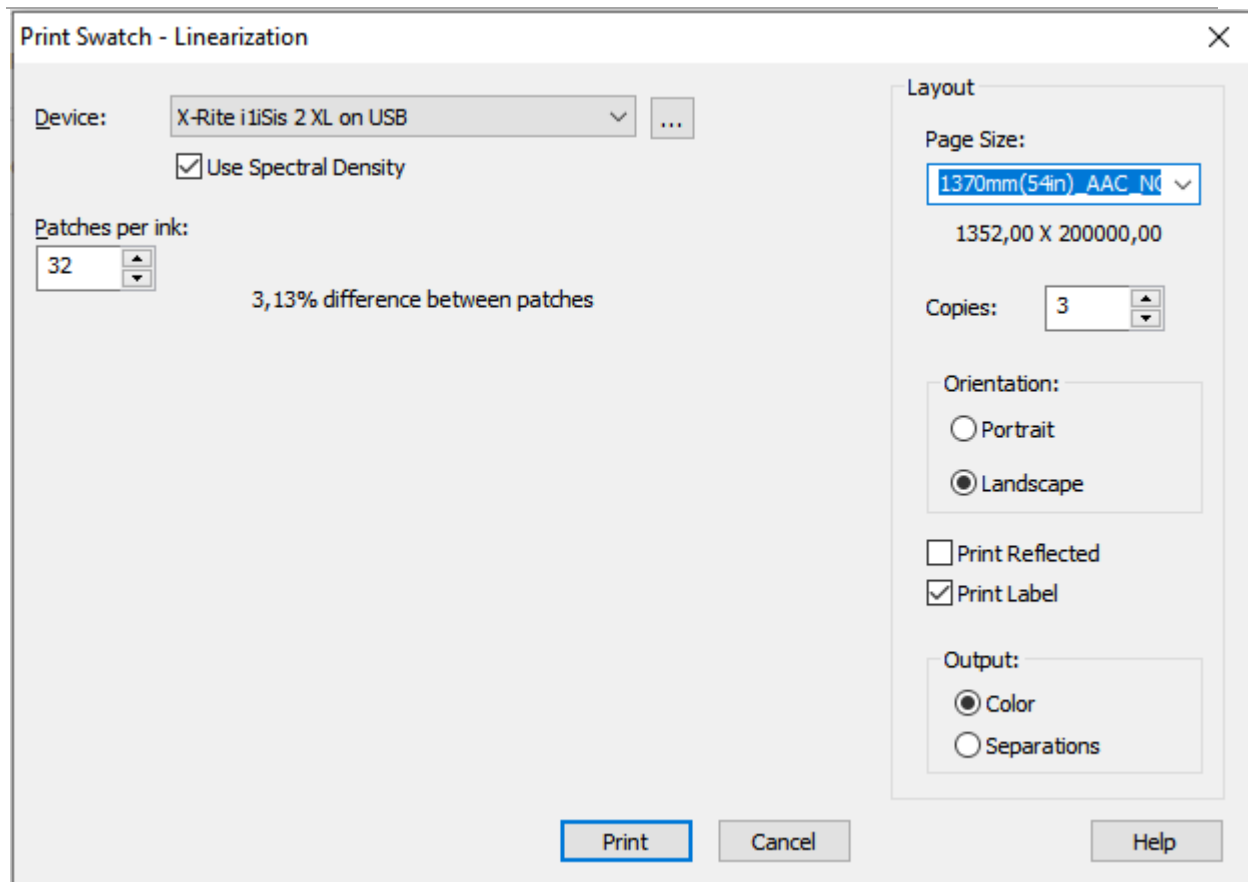
Click on Print Swatch (button on line 1)



Click on read Swatch (button on line 2)

Check the following settings in the Print Swatch - Calibration dialog:

- **Device:** Ensure you select the Spectrometer which is connected to your PC/laptop
- **Initial Gamut Size** should be set to "Maximum"
- **Patches per ink** is preferably set to a value which ensures all patches of each individual color are printed on a separate line (this depends on the used Spectrometer).
- Select the right **media size**. Please check the size of the media being loaded.
- Set the **number of copies** to 2 or if possible more; typically, the number of swatches which can be printed next to each other in one line. This depends on the width of the used media. This prevents the need for reprinting the swatch in case of media damage or pollution at a certain part of the media.
- Ensure the checkbox for **Print Label** is selected and the output is set to "Color"



Click Print.

Click on Read Swatch (button on line 2)

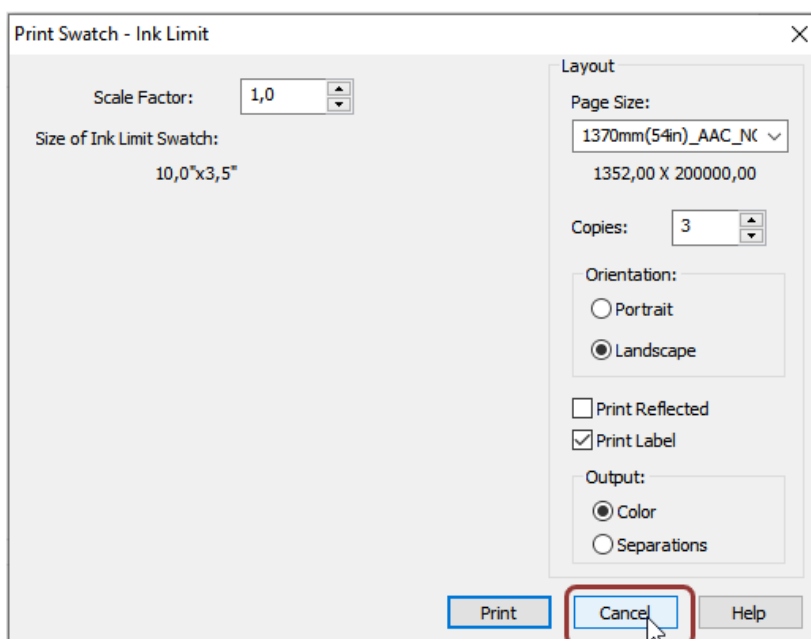
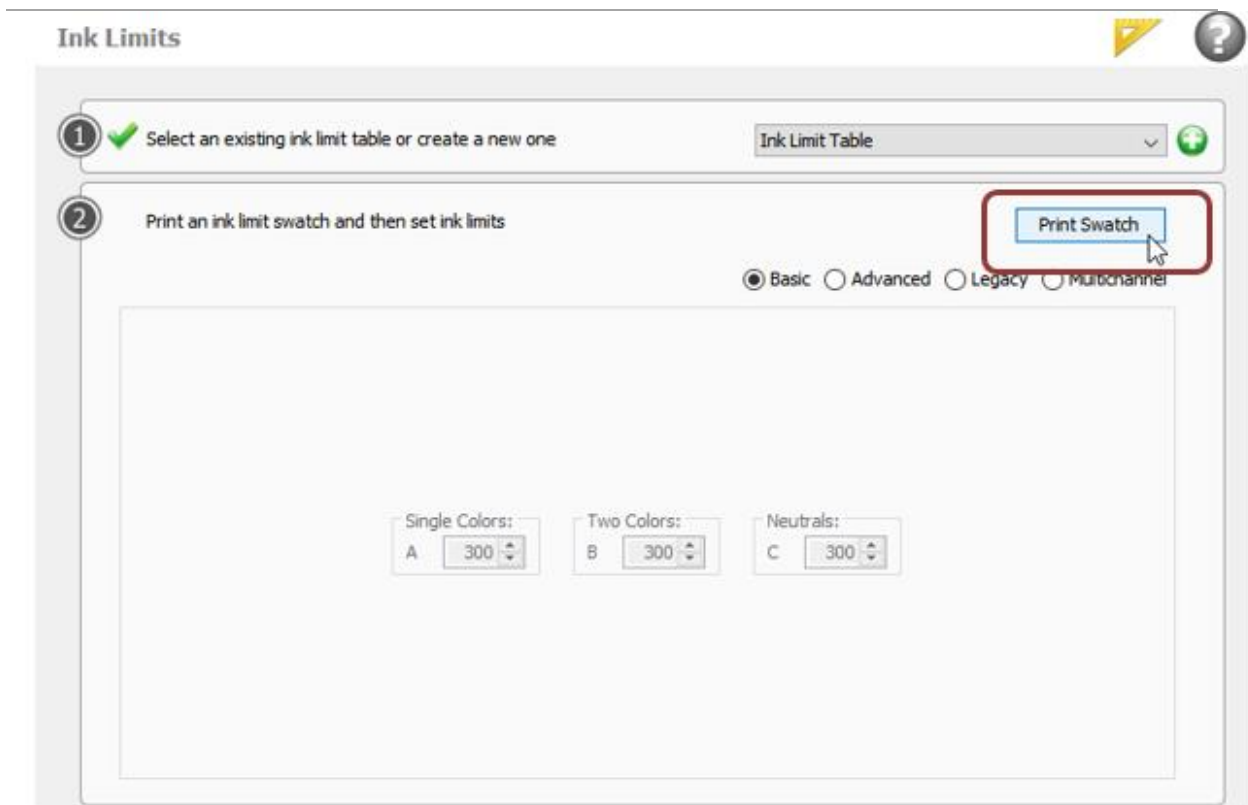


Click Next.

### 3.1.4 Set ink limitation

In the next screen the ink limitation needs to be adjusted.

To unlock the ability to change the ink limits click on Print Swatch and press cancel.



As OCP already controls the amount of ink, no adjustments are needed in the ink limitation settings. Therefore, the ink limits need to be set at 400 for all three channels. As the Max Speed print mode does not use OCP; The ink limits need to be set at 280 for all three channels.

**Ink Limits**

1  Select an existing ink limit table or create a new one Ink Limit Table +

2 Print an ink limit swatch and then set ink limits Print Swatch

Basic  Advanced  Legacy  Multichannel

Single Colors: A 400 Two Colors: B 400 Neutrals: C 400

Click Next.

### 3.1.5 Create ICC profile

Print and measure the ICC Profile Swatch.

Click on Print Swatch (button on line 2)

**ICC Profile**

1  Select an existing ICC profile or create a new one ICC Profile Table +

2 Print an ICC swatch Print Swatch ▾

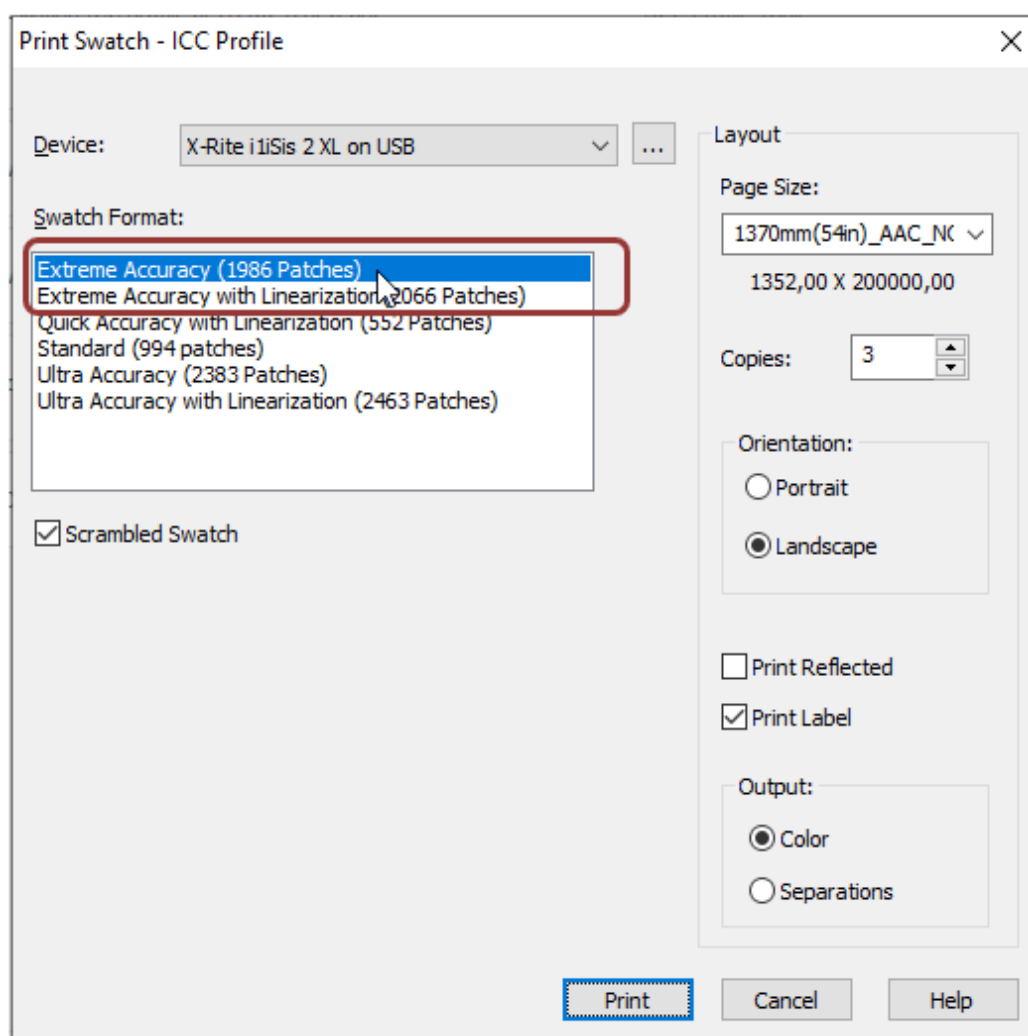
3 Read the printed ICC swatch Read Swatch ▾

4 Build an ICC profile using the selected ICC build options Build ICC Profile

Check the following settings in the Print Swatch – ICC Profile dialog:

- **Device:** Ensure you select the Spectrometer which is connected to your PC/laptop
- **Initial Patch Size** should be reduced to (2 mm if applicable) to limit the number of sheets.

- **Swatch format** should be a minimum of 1986 (Extreme Accuracy) to ensure an optimal ICC profile.
- Select the right **media size**. Please check the size of the media being loaded.
- Set the **number of copies** to 2 or if possible more; typically, the number of swatches which can be printed next to each other in one line. This depends on the width of the used media. This prevents the need for reprinting the swatch in case of media damage or pollution at a certain part of the media.
- Ensure the checkbox for **Print Label** is selected and the output is set to “**Color**”

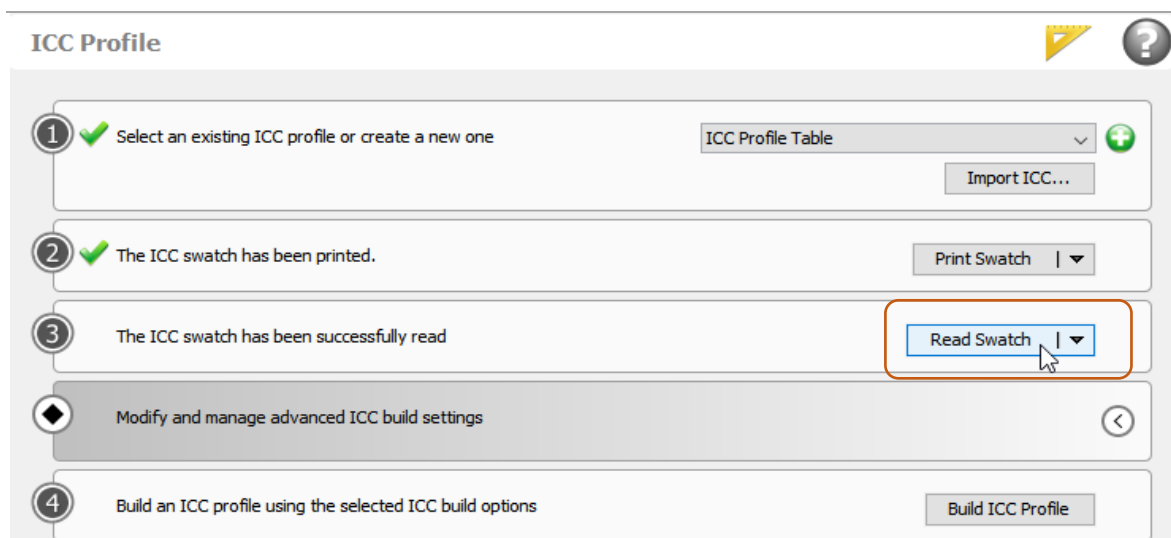


It is mandatory to wait at least 30 minutes before measuring the ICC print swatch to create an accurate color profile. The prints undergo a color shift, which is especially measurable in the first 15-20 minutes, but still slightly change after that up to 1 hour.

**TIP: Start creating a new print mode in the meantime.**

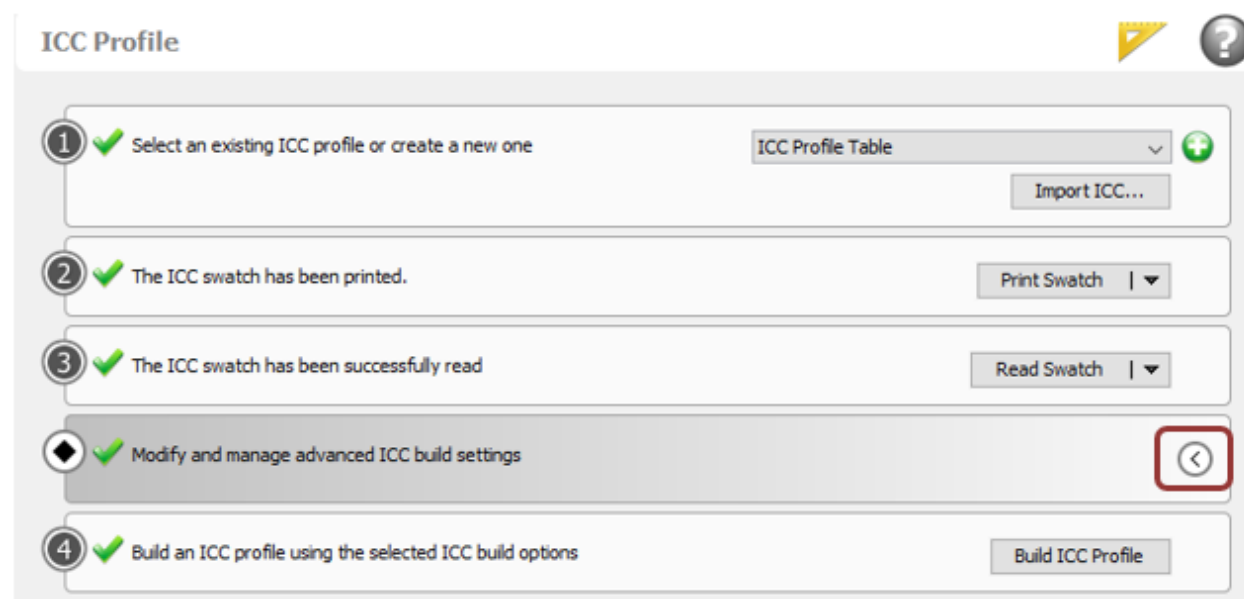
Measure the ICC print swatch after 30 minutes.

Click on Read Swatch (button on line 3)



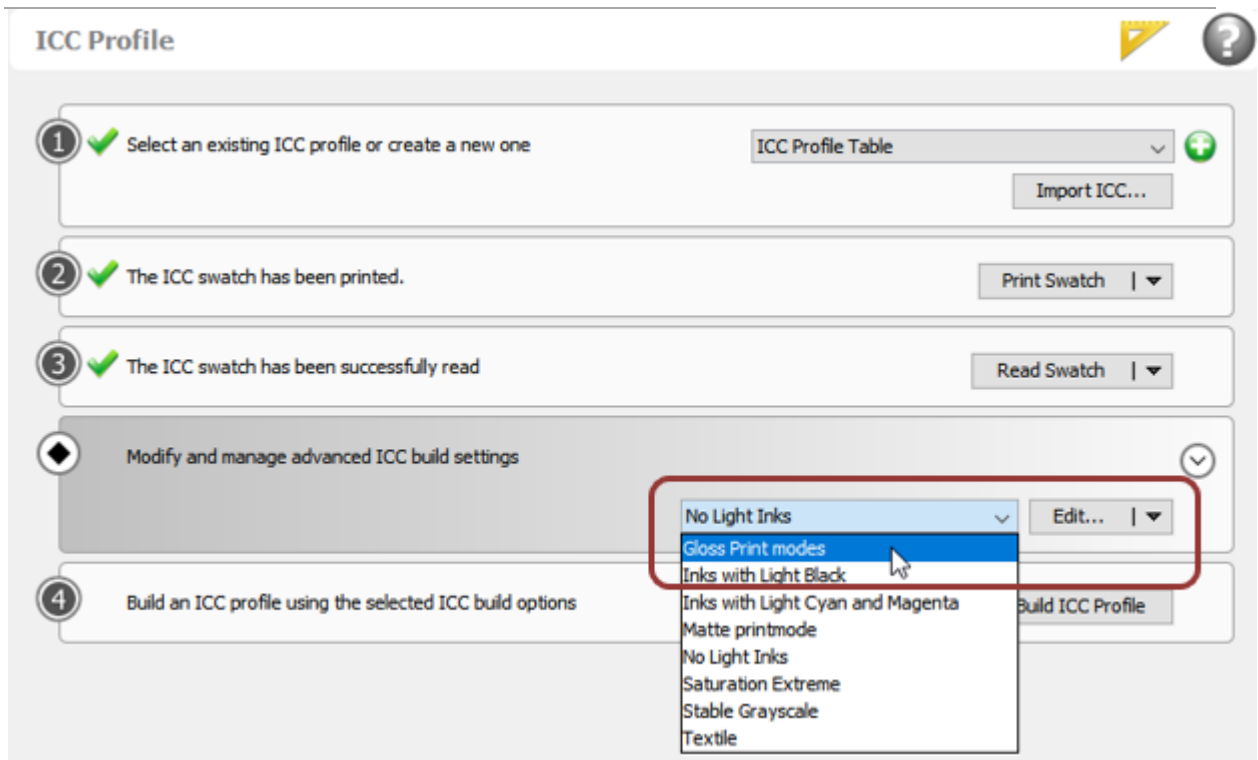
Modify the ICC Build settings.

Click on the arrow pointing to the left to expand the ICC build settings options.

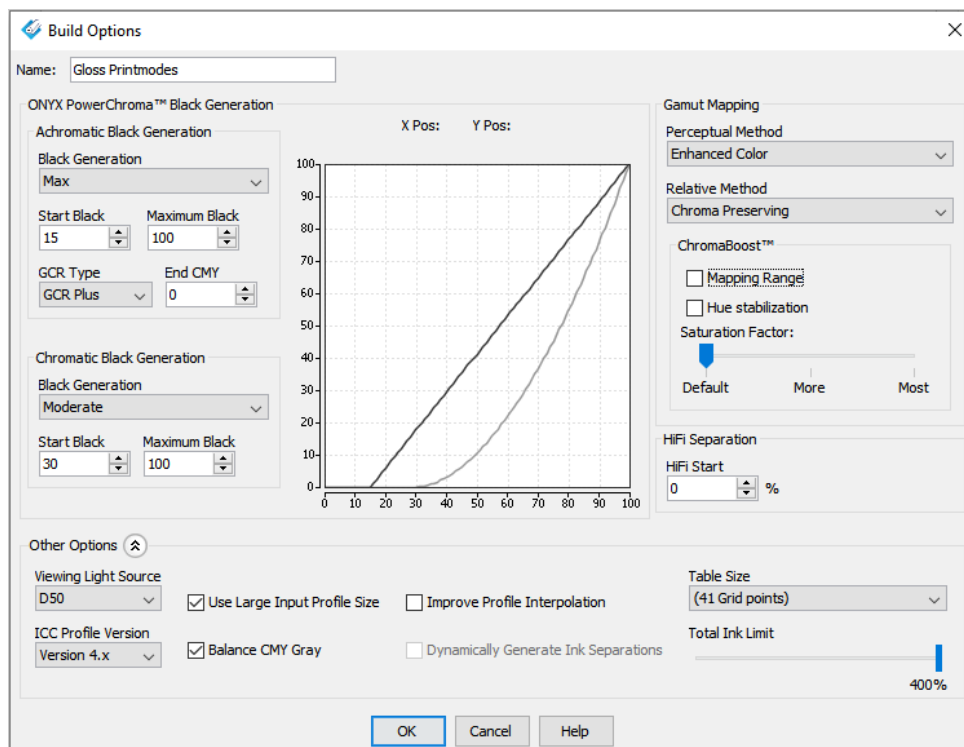


Select a build for the Gloss print modes, in this example "Gloss Print modes" (option on line 4).

**Note:** See [Appendix VI](#) on how to create a build.

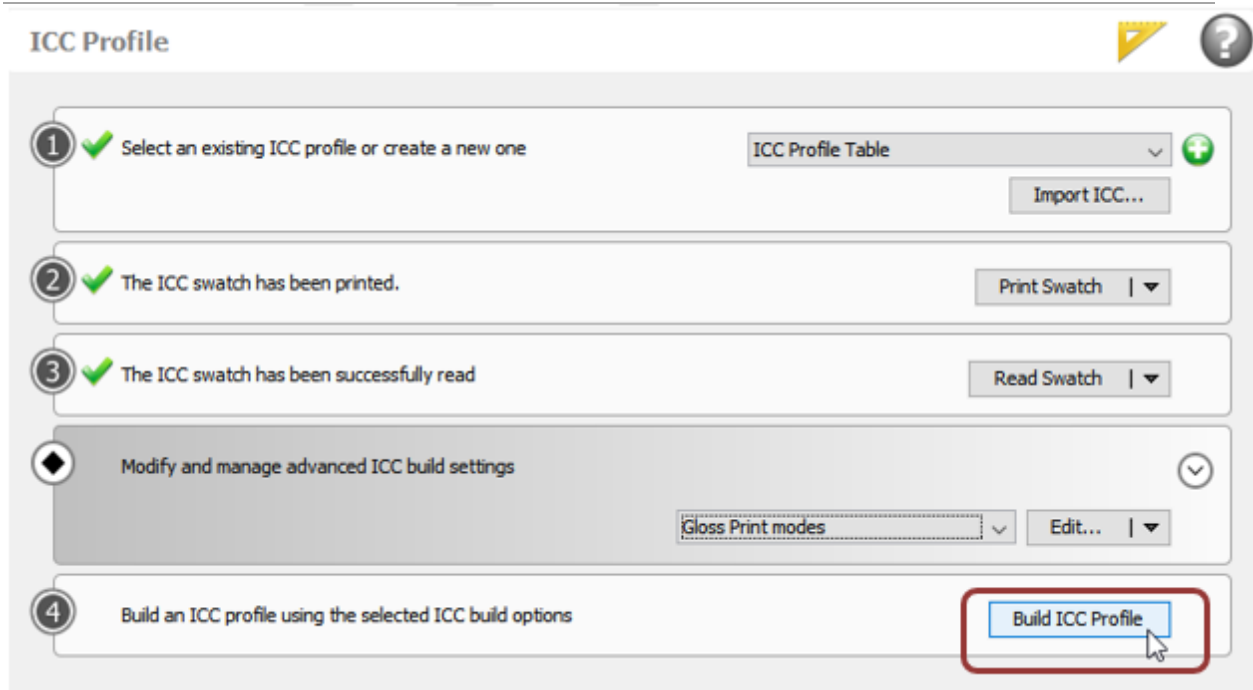


See the image below which build settings are used for “Gloss Print modes”

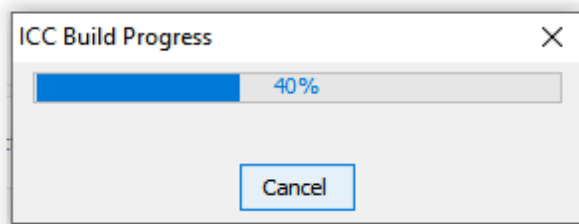


Click on Build ICC Profile (Button on line 5)

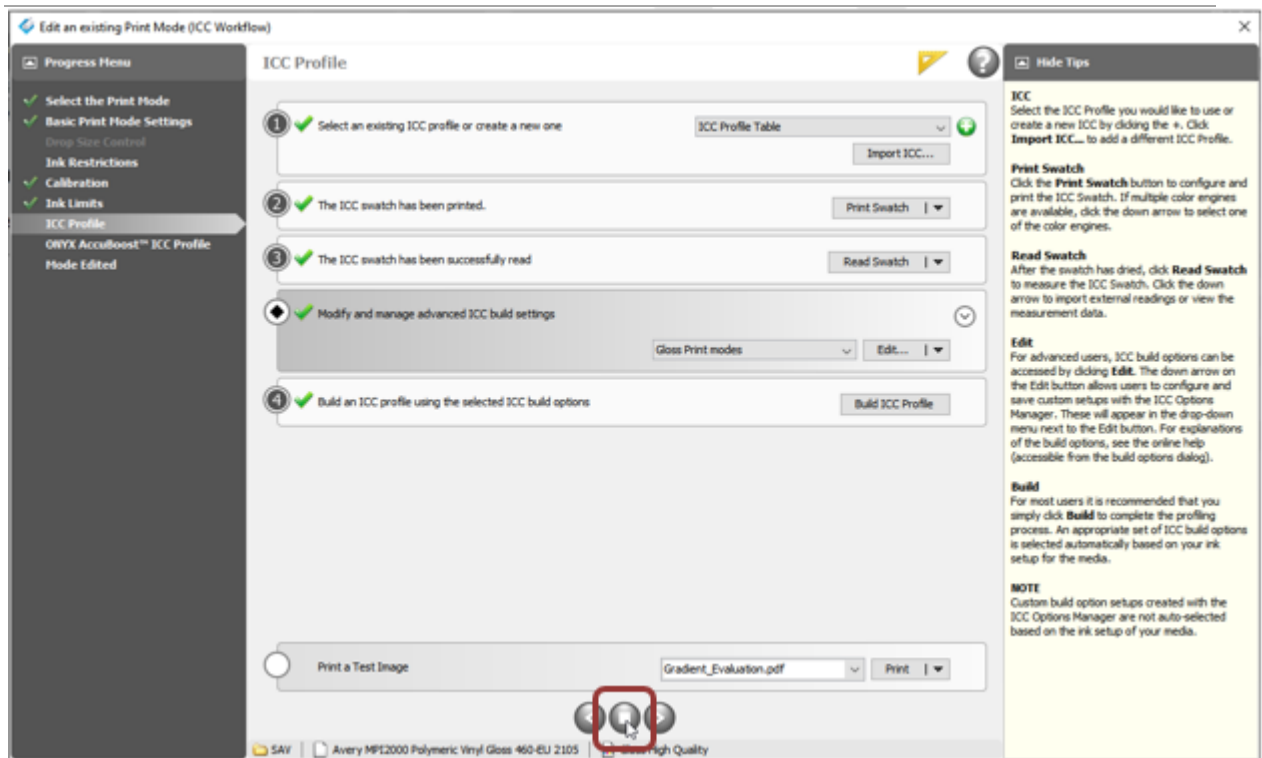




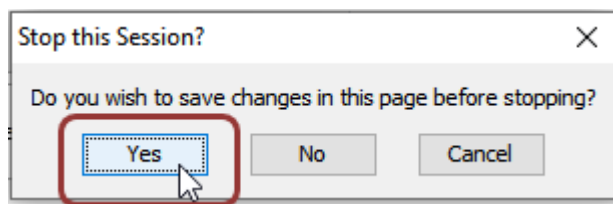
The Print mode with ICC profile will be generated.



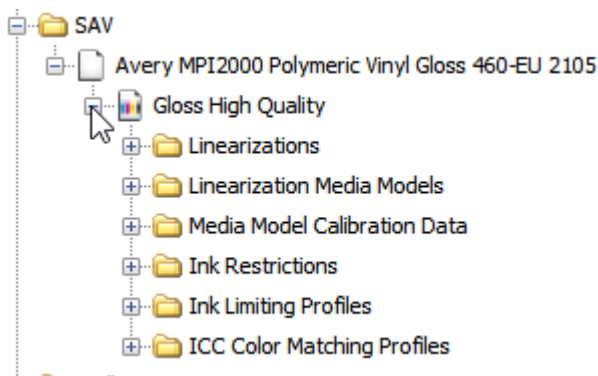
Click on the square at the bottom.



Click on the “Yes” button to save the profile.



Click on the “+” button in front of the Print Mode to check if all steps are successfully added (as shown in the image).



The Print mode is now successfully generated and can be used.

### 3.1.6 Copying print modes

Certain print modes can be copied to one another as they use the same underlying calculations and curves / tables. You can also watch this [video](#) on how to copy print modes.

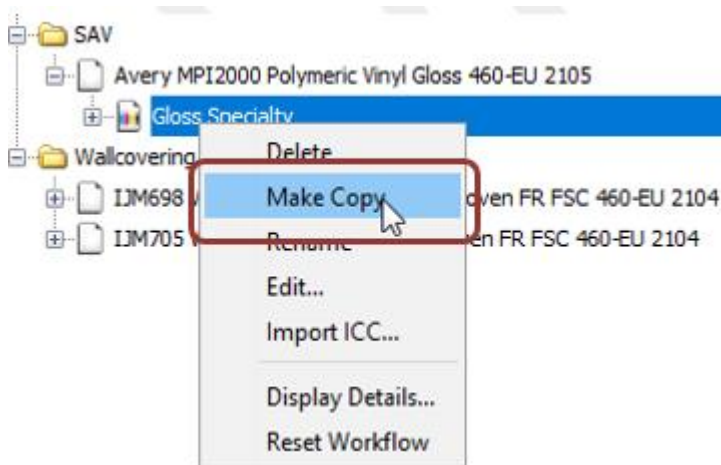
The following print modes can be copied:

- Copy gloss Specialty to Gloss High Quality and configure the print mode parameters to Gloss High Quality parameters
- Copy Gloss Production to Gloss Speed and configure the print mode parameters to Gloss Speed parameters

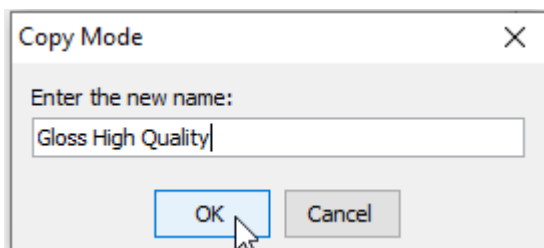
Gloss High Speed and Gloss Max Speed cannot be copied from one another as they do not use the same underlying calculations and curves/tables.

Example:

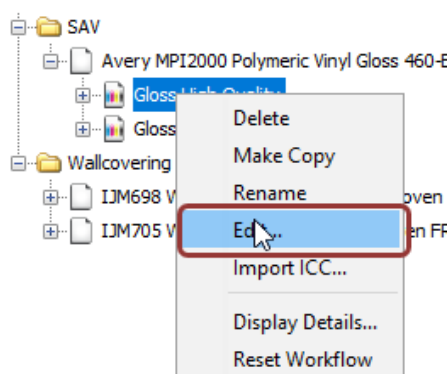
Right click on Gloss Specialty and select “Make Copy”



Change the name to Gloss High Quality and click OK.

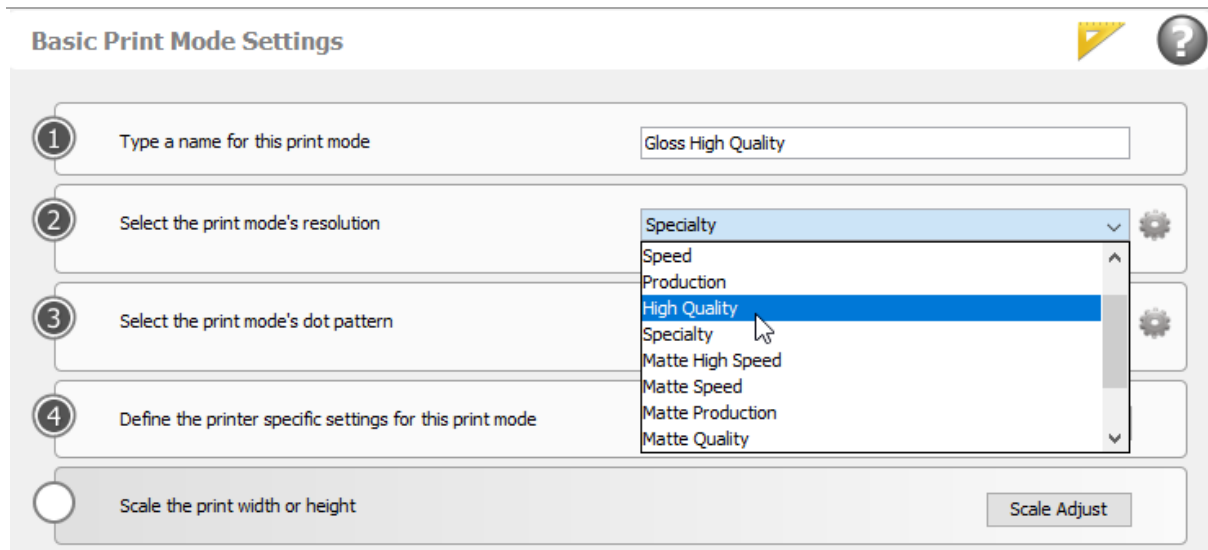


Right click on Gloss High Quality and click on “Edit...”

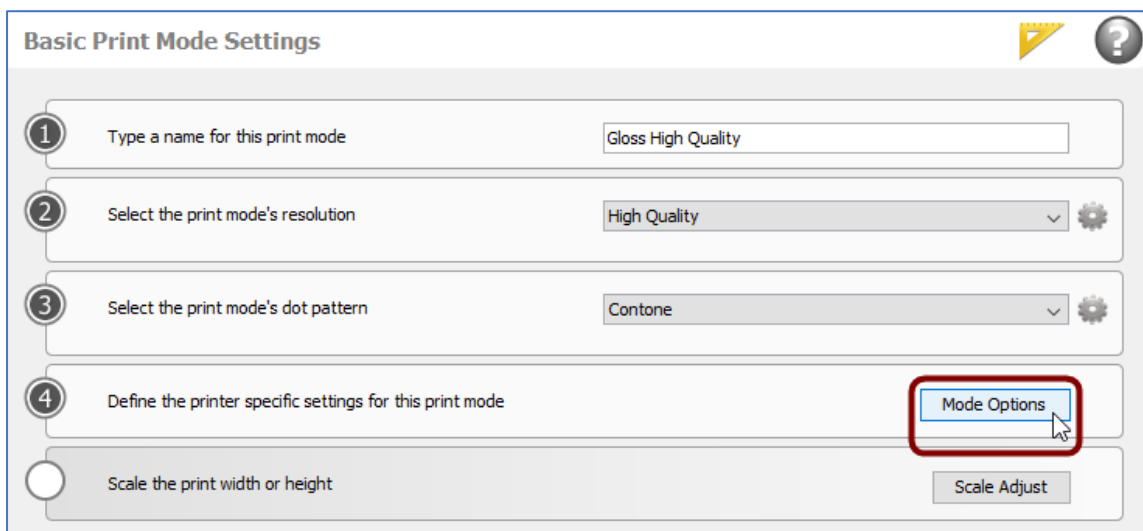


Click Next to go to Basic Print Mode Settings.

Change Specialty to High Quality



Click on Mode Options and adjust the OCP settings to the right value.



## 3.2 Creating a Media Profile for Matte print modes

Determining the Optimized Color Profile for Matte print modes is not needed. Which shortens the ICC profiling steps for Matte print modes:

1. Select the print mode and configure print mode parameters if applicable
2. Measuring and setting the value for the ink restrictions
3. Measuring the calibration values
4. Setting the ink limits
5. Setting the ICC profile settings and generate the ICC-profile

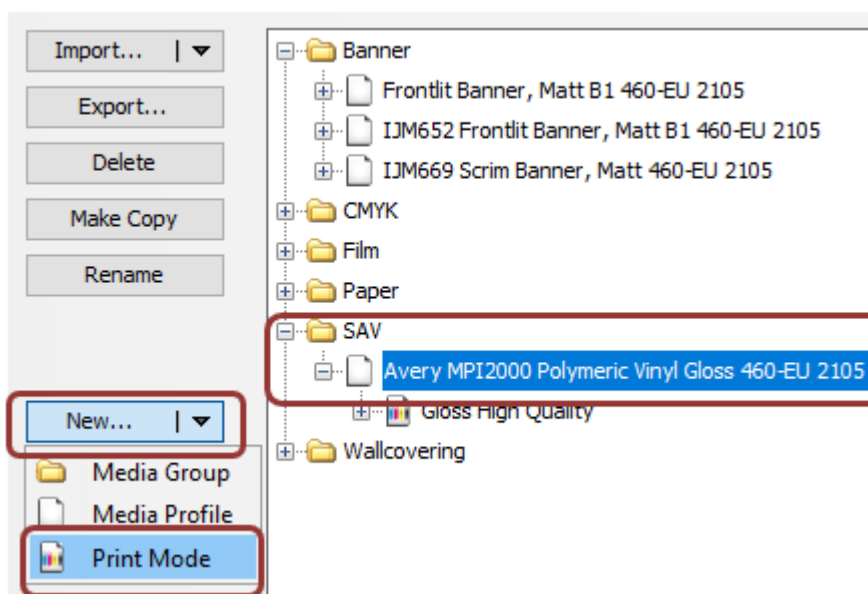
To see the recommended build settings for Matte Print modes go to [Appendix II](#)

### 3.2.1 Creating a print mode

Select the print mode (and configure print mode parameters if applicable)

Create a new print mode.

Select the media profile, click on New... and click on Print Mode.



Enter the print mode name and select the concerning print mode from the list. For all Matte-modes we recommend adding "Matte" in front of the print mode name, so all Matte print modes are listed together in Media Manager.

**Basic Print Mode Settings**

- Type a name for this print mode:
- Select the print mode's resolution:
- Select the print mode's dot pattern:
- Define the printer specific settings for this print mode:
- Scale the print width or height:

Click Next

Click on Mode Options (button on line 4)

Check the High-Density box when using a textured media to apply more ink to make solid areas.

### 3.2.2 Measuring the ink restriction and calibration

Follow the steps from chapter 3.1.2 and 3.1.3 (page 21) to measure the Ink Restriction and Calibration.

### 3.2.3 Set Ink limitation

The Ink limit needs to be adjusted for Matte print modes, as Optimized Color Profiling is not used.

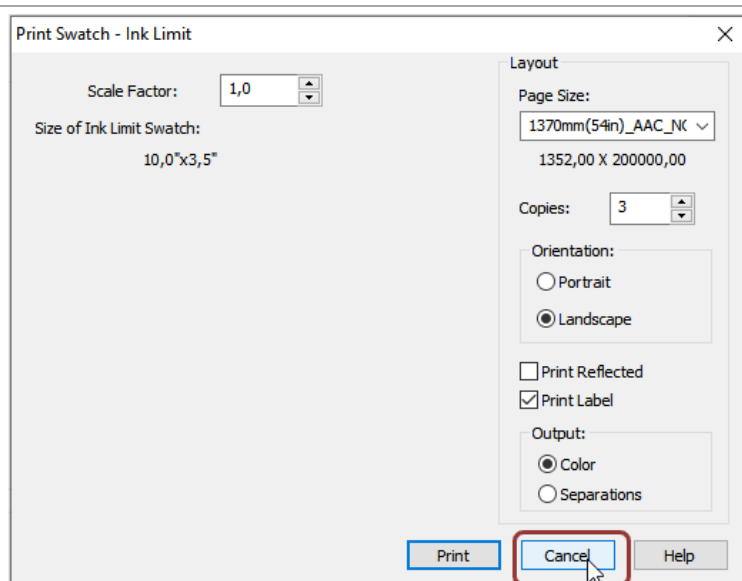
To unlock the ability to change the ink limits click on Print Swatch and press cancel.

**Ink Limits**

- Select an existing ink limit table or create a new one:
- Print an ink limit swatch and then set ink limits:

Basic
  Advanced
  Legacy
  Multichannel

Single Colors: A 
 Two Colors: B 
 Neutrals: C



Use the table below for the correct ink limits per channel per print mode.

Printmode	Single Colors	Two Colors	Neutrals
Matte High Speed	280	280	280
Matte Speed	280	280	280
Matte Production	280	280	280
Matte Quality	240	260	280
Matte Specialty	240	260	280
Backlit	280	280	280
Backlit Density	280	280	280

### 3.2.4 Create ICC profile

Follow the steps in chapter 3.1.5 (page 26) but select Matte print mode settings for the advanced ICC build settings. To see the recommended build settings for Matte print modes, go to [Appendix VI](#)

### 3.2.5 Copying print modes

Certain print modes can be copied to one another as they use same underlying calculations and curves / tables.

The following print modes can be copied:

- Copy Matte Quality to Matte Specialty and configure the print mode parameters to Matte Specialty
- Copy Matte Production to Matte Speed and configure the print mode parameters to Matte Speed

Matte High Speed, Backlit and Backlit Density cannot be copied from one another as they do not use the same underlying calculations and curves/tables.

See chapter 3.1.6. (page 32) on how to copy print modes.



### 3.3 Create a Media Profile for FLXfinish<sup>+</sup>

There are two ways of creating the FLXfinish<sup>+</sup> print mode:

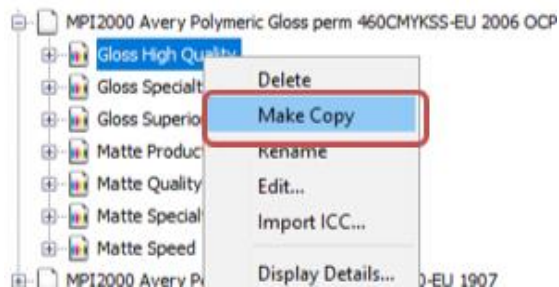
1. Copying the Gloss High Quality print mode
2. Creating the print mode from scratch

#### 3.3.1 Copying from Gloss High Quality

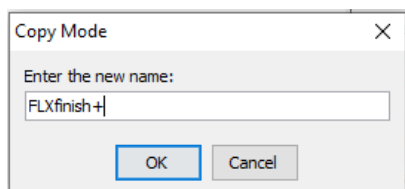
Certain print modes can be copied to one another as they use the same underlying calculations and curves / tables. You can also watch this [video](#) on how to copy print modes.

In this case the Gloss High Quality print mode will be copied and configured to FLXfinish<sup>+</sup>.

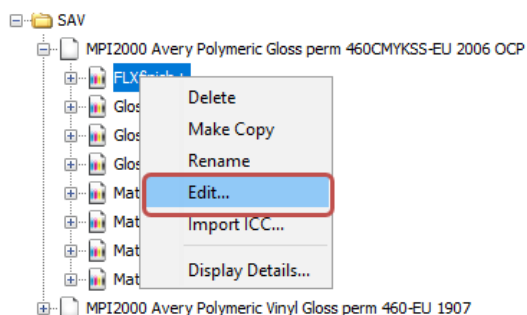
Right click on Gloss High Quality and select “Make Copy”



Change the name to FLXfinish<sup>+</sup> and click OK.

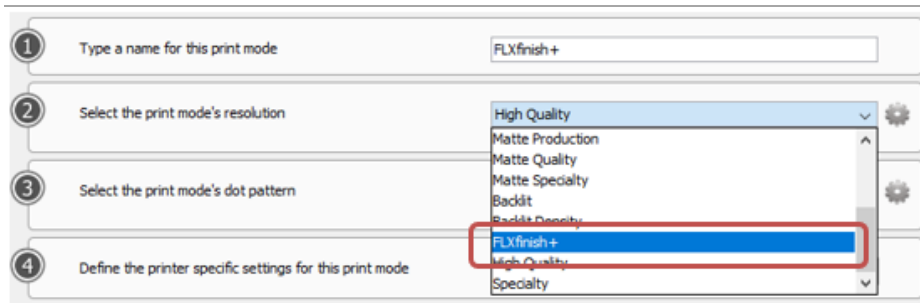


Right click on FLXfinish<sup>+</sup> and click on “Edit...”

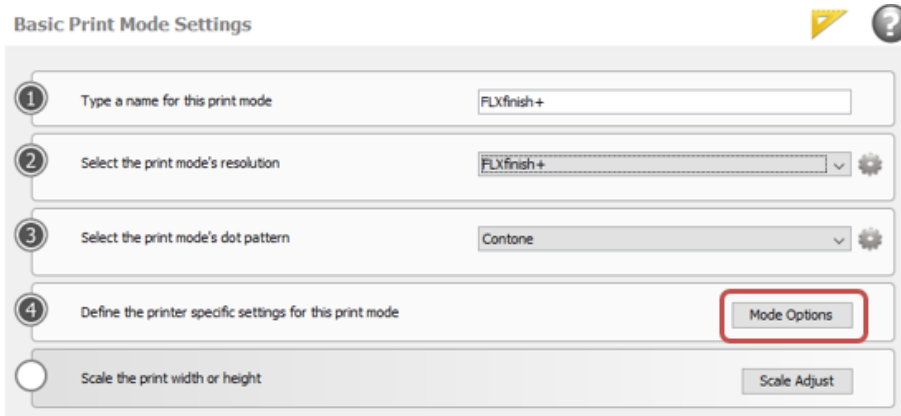


Click Next to go to Basic Print Mode Settings.

Change High Quality to FLXfinish<sup>+</sup>



Click on Mode Options and adjust surface temperature to 21°C and adjust the OCP settings to the value that is also used for Gloss High Quality



**Note:** FLXfinish+ has no alternative strategies available. The value for OCP should be the same or lower than for the mode Gloss High Quality.

### 3.3.2 Creating FLXfinish+ from scratch

For creating an ICC profile for the FLXfinish+ print mode, the standard procedure for the Glossy print modes will be used with some additional steps.

Creating an ICC profile for FLXfinish<sup>+</sup> print mode on Colorado M Series includes the following steps:

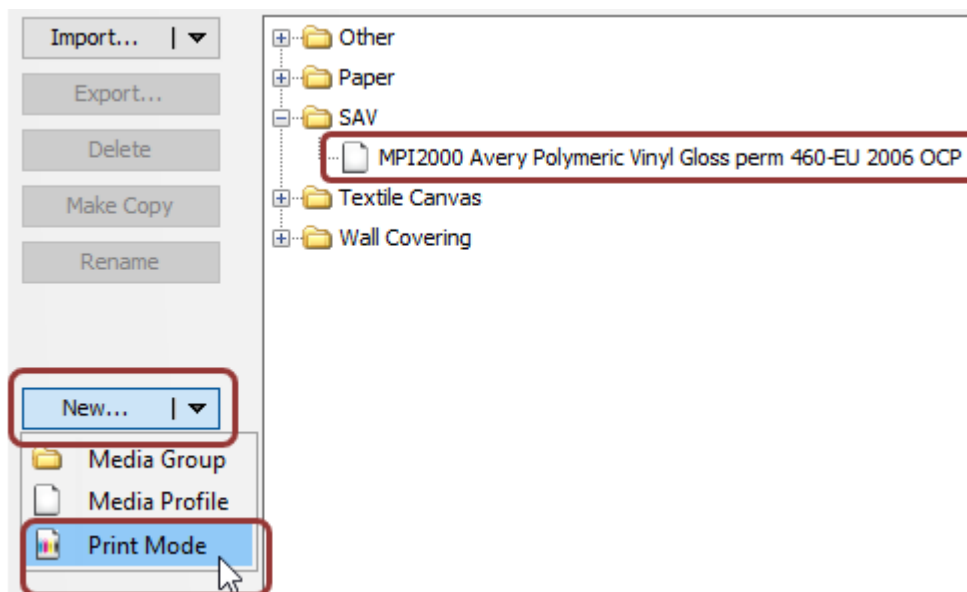
1. Select the print mode and configure print mode parameters if applicable
2. Determine the OCP-setting
3. Setting the value for the ink restrictions
4. Measuring the calibration values
5. Setting the ink limits
6. Setting the ICC profile settings and generate the ICC-profile

Click on the desired media and create a new print mode.

To see the recommended build settings for the FLXfinish<sup>+</sup>, go to [Appendix I](#) and use the same settings for the Gloss High Quality.

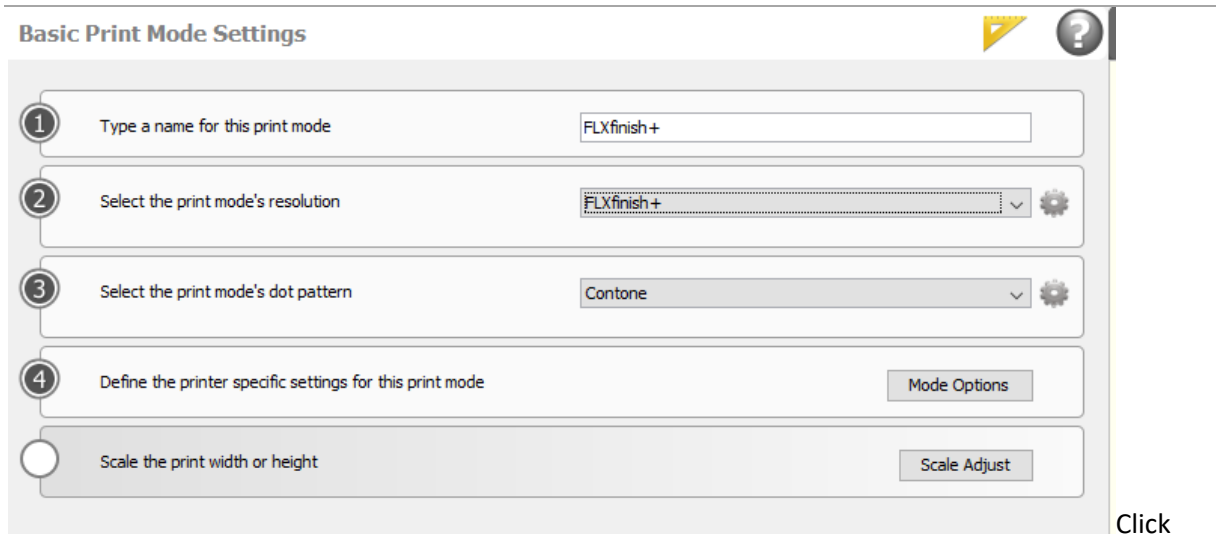
How to create a print mode will be described in this section via text and screenshots.

Click on New... & click on Print Mode



Select the print mode (and configure print mode parameters if applicable)

Enter the print mode name and select the concerning print mode from the list. In this case FLXfinish<sup>+</sup>



Next

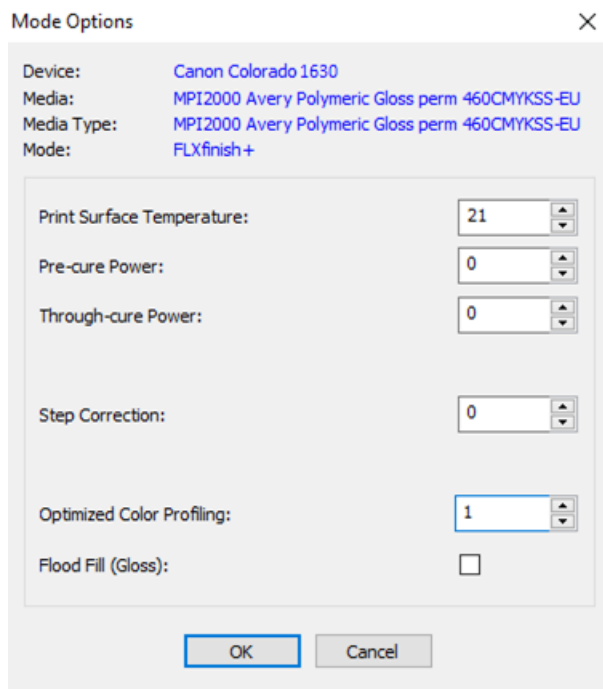
Click on Mode Options (button on line 4)

For the FLXfinish+ print mode the standard print surface temperature is 21°C.

If the OCP level still needs to be determined; ensure that the value for "Optimized Color Profiling:" is set to 1.

If the OCP level of Gloss High Quality (only) is known, use that OCP value and skip determining the OCP level.

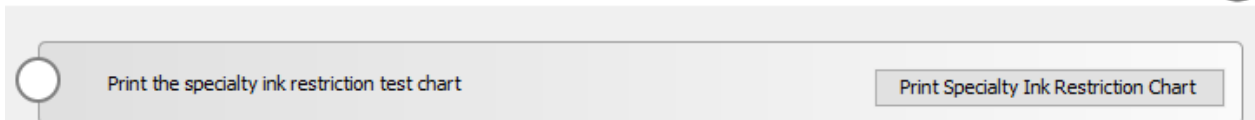
Make sure to uncheck the Flood Fill (Gloss) box, as the flood fill box will be selected at each measurement check. The Flood Fill box needs to stay unchecked when printing samples in order to print both Matte and Gloss. If the Flood Fill box is checked, the sample will be printed entirely in gloss.



### 3.3.3 Ink restriction

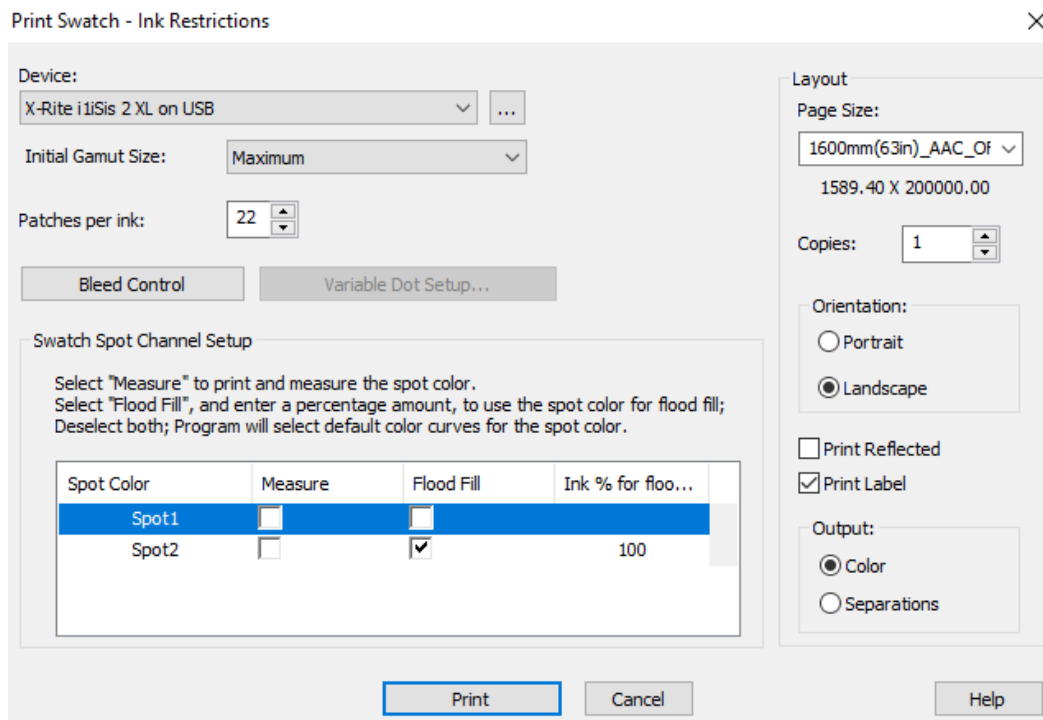
An extra setting has been added in the Ink restriction section due to the fact that we now use a CMYKSS profile, which is called 'Specialty ink restriction test chart'. Ignore this step as it adds no added value for FLXfinish+.

#### Ink Restrictions

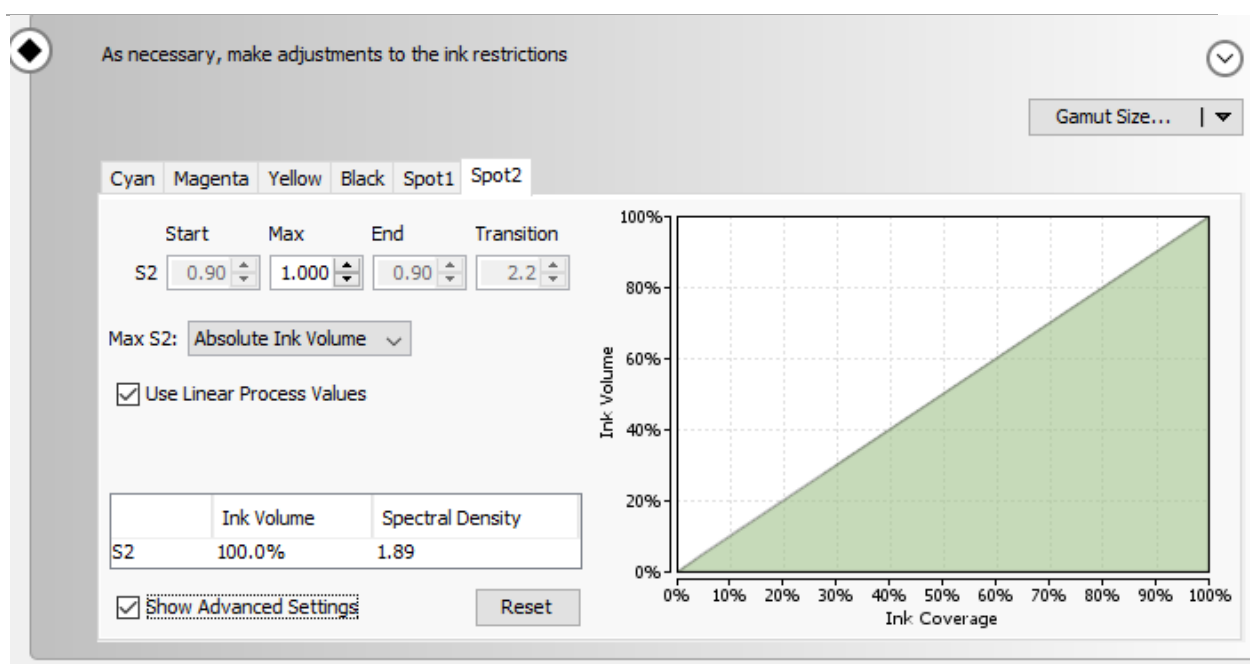


Continue with the standard process and print the standard ink restriction swatch with 22 patches for ISIS 2XL and 17 patches for Barbieri. Going to higher values will increase the chance of having contouring issues.

Make sure to check Spot 2 boxes in the print swatch options.



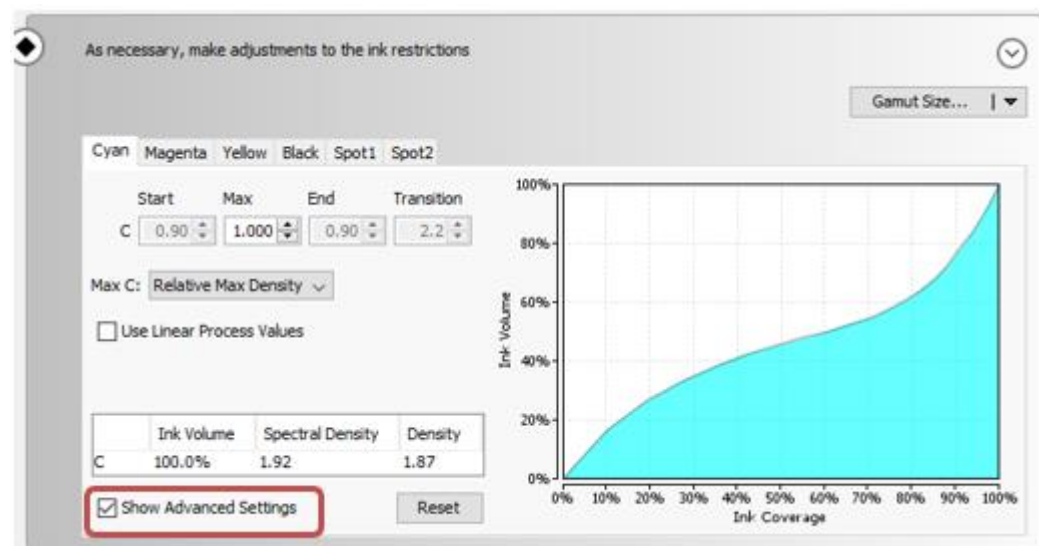
After reading the ink restriction patches; Check the Linear Process values box for SPOT2 and set the MAX to Absolute ink volume at the "Show Advanced Setting" at the bottom left.



IF the OCP level is already determined (Via Gloss HQ) and filled in; continue to the next step (calibration)

IF the OCP level needs to be determined; do the following procedure

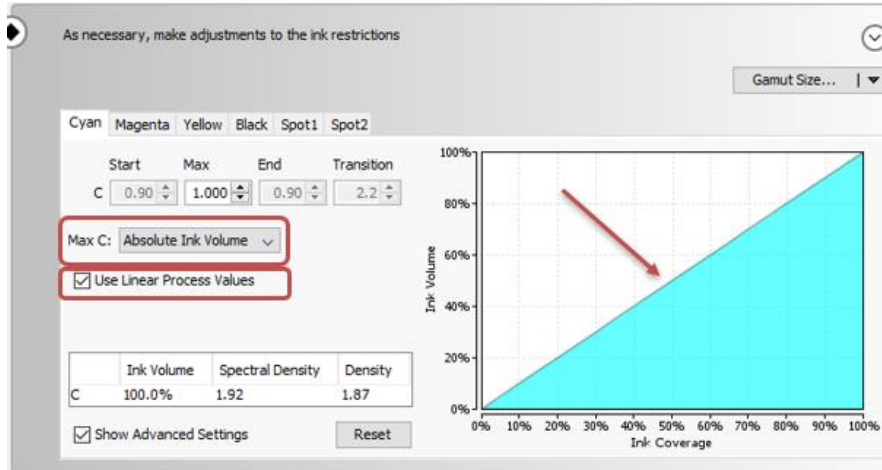
Select the check box “Show Advanced Settings” (left bottom) which makes the settings available for generating linear profile.



Now for each color (Tabs Cyan / Magenta / Yellow / Black)

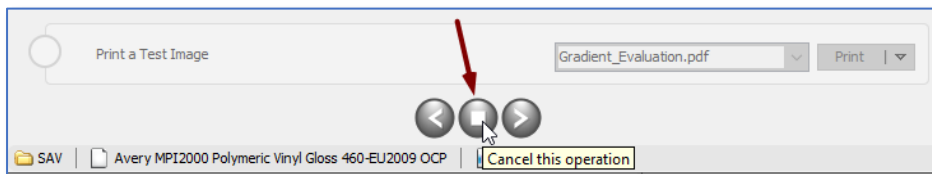
- Set Max. value to “Absolute Ink Volume” and
- Select the check box “Use Linear Process Values”

After adjusting these values, the (slightly) curved diagrams showing the Ink Volume and related Ink Coverage, will change into a straight line. The initial curve may look different depending on the selected print mode.

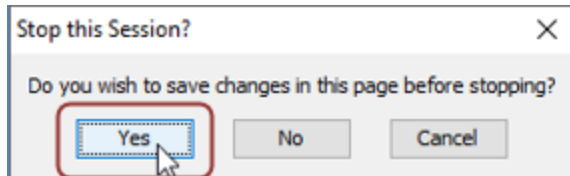


Click Next.

In the next screen click on the stop/cancel button in the middle.



Click Yes to stop the profiling process at this point and save the linear profile.

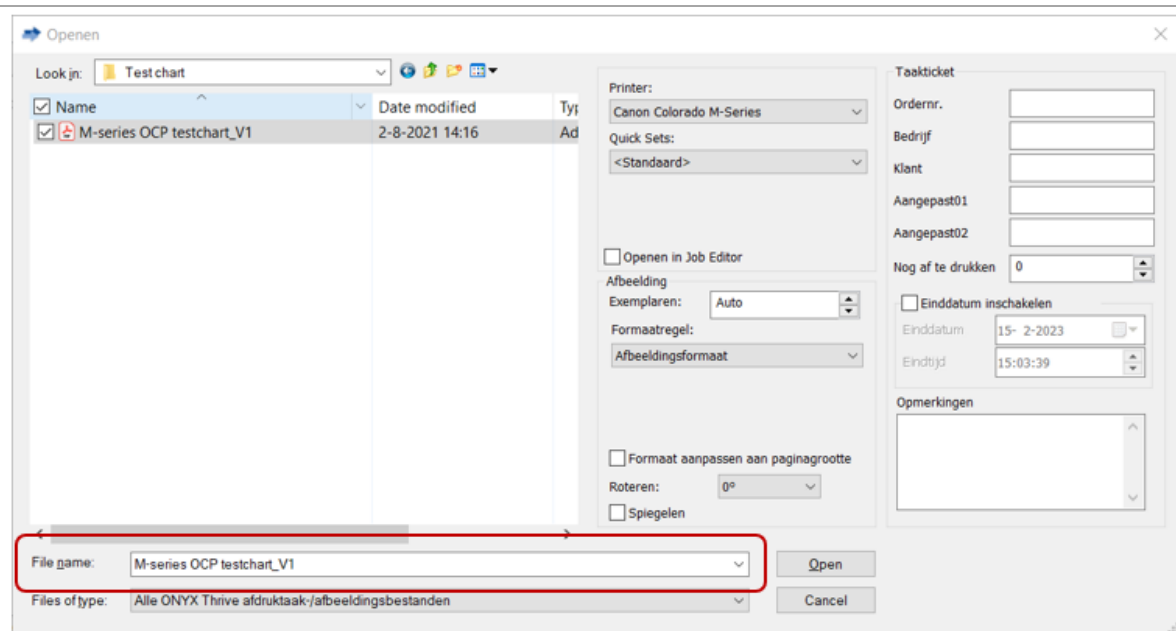


### 3.3.3.1 Print OCP test chart

In order to determine the OCP level, a test-chart "M-series OCP testchart\_V1" needs to be printed after creating a linear profile. The test-chart consists out of 25 patches with 5 different Colors and each Column represents an OCP level (1 to 5). The "M-series OCP testchart\_V1" can be downloaded from the [Colorado Support Tools](#) page on GraphiPLAZA. Again you can watch a [video](#) on how to determine the OCP.

Open ONYX Job Editor

Select and open "M-series OCP testchart\_V1"



Select the right media and print mode:

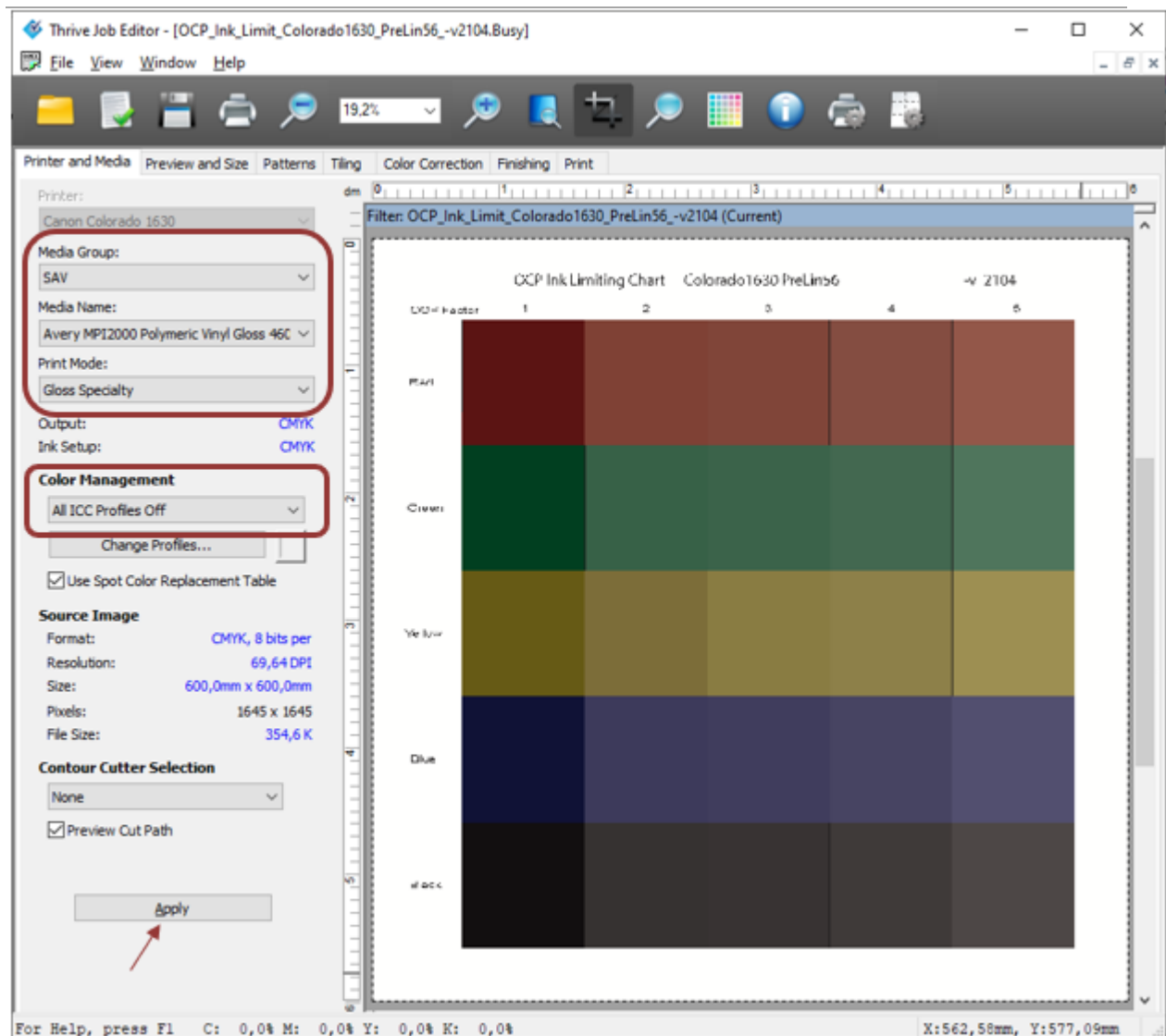
- Media Group: In this example **“SAV”**
- Media Name: In this example **“Avery MPI2000 Polymeric Vinyl Gloss 460-EU2105”**
- Print Mode: In this example **“Gloss Specialty”**

Ensure to set in Color Management **“All ICC Profiles Off”**.

For determining the right value, it is recommended to print the file in **“portrait”**-mode

Click Apply





Submit the Job

### 3.3.1.1 Analyzing the OCP test-chart

The best way to analyze the test-chart is by watching it from the right side (column indicated by "5") into the direction of the left side.

Try to find the most left column which is free of wrinkle. The number printed about the most left column, which is free of wrinkle, represents the value with needs to be selected for "Optimized Color Profiling" in the print mode settings.



Please note that the level of wrinkling heavily depends on the used media. Some media are more sensitive while other media are completely free of this artefact.

In case of doubt, we recommend choosing the lower value. The values from the test chart are in fact maximized values, based on colors that may not be used when printing regular images. If the wrinkle-artefact still is visible, the OCP-setting can be raised with a very limited impact on the total color profile. For most applications, raising the value from 2 to a higher value may not show any significant color differences.

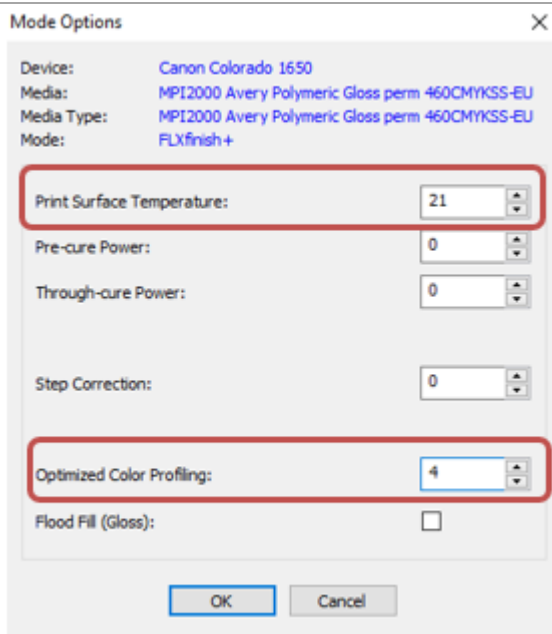
### 3.3.3.3 Changing the OCP setting

Go back to the print mode “mode options” to change the OCP setting.

The screenshot shows the 'Basic Print Mode Settings' dialog box with the following fields and buttons:

- 1. Type a name for this print mode:
- 2. Select the print mode's resolution:  (with a gear icon)
- 3. Select the print mode's dot pattern:  (with a gear icon)
- 4. Define the printer specific settings for this print mode:  (highlighted with a red rectangle)
- Scale the print width or height:

Change the OCP level which has been determined, in this example OCP 4.

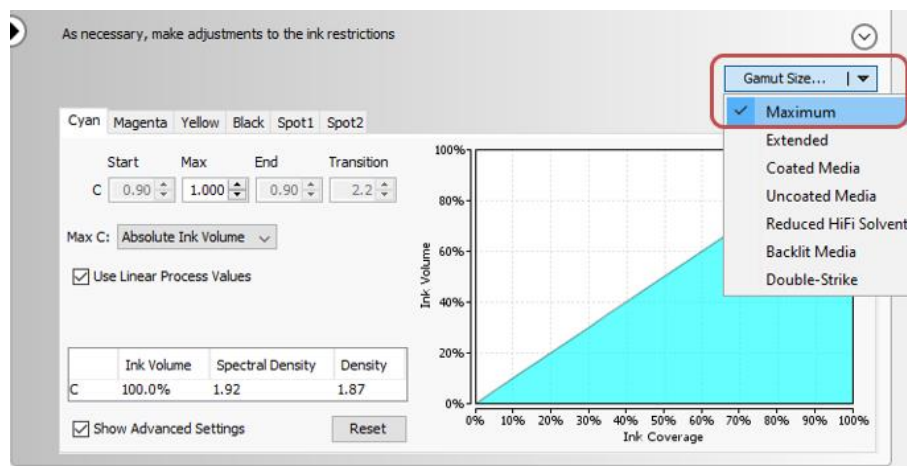


Click OK.

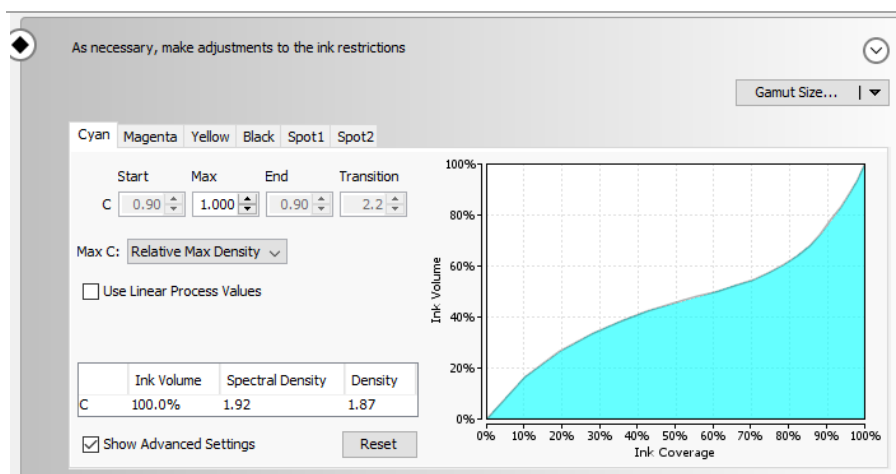
Click Next.

### 3.3.4 Set the ink Restriction

Make sure that the print mode no longer uses a linear profile by clicking on drop-down menu at the Gamut Size and choose Maximum



This step will uncheck the Linear Process Values box and change the Max Color back to Relative Max Density. See below.



**Note:** Make sure to keep the Linear process value and Absolute ink volume checked for SPOT2.

Click Next.

### 3.3.5 Measure the Calibration

Print and measure the Calibration Swatch.

Click on Print Swatch (button on line 1)



Click on read Swatch (button on line 2)

Check the following settings in the Print Swatch - Calibration dialog:

- **Device:** Ensure you select the Spectrometer which is connected to your PC/laptop
- **Initial Gamut Size** should be set to "Maximum"
- **Patches per ink** is preferably set to a value which ensures all patches of each individual color are printed on a separate line (this depends on the used Spectrometer).
- Select the right **media size**. Please check the size of the media being loaded.
- Set the **number of copies** to 2 or if possible more; typically, the number of swatches which can be printed next to each other in one line. This depends on the width of the used media. This prevents the need for reprinting the swatch in case of media damage or pollution at a certain part of the media.
- Ensure the checkbox for **Print Label** is selected and the output is set to "Color"

Make sure to check the Spot2 box

**Print Swatch - Linearization** ✕

Device: X-Rite i1iSis 2 XL on USB ...

Use Spectral Density

Patches per ink:  
24 ▲ ▼  
 4.17% difference between patches

Select "Measure" to print and measure the spot color.  
 Select "Flood Fill" to use the spot color for flood fill.  
 Select "No Calibration" to get linear process values.

Deselect all - program will create default color curves for the spot color.

Spot Color	Measure	Flood Fill	No Calibration
Spot1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spot2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

<  >

Print
Cancel
Help

**Layout**

Page Size:  
1600mm(63in)\_AAC\_Of ▼  
 1589.40 X 200000.00

Copies: 1 ▲ ▼

Orientation:  
 Portrait  
 Landscape

Print Reflected  
 Print Label

Output:  
 Color  
 Separations

Click Print.

Click on Read Swatch (button on line 2)

**Calibration** 🔍 ?

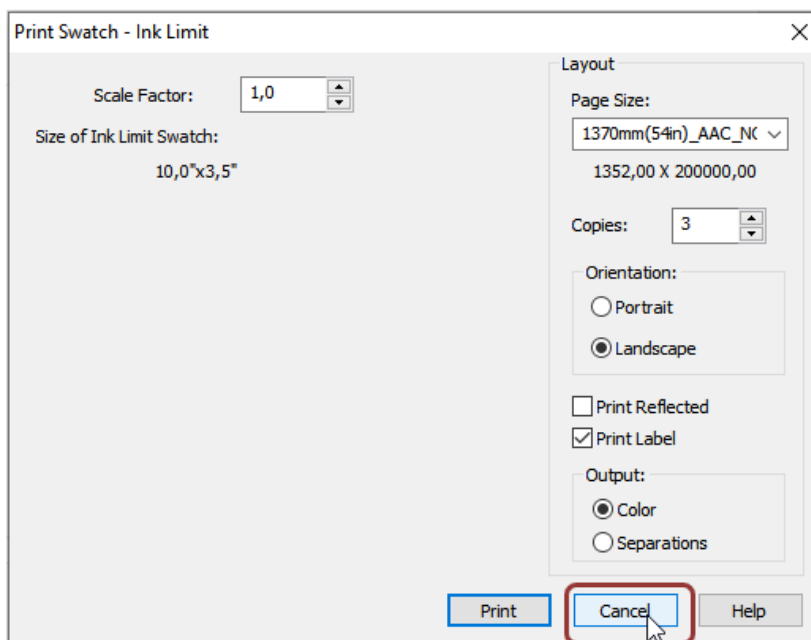
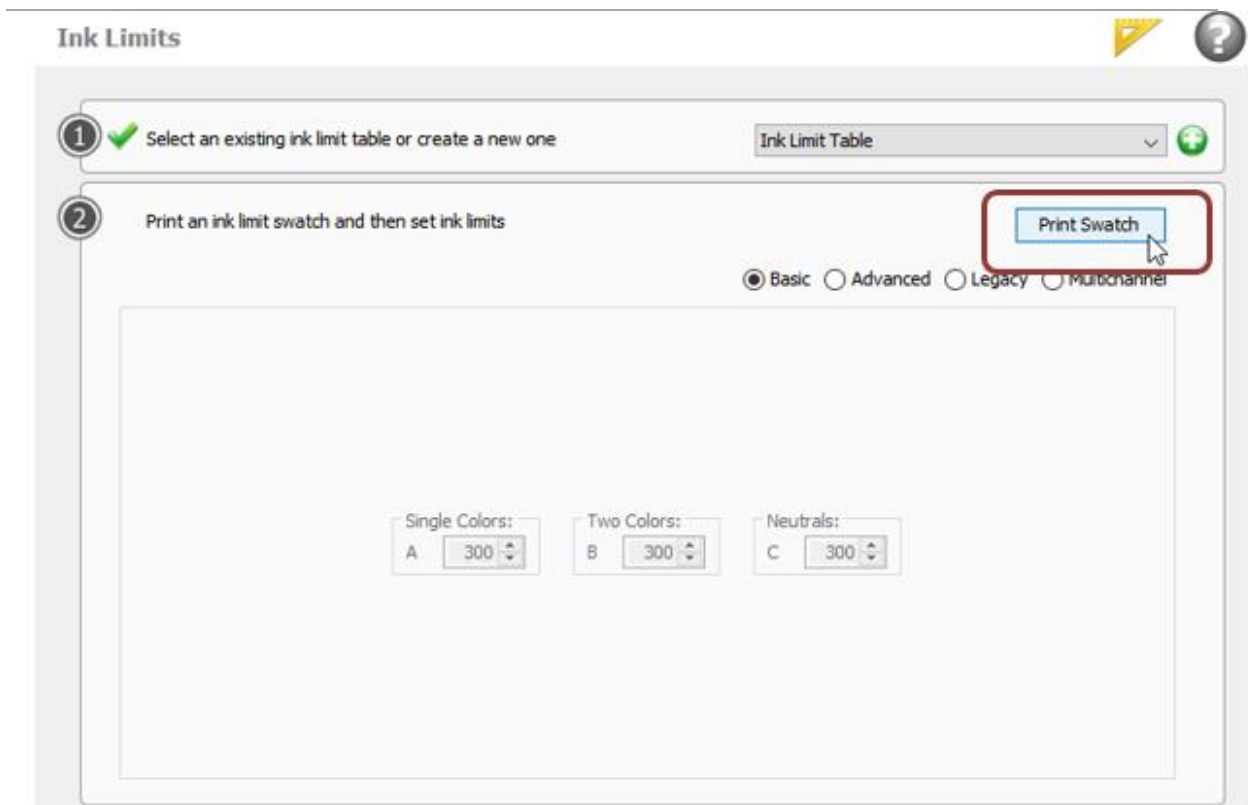
- 1 ✔ Calibration swatch has been printed. Print Swatch
- 2 Read the calibration swatch 
Read Swatch ▼
- 3 Customize Target Densities for Calibration. Advanced...

Click Next.

### 3.3.6 Set ink limitation

In the next screen the ink limitation needs to be adjusted.

To unlock the ability to change the ink limits click on Print Swatch and press cancel.



As OCP already controls the amount of ink, no adjustments are needed in the ink limitation settings are needed. Therefore, the ink limits need to be set at 280 for all three channels.



Click Next.

### 3.3.7 Create ICC profile

Print and measure the ICC Profile Swatch.

Click on Print Swatch (button on line 2)

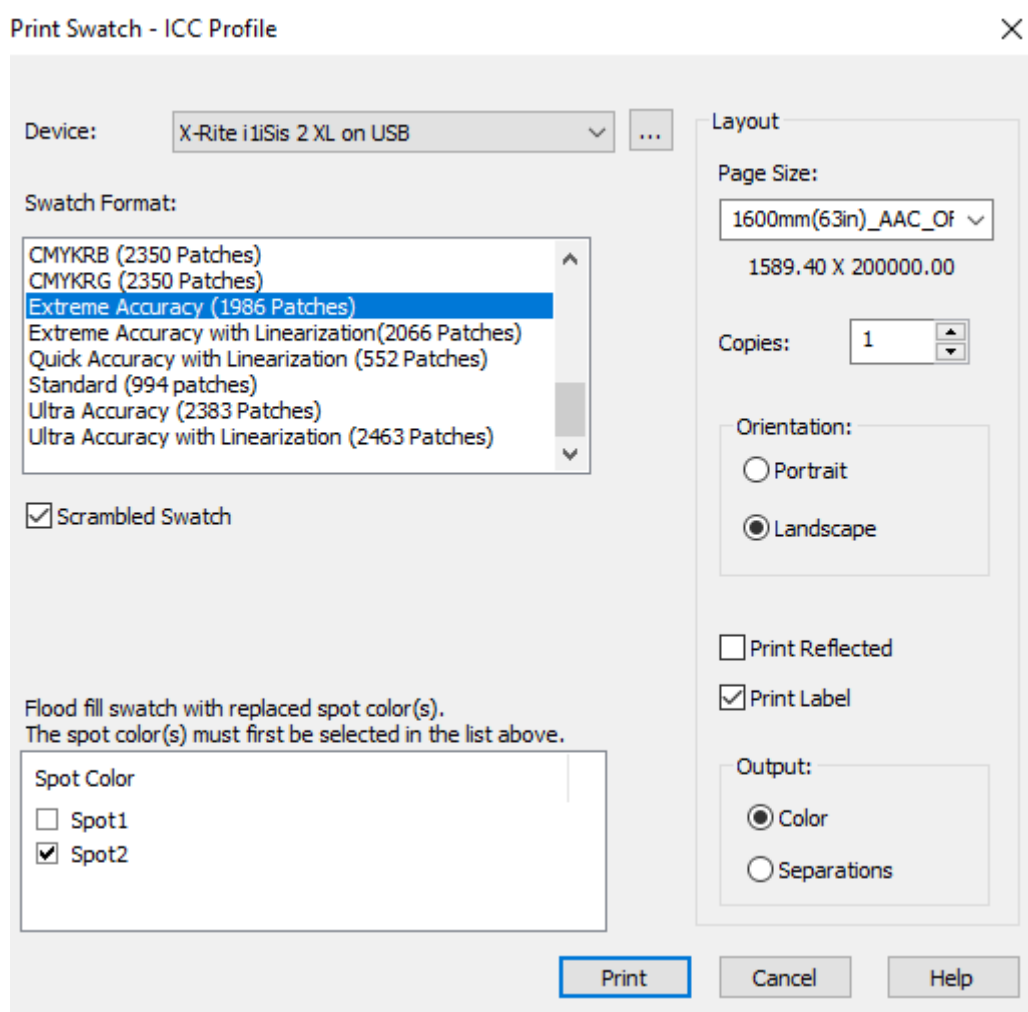


Check the following settings in the Print Swatch – ICC Profile dialog:

- **Device:** Ensure you select the Spectrometer which is connected to your PC/laptop
- **Initial Patch Size** should be reduced to (2 mm if applicable) to limit the number of sheets.

- **Swatch format** should be a minimum of 1986 (Extreme Accuracy) to ensure an optimal ICC profile.
- Select the right **media size**. Please check the size of the media being loaded.
- Set the **number of copies** to 2 or if possible more; typically, the number of swatches which can be printed next to each other in one line. This depends on the width of the used media. This prevents the need for reprinting the swatch in case of media damage or pollution at a certain part of the media.
- Ensure the checkbox for **Print Label** is selected and the output is set to **“Color”**

Make sure to select Extreme Accuracy check the Spot2 box



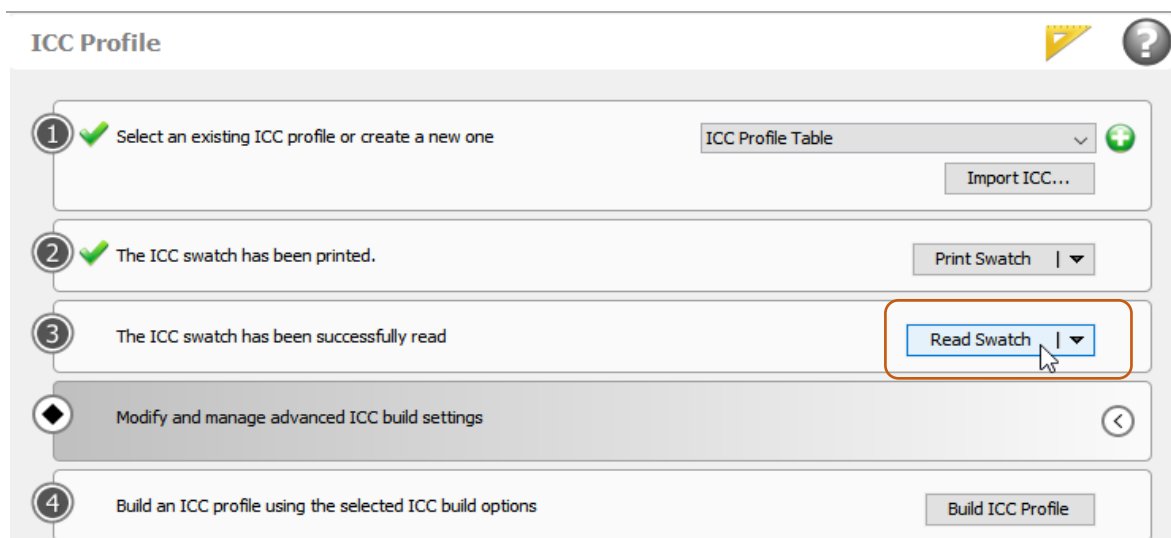
It is mandatory to wait at least 30 minutes before measuring the ICC print swatch to create an accurate color profile. The prints undergo a color shift, which is especially measurable in the first 15-20 minutes, but still slightly change after that up to 1 hour.

**TIP: Start creating a new print mode in the meantime.**

Measure the ICC print swatch after a minimum of 30 minutes.

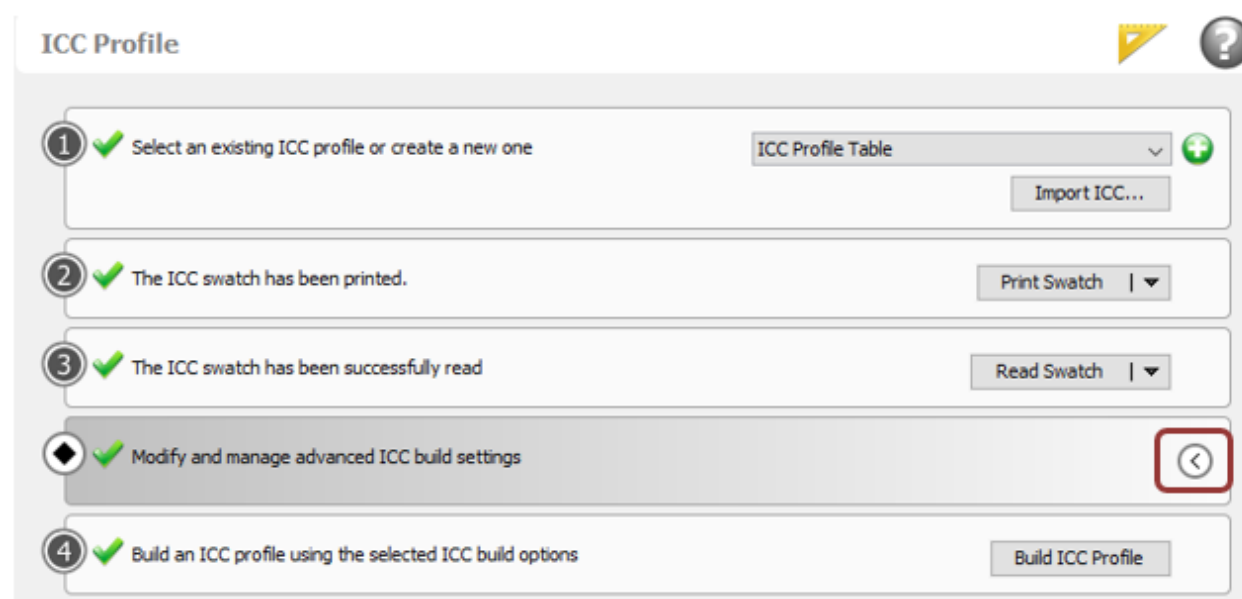
Click on Read Swatch (button on line 3)





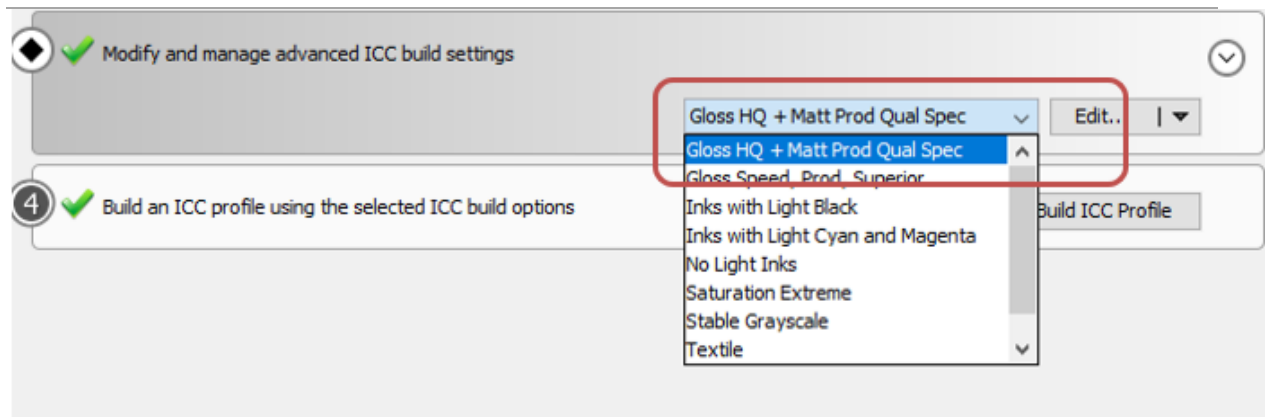
Modify the ICC Build settings.

Click on the arrow pointing to the left to expand the ICC build settings options.

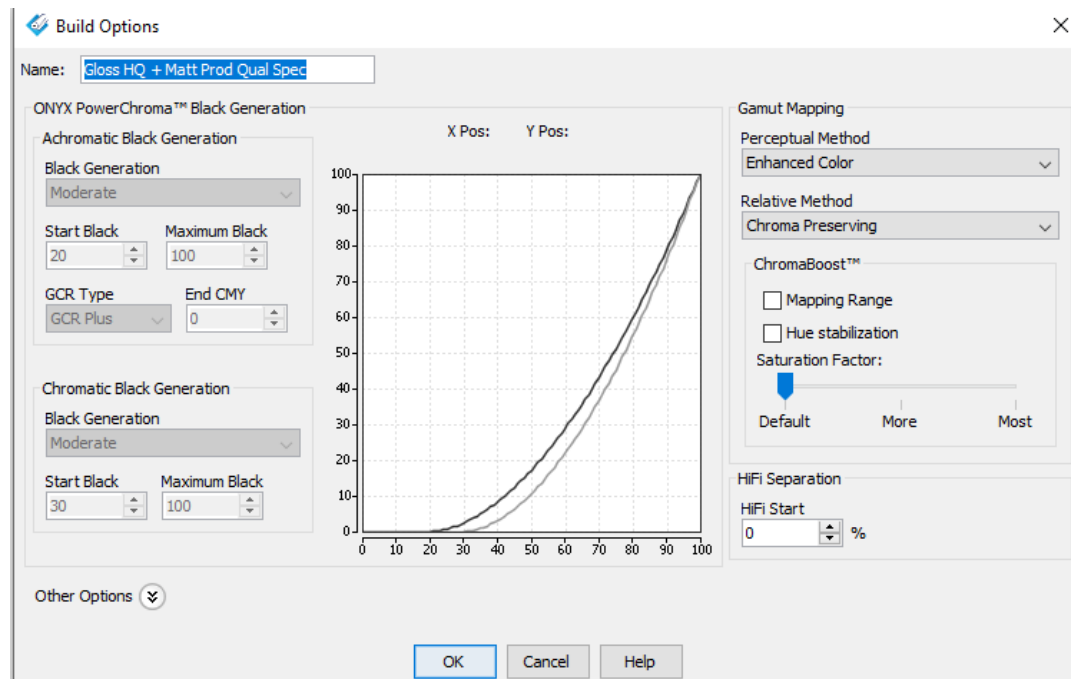


The build settings of Gloss High Quality are used for the FLXfinish+ print mode.” (option on line 4).

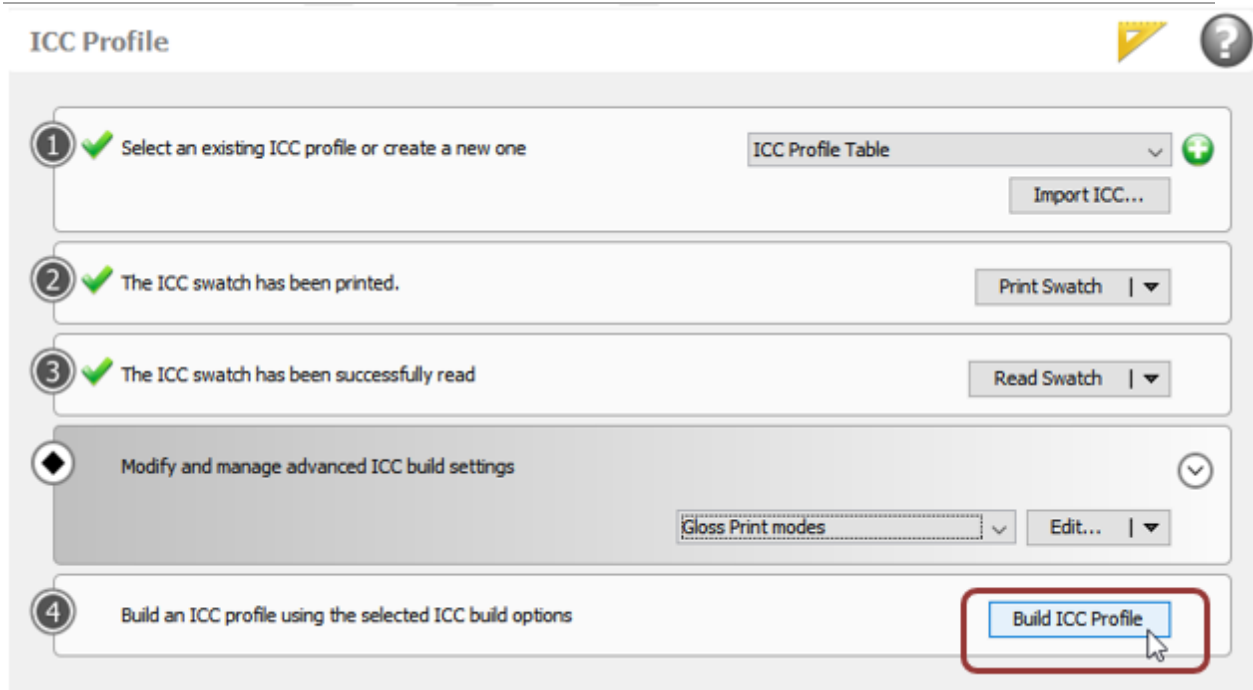
**Note:** See [Appendix VI](#) on how to create a build.



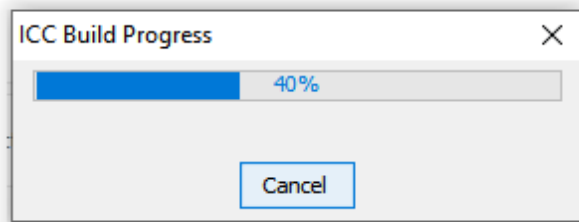
Check the image below which build settings are used for Gloss High Quality/FLXfinish<sup>+</sup>.



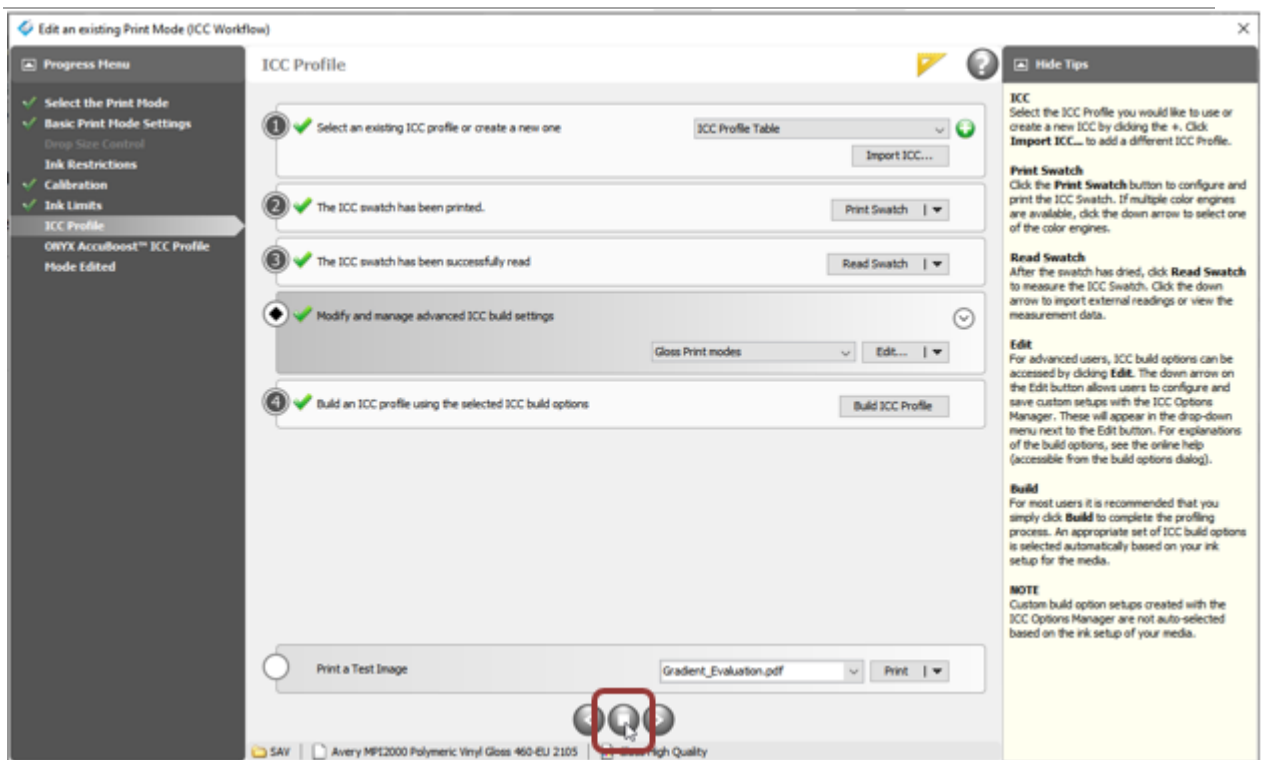
Click on Build ICC Profile (Button on line 5)



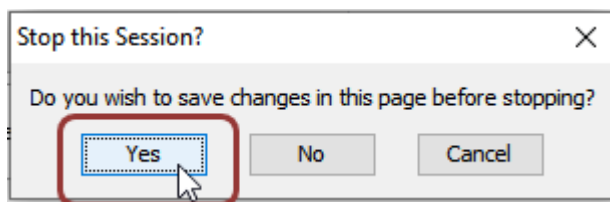
The Print mode with ICC profile will be generated.



Click on the square at the bottom.



Click on the “Yes” button to save the profile.



### 3.4 Create a Media Profile for White/Multi-layer

For White/Multi-layer the following print modes are available in various layer configurations:

Print mode→ Layer config	White Express	White Speed	White Production	White High Quality	White Specialty
1 Layer					
Underflood					
Overflood					
3 Layer					
5 Layer					

For the white print modes, only the ICC profile for one layer configuration is created from scratch and is used for all other layer configurations. The White underflood layer configuration is used for creating the ICC profile and then copied for the other layer configurations.

When looking at the colorspace; the White Express, White Speed and White production are equal. Therefore, only the ICC profile for White Underflood production layer configuration is created from scratch and is then not only used for all other layer configurations, but also for all White High Speed and White Speed layer configurations. The same counts for White High Quality and White Specialty, for those you only have to create the ICC profile for one layer configuration of one print speed and then copy the others.

Based on this information only a Media profile/ICC profile has to be made from Scratch for White Underflood Production and White Underflood High Quality. With those two print modes and layer configurations all other print modes and layer configurations can be made.

#### 3.4.1 Creating White Underflood print mode from scratch

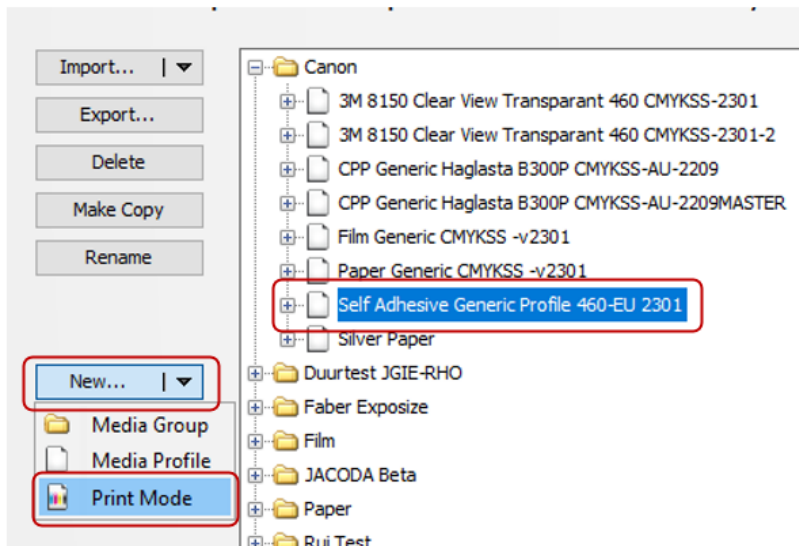
For creating an ICC profile for the White Underflood print mode, the following steps are needed:

1. Select the print mode and configure print mode parameters if
2. Setting the value for the ink restrictions
3. Measuring the calibration values
4. Setting the ink limits
5. Setting the ICC profile settings and generate the ICC-profile

To see the recommended build settings for Matte Print modes go to [Appendix III](#)

How to create a print mode will be described in this section via text and screenshots.

Click on New... & click on Print Mode



Select the print mode (and configure print mode parameters if applicable)

Enter the print mode name “White Underflood High Quality” and select the concerning print mode from the list. In this case White High Quality.

Click Next

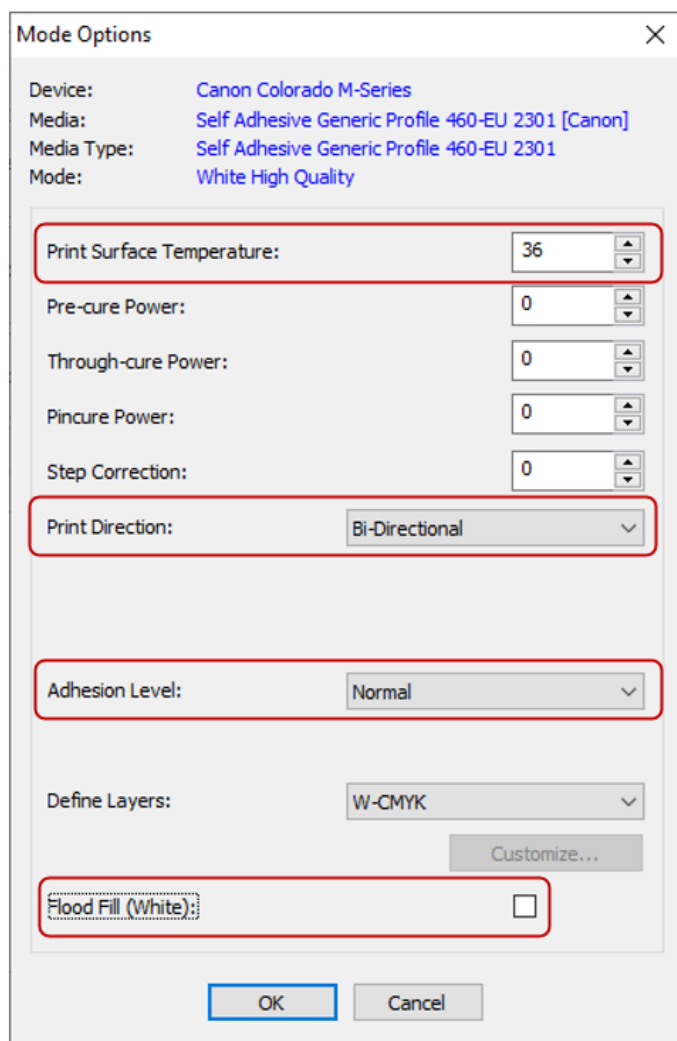
Click on Mode Options (button on line 4)

For White print modes the standard print surface temperature is 36°C.

Select the W-CMYK in Define Layers

Leave Print Direction\* and Enhanced Adhesion\*\* as on Bi-directional and Normal.

Make sure to uncheck the Flood Fill (White) box, as the flood fill box will be selected at each measurement check. The Flood Fill box needs to stay unchecked when printing samples in so that both Spot White and Flood Fill White work. If the Flood Fill box is checked, the sample will always be printed with a Flood Fill.



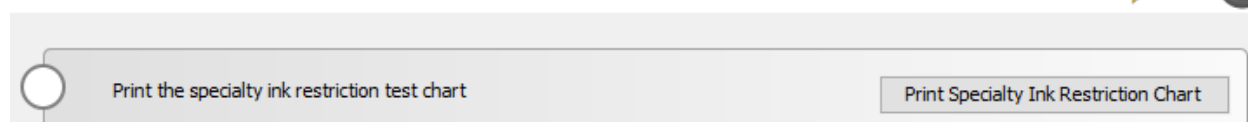
\* *Print Direction:* The print direction option gives the ability to print either Bi-directional or Uni-directional. When printing in Uni-directional the print speed will decrease, but can eliminate certain PQ artifacts such as banding or improve the robustness of 5 layer applications.

\*\**Enhanced adhesion:* In case the adhesion of the ink on media is insufficient, there is the possibility to set the print mode to Enhanced adhesion. This will allow for a better adhesion but at the cost of print speed.

### 3.4.2 Ink restriction

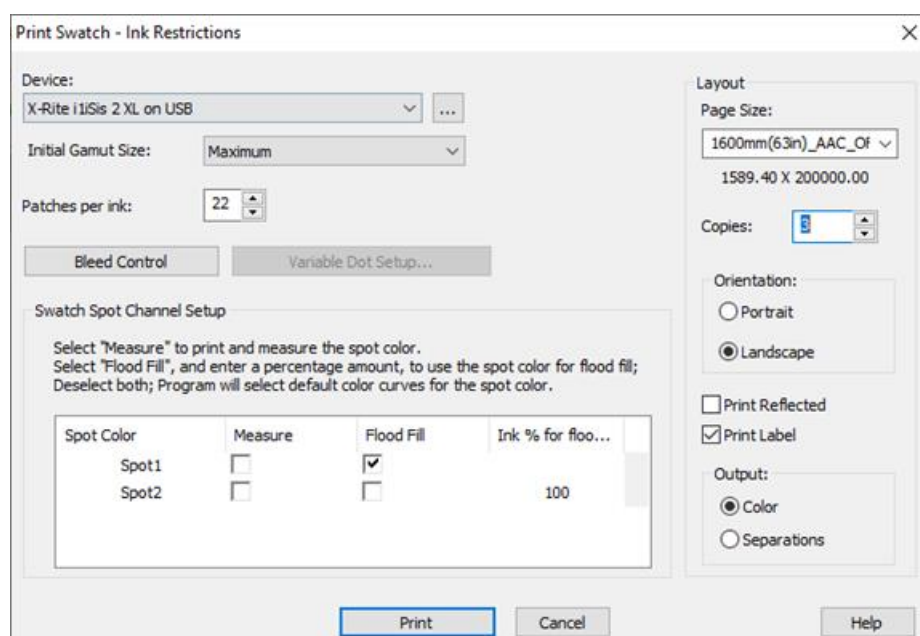
An extra setting has been added in the Ink restriction section due to the fact that we now use a CMYKSS profile, which is called 'Specialty ink restriction test chart'. Ignore this step as it adds no added value for White print modes.

#### Ink Restrictions



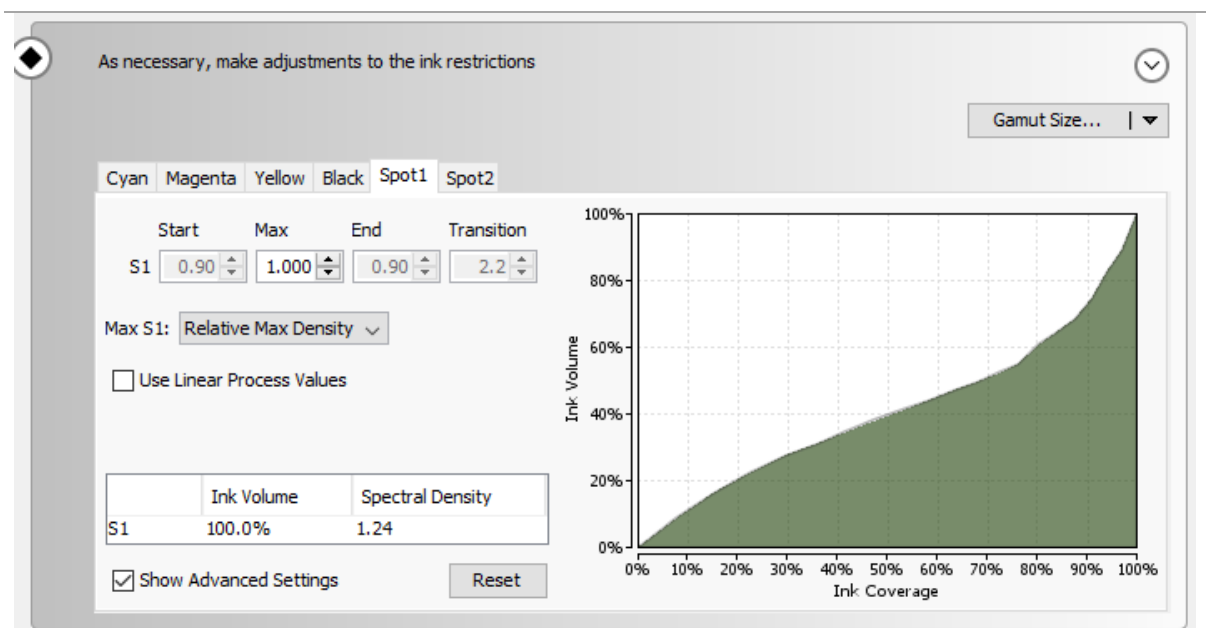
Continue with the standard process and print the standard ink restriction swatch with 22 patches for ISIS 2XL and 18 patches for Barbieri. Going to higher values will increase the chance of having contouring issues.

Make sure to check Spot1 boxes in the print swatch options.



After reading the ink restriction patches; The Spot1 which is the White ink will use the same curve as the Black ink. Do not set it to volume linear.





Click Next.

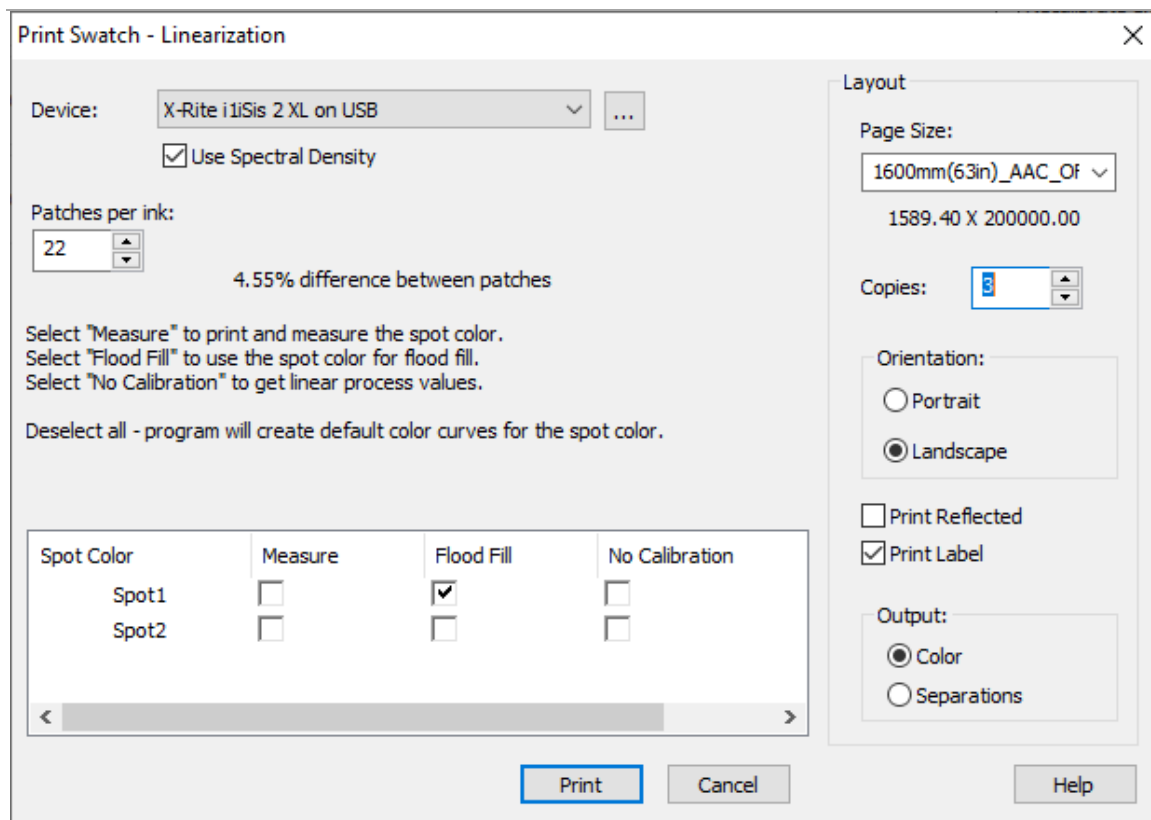
### 3.4.3 Measure the Calibration

Print and measure the Calibration Swatch.

Click on Print Swatch (button on line 1)



Again use 22 patches for ISIS 2XL and 18 patches for Barbieri. Going to higher values will increase the chance of having contouring issues. Make sure to check the Spot1 Flood Fill box

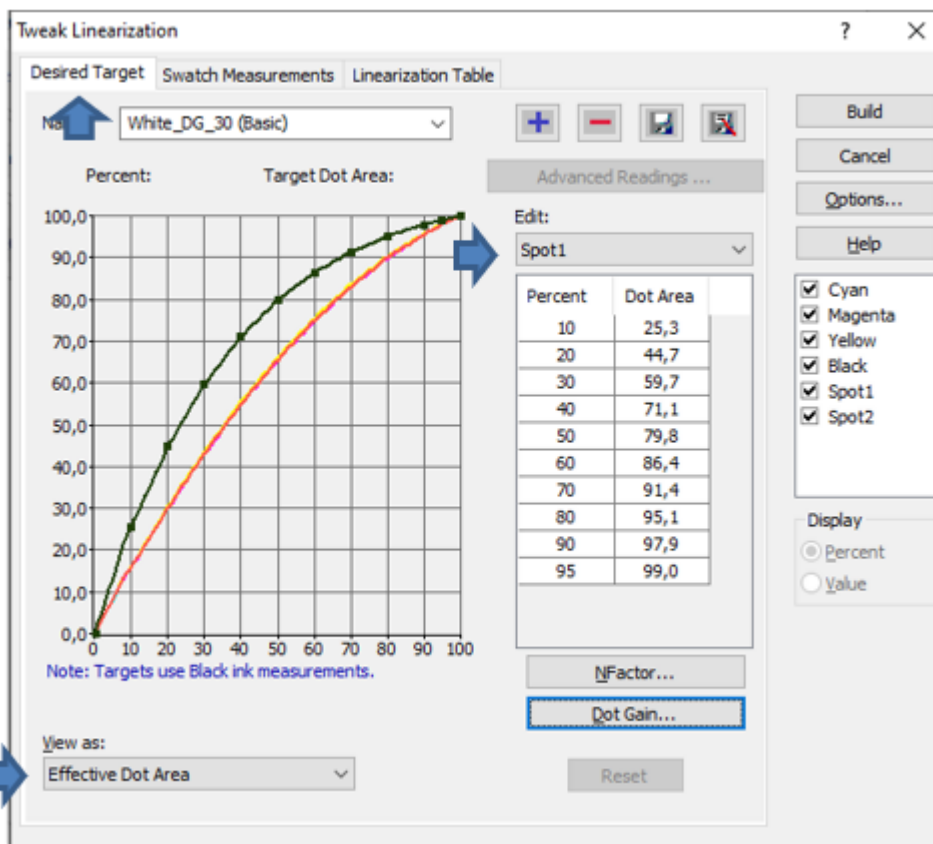
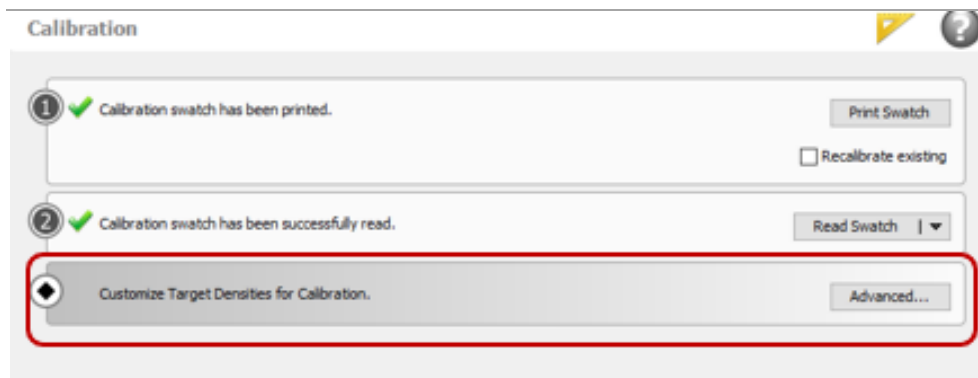


Click Print.

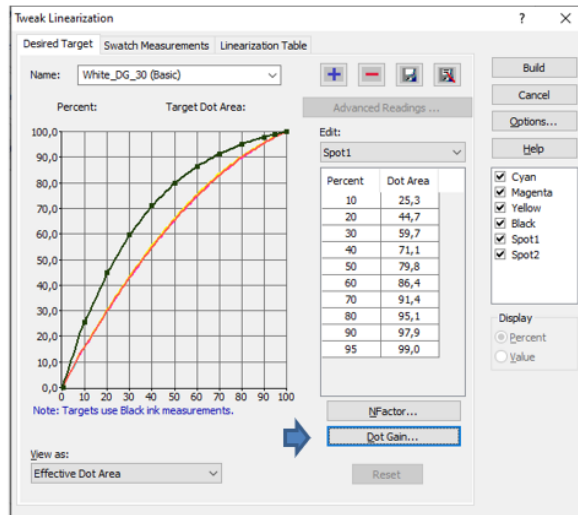
Click on Read Swatch (button on line 2)



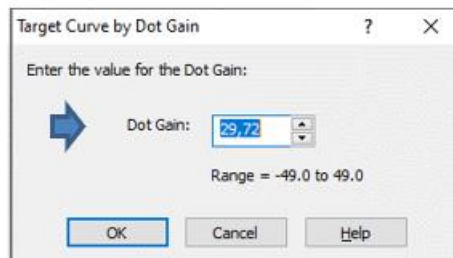
Click on Advanced and tweak the Spot1 channel. Select the tab "Desired Target" and select at the bottom at "view as": Effective Dot Area. At edit make sure to select Spot1.



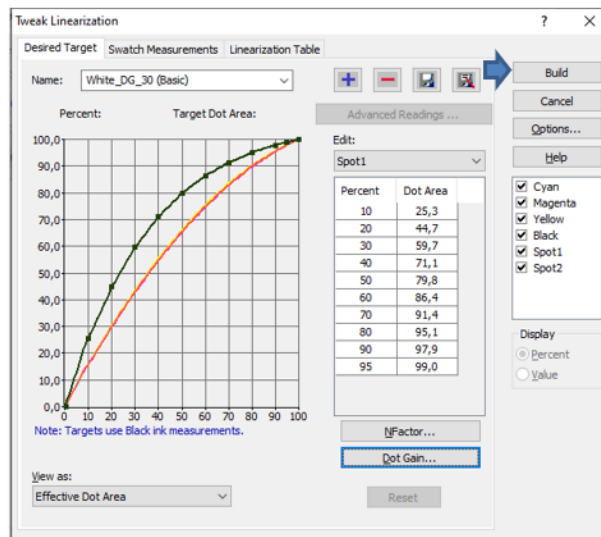
When everything is set correct click on “Dot Gain..”



Set the Dot Gain to 30%. It will be changed to 29.72, which is OK. Then press Ok.



Click on "Build" to save the settings

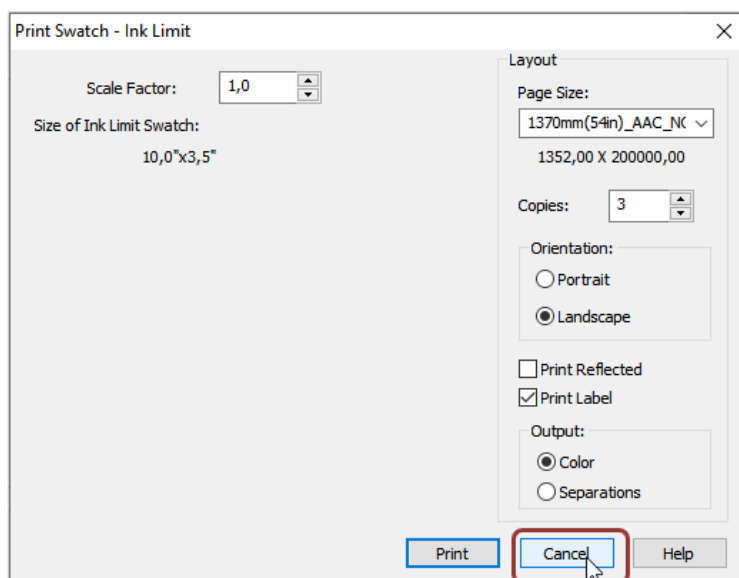
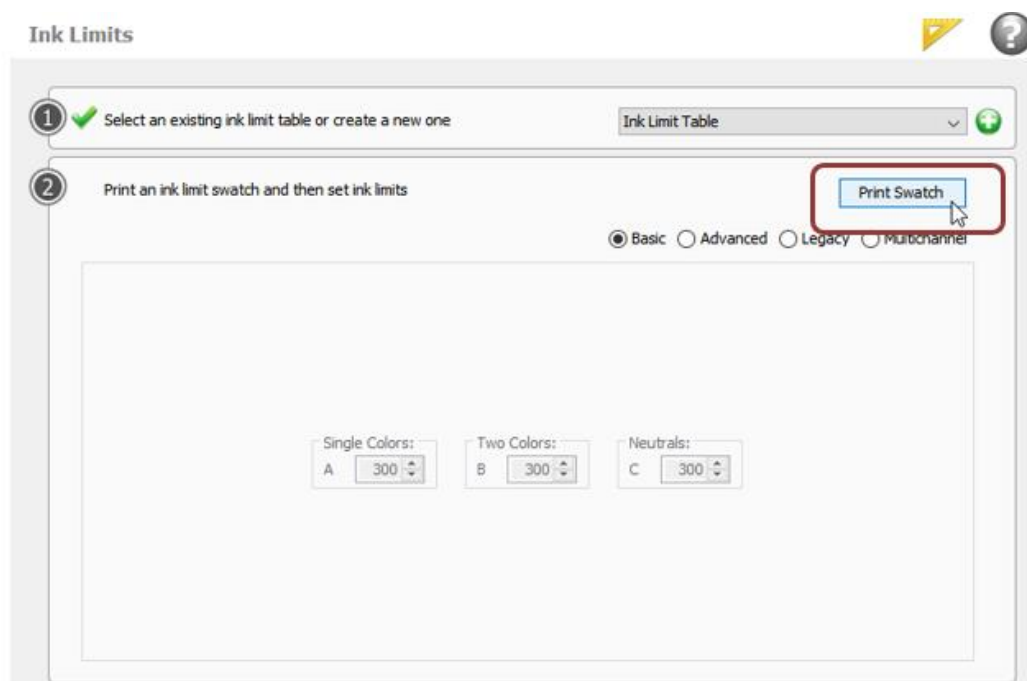


Note: In case the amount of white is too low in the mid tones for the White Spot, the Dot Gain can be set to a lower value.

Next.

### 3.4.4 Set Ink limitation

The Ink limit needs to be adjusted for White print modes, as Optimized Color Profiling is not used. To unlock the ability to change the ink limits click on Print Swatch and press cancel.



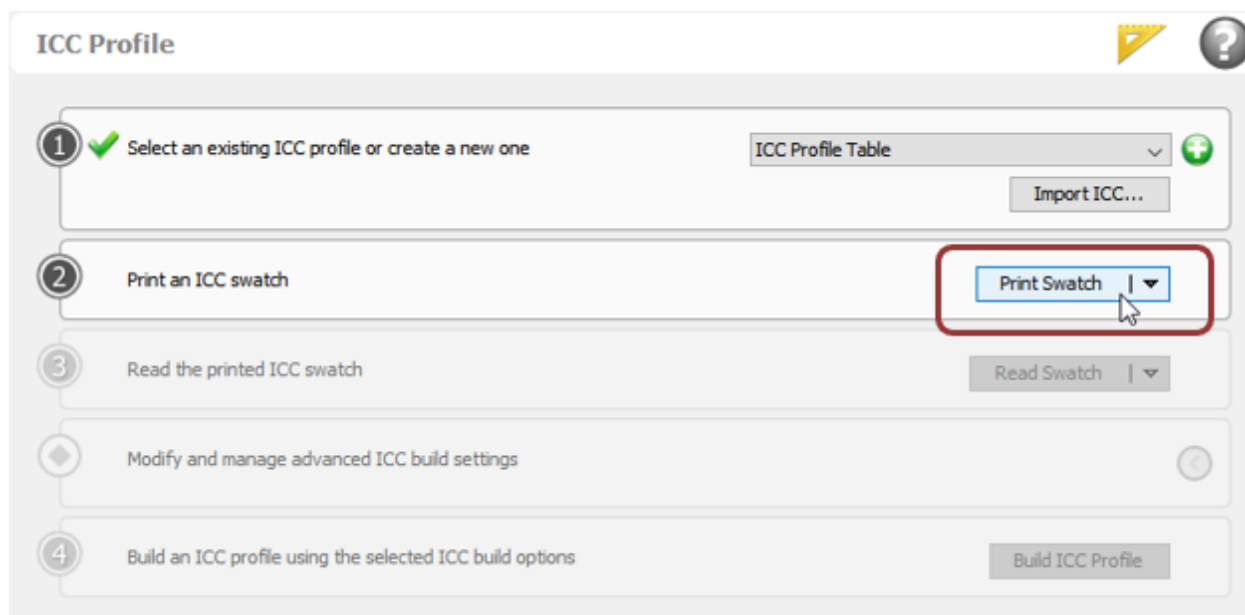
Use the table below for the correct ink limits per channel per print mode.

Print mode	Single Colors	Two Colors	Neutrals
White High Quality	240	260	280
White Production	280	280	280

### 3.4.5 Create ICC profile

Print and measure the ICC Profile Swatch.

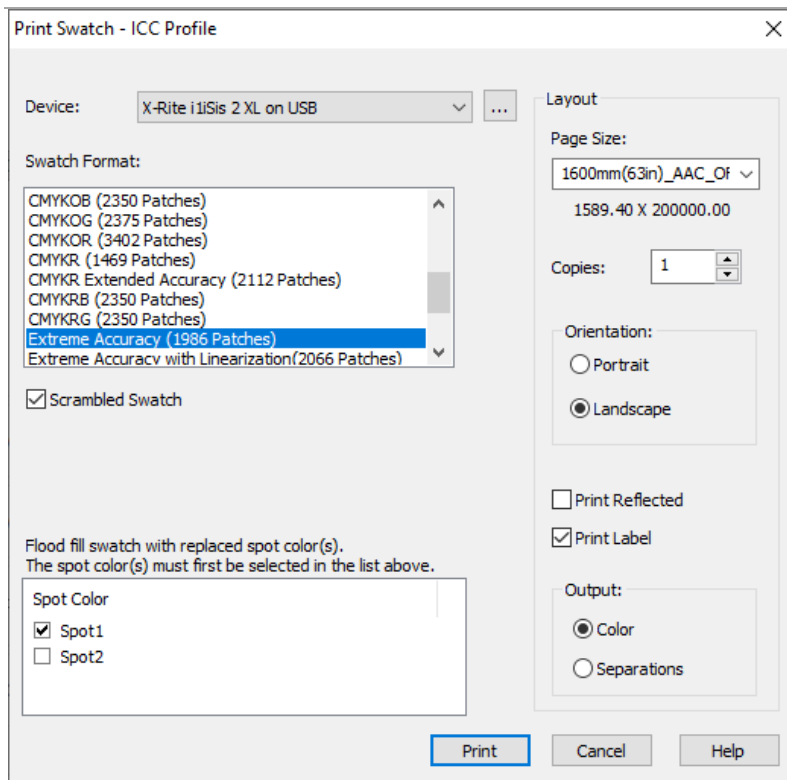
Click on Print Swatch (button on line 2)



Check the following settings in the Print Swatch – ICC Profile dialog:

- **Device:** Ensure you select the Spectrometer which is connected to your PC/laptop
- **Initial Patch Size** should be reduced to (2 mm if applicable) to limit the number of sheets.
- **Swatch format** should be a minimum of 1986 (Extreme Accuracy) to ensure an optimal ICC profile.
- Select the right **media size**. Please check the size of the media being loaded.
- Set the **number of copies** to 2 or if possible more; typically, the number of swatches which can be printed next to each other in one line. This depends on the width of the used media. This prevents the need for reprinting the swatch in case of media damage or pollution at a certain part of the media.
- Ensure the checkbox for **Print Label** is selected and the output is set to “**Color**”

Make sure to select Extreme Accuracy check the Spot1 box

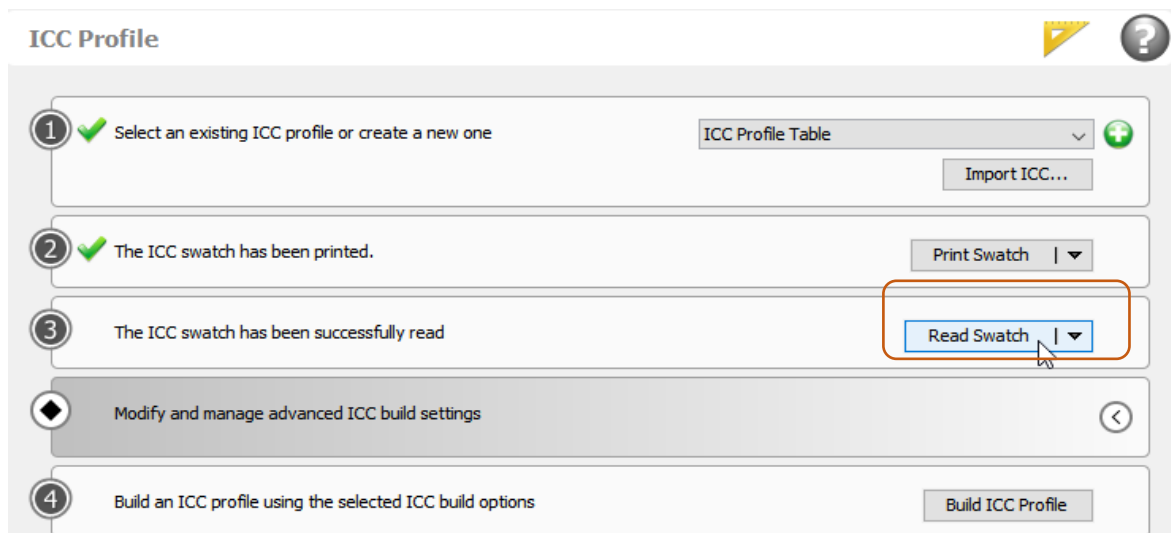


It is mandatory to wait at least 30 minutes before measuring the ICC print swatch to create an accurate color profile. The prints undergo a color shift, which is especially measurable in the first 15-20 minutes, but still slightly change after that up to 1 hour.

**TIP: Start creating a new print mode in the meantime.**

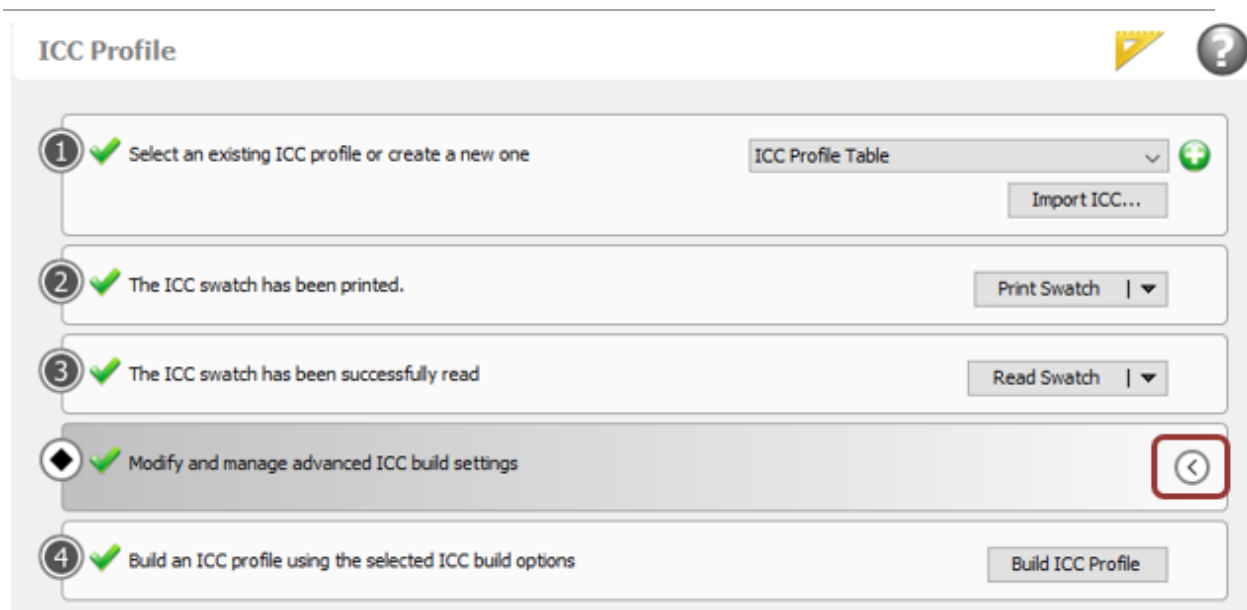
Measure the ICC print swatch after a minimum of 30 minutes.

Click on Read Swatch (button on line 3)



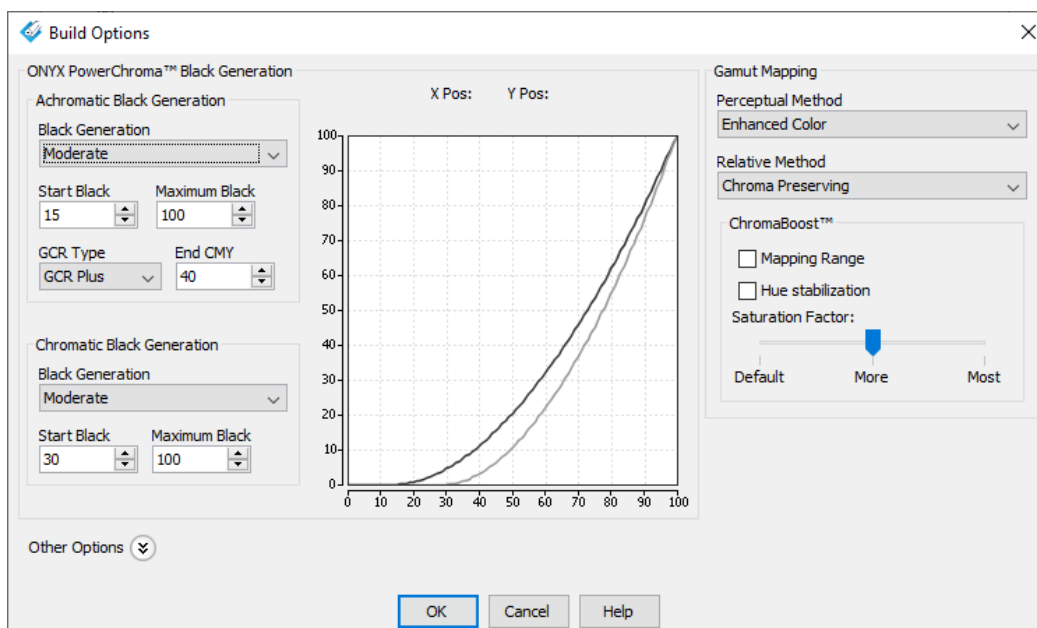
Modify the ICC Build settings.

Click on the arrow pointing to the left to expand the ICC build settings options.



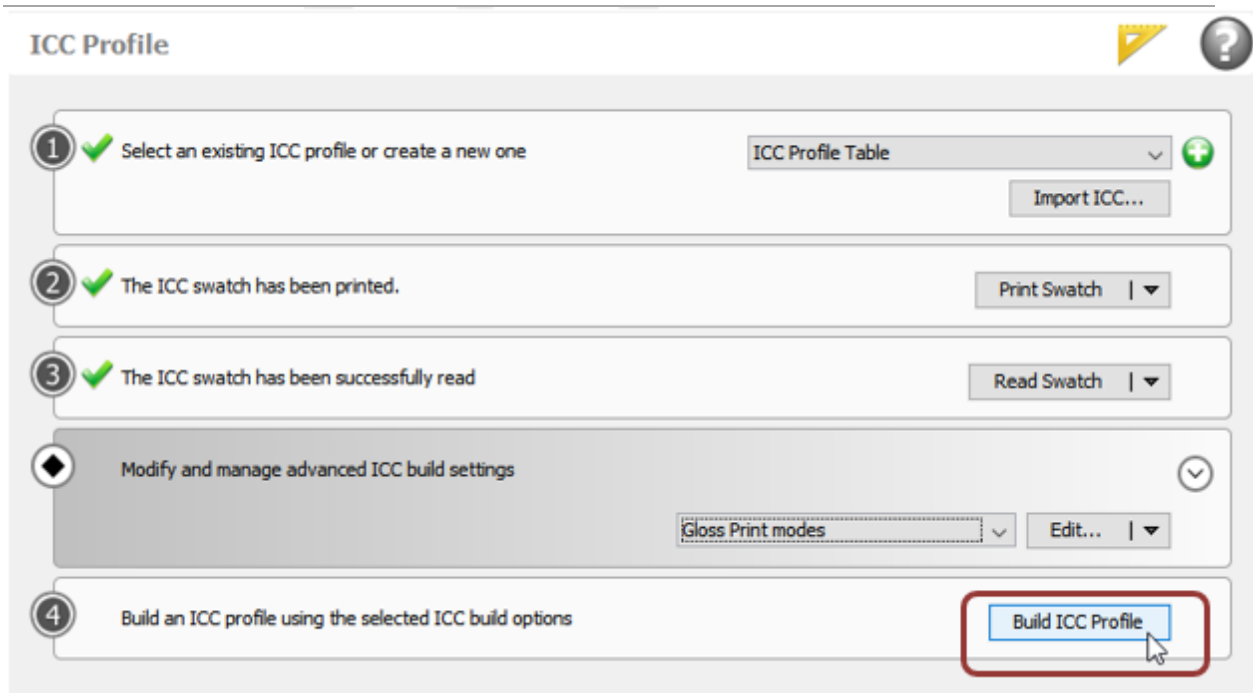
Use the build settings for the White print modes if it has already been created. Otherwise see [Appendix VI](#) on the recommended settings or White print modes in detail.

Check the image below which build settings are used for White print modes.

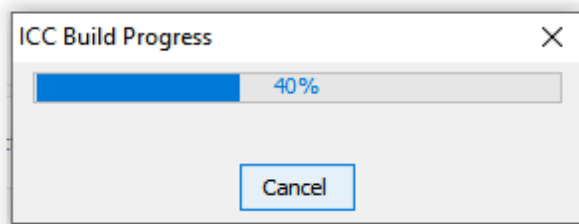


Click on Build ICC Profile (Button on line 5)

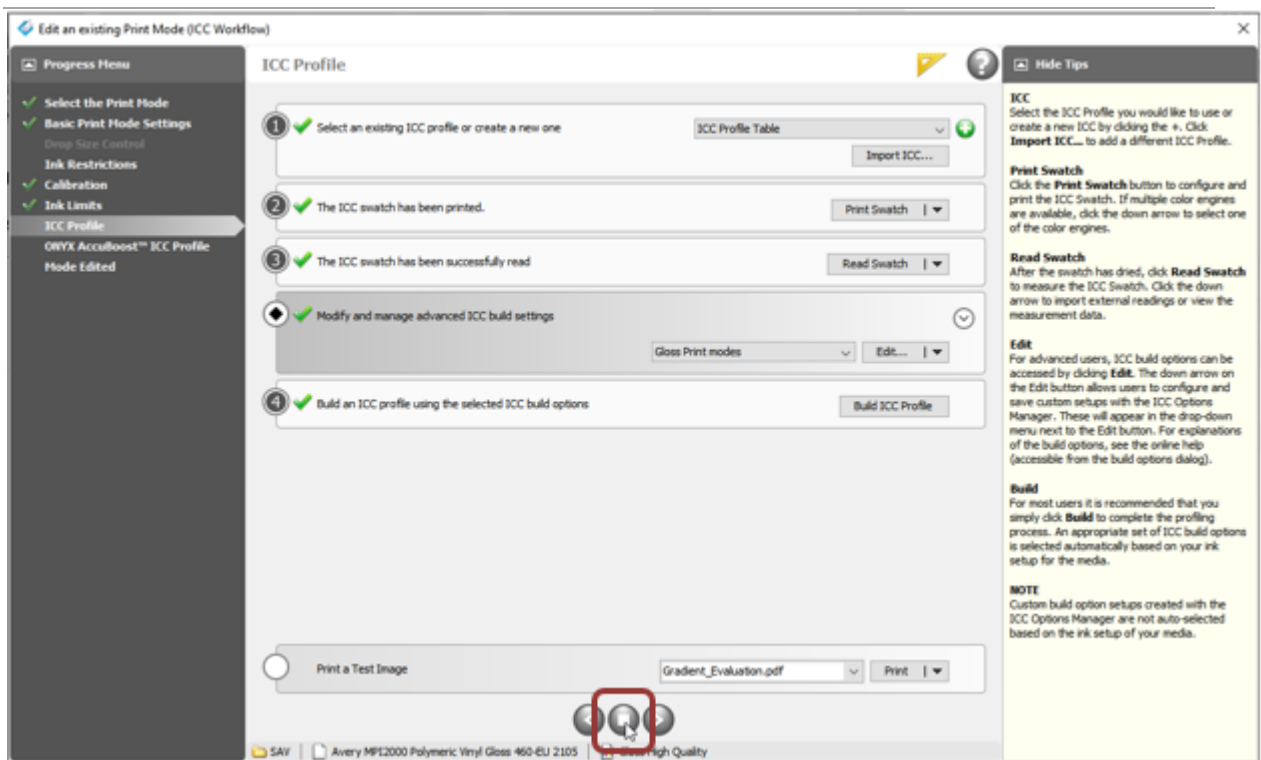




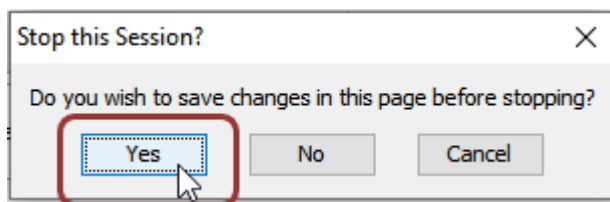
The Print mode with ICC profile will be generated.



Click on the square at the bottom.



Click on the “Yes” button to save the profile.



### 3.4.6 Copying print modes

As mentioned in the beginning of this chapter by only creating a ICC profile from scratch for White Underflood High Quality and White Underflood Production, all other print modes and layer configurations can be copied.

The following print modes can be copied:

- Copy White High Quality to White Specialty
- Copy White Production to White Speed and White Express.

With the ICC layer configuration all other layer configurations can also be copied:

- Spot White
- Overflow
- 3 Layer
- 5 Layer

See chapter 3.1.6. (page 32) on how to copy print modes.

## Appendix I Gloss print modes overview table

Generic Gloss (number indicates step)	Max Speed	High Speed	Speed	Production	High Quality	Specialty	FLXfinish*
<b>Passes</b>	1-pass	1-pass	2-pass	2-pass	4-pass	8-pass	22-pas
<b>Amount Strategies</b>	1	1	1	1	1	1	1
<b>Print surface</b>	24	24	24	24	24	24	21
<b>1.Select device link</b> (example MPI2000)	1	2	2	2	2	2	2
<b>2.Print Ink restrictions</b>	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut
<b>3.Set Ink restrictions</b>	C100, M100, Y100, K100	C100, M100, Y100, K90	C100, M100, Y100, K100	C100, M100, Y100, K100	C100, M100, Y100, K100	C100, M100, Y100, K100	C100, M100, Y100, K100
<b>4. Print Calibration chart</b>							
<b>5.set Ink limitations</b>	A=280 B=280 C=280	A=400 B=400 C=400	A=400 B=400 C=400	A=400 B=400 C=400	A=400 B=400 C=400	A=400 B=400 C=400	A=400 B=400 C=400
<b>6.Print ICC-chart</b>							
<b>ICC Profile GCR/UCR type</b>	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=30	GCRplus: CMY=0
<b>Black min/max</b>	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr30-100	Achr 15-100 Chr 30-100
<b>Black Generation</b>	Achr max Chr moderate	Achr max Chr moderate	Achr max Chr moderate	Achr max Chr moderate	Achr max Chr moderate	Achr max Chr moderate	Achr max Chr moderate
<b>Table size</b>	41	41	41	41	41	41	41

<b>Perceptual method</b>	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color
<b>Relative method</b>	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving
<b>Chroma boost</b>	off	off	off	Off	off	off	off
<b>Balance CMY gray</b>	yes	yes	yes	Yes	yes	yes	yes
<b>ICC profile version</b>	4.x	4.x	4.x	4.x	4.x	4.x	4.x
<b>Viewing light source</b>	D50	D50	D50	D50	D50	D50	D50

## Appendix II Matte print modes overview table

<b>Generic Matt</b> (number indicates step)	<b>Matte High Speed</b>	<b>Matte Speed</b>	<b>Matte Production</b>	<b>Matte Quality</b>	<b>Matte Specialty</b>	<b>Backlit</b>	<b>Backlit Density</b>
<b>Passes</b>	3-pass	4-pass	4-pass	6-pass	8-pass	8-pass	14-pass
<b>Print surface</b>	24	24	24	24	24	32	32
<b>Strategies</b>	1	1	1	1	2	1	1
<b>1.Print Ink restrictions</b>	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut
<b>2.Set Ink restrictions</b>	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100
<b>3. Print Calibration chart</b>							
<b>4.Set Ink limitations</b>	A280, B280, C280	A280, B280, C280	A280, B280, C280	A240, B260, C280	A240, B260, C280	A280, B280, C280	A280, B280, C280
<b>5.Print ICC-chart</b>							
<b>ICC Profile GCR/UCR type</b>	GCR	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=0	GCRplus: CMY=80	GCRplus: CMY=80
<b>Black min/max</b>	Achr20- 100 Chr 30-100	Achr 15- 100 Chr 30-100	Achr 15- 100 Chr 30-100	Achr 15- 100 Chr 30-100	Achr 15- 100 Chr 30-100	Achr 15- 100 Chr 30-100	Achr 15- 100 Chr 30-100
<b>Black Generation</b>	Achr: moderate  Chr: moderate	Achr: Max  Chr: moderate	Achr: Max  Chr: moderate	Achr: Max  Chr: moderate	Achr: Max  Chr: moderate	Achr: Max  Chr: moderate	Achr: Max  Chr: moderate
<b>Table size</b>	41	41	41	41	41	41	41
<b>Perceptual method</b>	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color
<b>Relative method</b>	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving
<b>Chroma boost</b>	off	off	off	off	off	off	off

---

<b>Balance CMY gray</b>	yes	yes	yes	yes	yes	yes	yes
<b>ICC profile version</b>	4.x	4.x	4.x	4.x	4.x	4.x	4.x
<b>Viewing light source</b>	D50	D50	D50	D50	D50	D50	D50

## Appendix III White print modes overview table

Generic White <small>(number indicates step)</small>	White Express	White Speed	White Production	White High Quality	White Specialty
<b>Passes</b>	3-pass	4-pass	4-pass	6-pass	8-pass
<b>printsurface</b>	24	24	24	24	24
<b>Strategies</b>	1	1	1	1	2
<b>1.Print Ink restrictions</b>	Max Gamut	Max Gamut	Max Gamut	Max Gamut	Max Gamut
<b>2.Set Ink restrictions</b>	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100	C100, M100, Y100,K100
<b>3. Print Calibration chart</b>					
<b>4.Set Ink limitations</b>	A280, B280, C280	A280, B280, C280	A280, B280, C280	A240, B260, C280	A240, B260, C280
<b>5.Print ICC-chart</b>					
<b>ICC Profile GCR/UCR type</b>	GCR	GCRplus: CMY=40	GCRplus: CMY=40	GCRplus: CMY=40	GCRplus: CMY=40
<b>Black min/max</b>	Achr20-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100	Achr 15-100 Chr 30-100
<b>Black Generation</b>	Achr: moderate Chr: moderate	Achr: Max Chr: moderate	Achr: Max Chr: moderate	Achr: Max Chr: moderate	Achr: Max Chr: moderate
<b>Table size</b>	41	41	41	41	41
<b>Perceptual method</b>	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color	Enhanced Color
<b>Relative mehod</b>	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving	Chroma preserving
<b>Chroma boost</b>	off	off	off	off	off
<b>Balance CMY gray</b>	yes	yes	yes	yes	yes
<b>ICC profile version</b>	4.x	4.x	4.x	4.x	4.x
<b>Viewing light source</b>	D50	D50	D50	D50	D50
<b>6.Calculate profile and save project</b>					



### Appendix IV Guideline print modes per media category

Printmode	Gloss							Matte*							Mixed*	
	Gloss High Key	Gloss Express	Gloss Speed	Gloss Production	Gloss High Quality	Gloss Premium	Gloss Speciality	Matte Express	Matte Speed	Matte Production	Matte High Quality	Matte Speciality	Backlit	Backlit Density	FLXfinish+	
Speed M3 (m <sup>2</sup> /h)	111	78	55	39	29	22	19	36	27	22	18	13	18	10	7	
Speed M5 (m <sup>2</sup> /h)	159	114	80	57	40	27	20	46	38	31	27	20	20	10	7	
Speed M3 (ft <sup>2</sup> /h)	1195	840	592	420	312	237	215	388	291	237	194	140	194	108	75	
Speed M5 (ft <sup>2</sup> /h)	1709	1229	861	610	427	290	222	495	409	333	290	215	215	108	75	
Media	Application															
MC Paper	POP															
Coated Paper	POP (wallpaper)															
Uncoated Paper	Wrappings (wallpaper)															
Vinyl	Wallcovering (textured)															
PVC banner	Indoor/outdoor Banner; Mesh															
Self Adhesive	Fleet graphics; Window graphics; Stickers; Decals															
Self Adhesive (Cast)	Fleet graphics															
Soft-signage	Frontlit SEG															
Soft-signage	Backlit SEG															
Film	Backlit															
Film	Frontlit/rollup banner															
Canvas	Canvas															
Magnetic	Magnetic															

R	Recommended		Good quality for most applications
	Best quality for most applications		Low quality applications
	Media (types) that are suitable for gloss print modes and are smooth with no or minimal texture. Main applications: retail, interior decor, packaging, labels		

Layers	1					2					3		5				
	Spot White Express	Spot White Speed	Spot White Production	Spot White High Quality	Spot White Specialty	White Underflood Speed	White Underflood Production	White Underflood High Quality	White Underflood Specialty	White Overflood Speed	White Overflood Production	White Overflood High Quality	White Overflood Specialty	3 Layers High Quality	3 Layers Specialty	5 Layers High Quality	5 Layers Specialty
Speed M3 (m <sup>2</sup> /h)	27	22	18	13	9	20	14	10	7	20	14	10	7	7	5	4	3
Speed M5 (m <sup>2</sup> /h)	36	30	23	18	12												
Speed M3 (ft <sup>2</sup> /h)	291	237	194	140	129	215	151	108	75	215	151	108	75	75	54	43	32
Speed M5 (ft <sup>2</sup> /h)	388	323	258	194	129												

Media	Application																	
Transparent films & Self Adhesives	Window Graphics																	
	Spot White																	
	Underflood & Overflood																	
	Double sided																	
	Same image																	
	Different image																	
Translucent film & Textiles	Day Night																	
	Day Night Switch																	
Colored Paper	POP & Wallpaper																	
Colored Banner	Indoor / Outdoor banner																	
Colored Magnetic																		

R	Recommended		Good quality for most applications
	Low quality applications		Best quality for most applications

---

## Appendix V Detailed information Media Settings

### Media Type Name

This name is similar to the name as entered with creating the media profile. The text in this field, will become visible in the media list on the printer. You could change this name, but it is recommended to keep this name the same and the name entered with creating the media profile.

### Media Category

This drop-down box lists the Media Categories known by the system. Actually, each category acts as a template for setting most other values in the screen to default values for the selected type of media. Please be aware that the Media Category is also used by reporting tools and in the accounting reports.

### Automatic Advance Correction

The AAC is used for maintaining the correct media step while printing. This setting is set with selecting the media type in the Media Category. Typical causes which could influence the media step are: Differences in media batches, changing environment (i.e. temperature, humidity), pollution of the print surface, different media stepping behavior at the beginning or at the end of a roll. Please check the guidelines for setting this value below:

- **Normal**  
This is the value suitable for most common media. With this setting small Yellow markers (nearly invisible) are printed next to the image and which are measured by the M&C-unit. Based on those measurements the media step can be adjusted/optimized.
- **Enhanced**  
This setting is typical selected for media with a textured surface which cause issues with reading the small yellow markers. The markers in the "Enhanced"-mode are larger and printed with black.
- **Robust**  
This setting is selected for very textured media, which still cause issues with reading when using the Enhanced markers. The markers in the "Robust"-mode are even larger than the markers in the "Enhanced"-mode
- **Off**  
This setting can be selected if the printer reports on the user panel that the Normal or Enhanced markers cannot be read. This is typical for media with a heavy texture or media which are too reflective.

### Vacuum settings

The print surface is non-equally divided in 5 different zones. With the vacuum settings, the vacuum power for each of these zones can be controlled individually in such a way the media stays flat on the print surface but still moves smoothly through the printer. It is recommended to keep the default/pre-set vacuum-settings.

**Please note:** With changing the vacuum settings afterwards, the friction which with media moves over the print surface is affected and therefor it will be needed to redo the media calibration on the printer.

### Winding Tension

Also this parameter is set by the selected Media Category. It is recommended to keep this default/pre-set selection. Please find below some details on the selectable options and guidelines for changing this setting:

- **No tension bar**

This is the setting suitable for most common media. With selecting “No tension bar” the media guides need to be used.

**Please note:** With this setting it is possible to print on the leading edge of the media. However please ensure the leading edge of the media does not curl, with the risk of touching or damaging the print heads.

- **Locked tension bar**

Using the “Locked tension bar” is needed for stiff, less flexible media. The locked tension bar basically replaces the blouse forming device (light aluminum bar), which is too light for handling more stiff media. Also with selecting “Locked tension bar” the media guides need to be used.

- **Tension bar**

For less rigid media and flexible/light media which are too weak to be pushed over the print surface, the Tension bar and especially its weight needs to be used in order to pull the media over the print surface. With using the “Tension bar”, do not use the media guides. Due to the less rigid structure of this kind of media, it needs to move more freely over the print surface preventing it from being damaged by the media guides.

## Layout Preview

With this checkbox selected (default = selected), ONYX Rip Queue will show the Print Dialog when submitting a job to the printer. The Print Dialog enables specific adjustments for the concerning print job individually like setting the number of job copies specific media width, leading edge, trailing edge, etc.

## Auto Media Advance

Selecting this checkbox (default = unselected) prevents pinch roller marks that can occur on sensitive media while it sits idle in the loaded position or while it lies on the printer platen for more than two minutes. With creating a new media profile, [Auto media advance] is disabled by default. When enabled, this setting advances the media past the pressure point at the start of a print job or at the request of a manual cut. Finishing printing on sensitive media, it is advised retract the media back into the drawer.

## Print Gap

This setting controls the distance between the print heads (print head carriage) and the media.

- **Medium** (default)

When set to “Medium” the carriage height is adjusted automatically based on the thickness of the media.

- **High**

Change this setting to “High” in case of any new or unknown media, specifically with a significant texture or stiffness which could cause the media toughing the print heads.

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### Requires Manual Loading

Select this checkbox when using/loading thin/flexible or very stiff media which requires a leading strip of another media to be loaded properly. Width detection will be done just before printing at the position of the printhead. You can open the top cover and you can place the media manually in position.

### Suitable for Printer/Cutter

Most media can be cut by the integrated rotating knives. Only very thin and flexible media, media containing metal components (i.e. aluminum) or media with strong fibers (i.e. Tyvek) may not work fine with the integrated knives. For those media we advise to disable "Cutting". If the checkbox is disabled, the user panel will still show the button for cutting the media. When this button is applied, the system will forward the media allowing to cut the media manually above the winding unit.

### Outer Core Diameter

Enter here the outer diameter of the core the media is wound on in millimeters. Together with the value for the media thickness and the number of revolutions needed for feeding a certain media length, the outer core diameter value is used to calculate the remaining length of the media on the roll.

### Media Thickness

Enter here the thickness of the media in micrometer. In order to find the right value, it would be good to take the average of at least 3 measurements, left, middle, right. The media thickness is used for adjusting the height of the print heads but also to determine the remaining length of media on the roll. To prevent any damage caused by print heads touching the media, it is important this value is entered correctly. Especially with copying media profiles this value needs to be checked. With creating a new media, this value is default set to the maximum value of 800 um. The system will not allow the media settings to be saved without adjusting this value.

### Moist Sensitivity

This setting controls whether a media is automatically forwarded from the print platen after a certain amount of time to prevent head touches by waved or wrinkled media. Paper-based media are typically more sensitive to temperature and humidity variations. When enabled, the printer spools the media forward at the start of a print job or at the request of a manual cut after the defined inactivity time limit is reached: Possible values and the related time limit for inactivity are:

1. 1800 seconds
2. 250 seconds
3. 120 seconds

So, for media which is more sensitive to temperature and humidity variations a higher value should be selected.

### Printer Does Copies (Only for "Print Jobs Individually")

With enabling this setting, print jobs are submitted only once and the printer takes care of creating multiple copies of the job as set in the Print Dialog. Especially in case of any interruptions in the

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printing (i.e. running out of media or any other errors), the printer ensures the right number of jobs is reprinted, preventing the need for submitting the job all over again.

### **Advanced Media Step Calibration**

The Advanced Media Step Calibration is used, for Self-Adhesive Vinyl which consist of different layers, to achieve the optimal step accuracy. This box is checked by default for Self-Adhesive and adds an additional part to the media calibration.

### **White Markers**

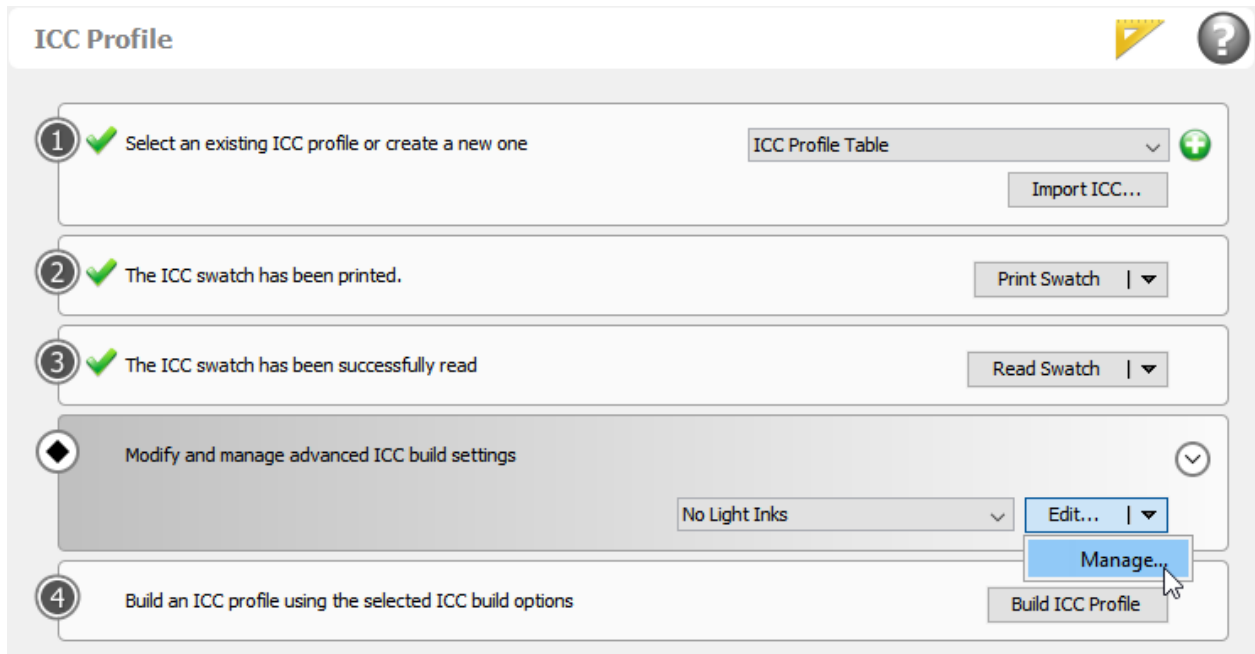
With the addition of White ink, the Automatic Advanced Correction markers can be printed in white. This counts for all configurations; Normal, Enhanced & Robust. The White markers can be used for transparent, metallic or Dark colored media.

### **Suitable for Edge Detection**

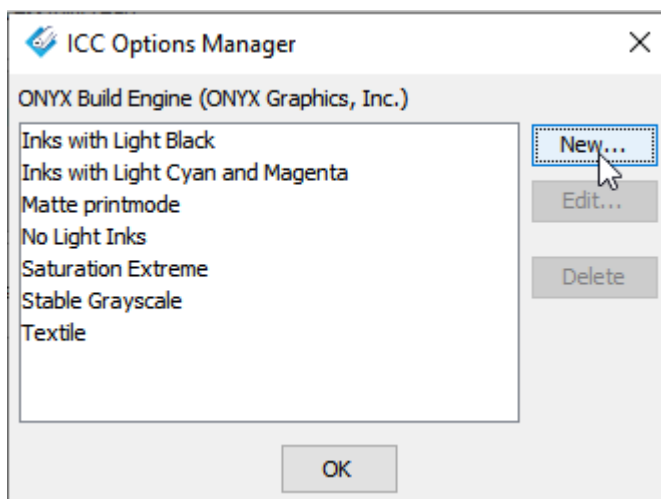
The “Suitable for Edge Detection” is a check box which is by default on and allows the Printhead scanner to detect the edges of the media and allows to calculate the media width and position. In case of transparent, metallic and dark colored media, the checkbox can be unchecked. This will result in the print head scanner not scanning the media width and position and therefore allows these types of media to run through the machine. NOTE: in case of unchecking the Suitable for Edge Detection box, make sure to position the media exactly in the middle in the loading drawer.

## Appendix VI Creating ICC Build

Click on the down arrow and click on manage.



Click on New to add a new ICC build setting.



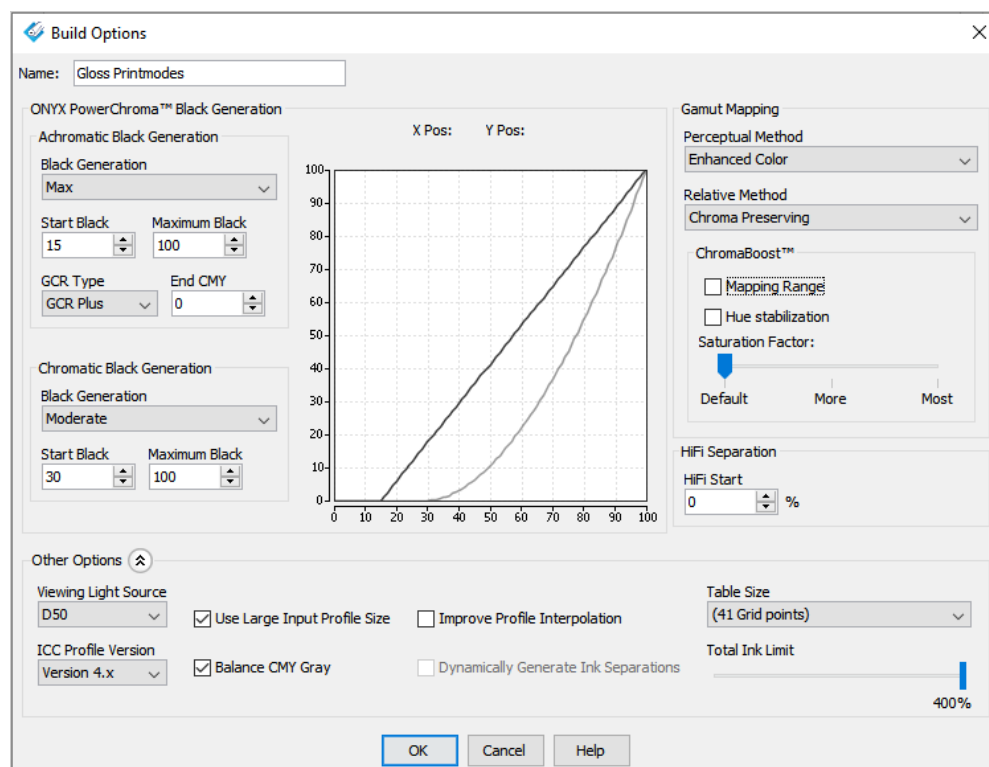
### Recommended build settings for Gloss print modes:

Check the following settings in the Build Options dialog and make sure to expand other options by pressing the down button:

- Create a name for the Gloss Print modes name

- Use the following settings for **Achromatic Black Generation**:
  - Black Generation Max
  - Start Black at 15 and Maximum Black at 100
  - GCR Type at GCR Plus with End CMY at 0
- Use the following settings for **Chromatic Black Generation**:
  - Black Generation Moderate
  - Start Black at 30 and Maximum Black at 100
- Set the **Perceptual Method** to Enhanced Color
- Set the **Relative Method** to Chroma preserving
- Uncheck all boxes for **ChromaBoost**
- **Other options**:
  - Set **Viewing Light Source** to D50
  - Check the **Balance CMY Gray** box
  - Set **Table Size** to 41 Grid points

Press OK twice



### Recommended build settings for standard Matte print modes:

Check the Matte Print mode overview table ([Appendix II](#)) for the correct values for Matte High Speed, Backlit & Backlit Density.

Check the following settings in the Build Options dialog and make sure to expand other options by pressing the down button:

- Create a name for the standard Matt Print modes



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- Use the following settings for **Achromatic Black Generation**:
    - Black Generation Max
    - Start Black at 15 and Maximum Black at 100
    - GCR Type at GCR Plus with End CMY at 0
  - Use the following settings for **Chromatic Black Generation**:
    - Black Generation Moderate
    - Start Black at 30 and Maximum Black at 100
  - Set the **Perceptual Method** to Enhanced Color
  - Set the **Relative Method** to Chroma preserving
  - Uncheck all boxes for **ChromaBoost**
  - **Other options**:
    - Set **Viewing Light Source** to D50
    - Check the **Balance CMY Gray** box
    - Set **Table Size** to 41 Grid points

Press OK twice

#### Recommended build settings for standard White print modes:

Check the following settings in the Build Options dialog and make sure to expand other options by pressing the down button:

- Create a name for the White print modes
- Use the following settings for **Achromatic Black Generation**:
  - Black Generation Moderate
  - Start Black at 15 and Maximum Black at 100
  - GCR Type at GCR Plus with End CMY at 40
- Use the following settings for **Chromatic Black Generation**:
  - Black Generation Moderate
  - Start Black at 30 and Maximum Black at 100
- Set the **Perceptual Method** to Enhanced Color
- Set the **Relative Method** to Chroma preserving
- Uncheck all boxes for **ChromaBoost**
- **Other options**:
  - Set **Viewing Light Source** to D50
  - Check the **Balance CMY Gray** box
  - Set **Table Size** to 41 Grid points

Press OK twice