



In this tutorial, you will learn how to generate a CPM from scratch. The CPM from Scratch Wizard takes complete control of the color behavior where all aspects of the unique ink, media, and quality combination are considered natively. The wizard is strongly automated and guides the operator through different steps from setup to a ready-for-use CPM.

The CPM from scratch wizard needs a profound knowledge of "the system". This includes the printer, ink, and substrate. It is possible to go beyond the limits of the system which can result in stability and quality issues during the print run. Results with 100% repeatable quality can be achieved with the derived CPM.

Measurement devices

A measurement device is essential to create a CPM from scratch. Make sure that the right driver is used. See the <u>Annex</u> for detailed info.

1. How to create a CPM from scratch

- 1. In the jobs overview, context-click on the digital press. Open the Media Hub.
- 2. Select File > New Media, and give the new media a recognizable name (e. g. paper vendor, tutorial ...)
- 3. Select File > New Calibrated Printing Mode

Step 1 – Choose the CPM parameter

- 4. The first step is to link all elements (printer, media, quality ...) that make a CPM.
 - Select your "Printer"
 - Select your "Media"
 - Select a "Quality"
 - Select a "Color mode" (if available)

• Disable "Base the new CPM on an existing one for faster creation"

A CPM Creation Wizard								- 🗆	×
	Step 1: Choose CPM Parame	eters							
 Choose CPM Parameters 	1: Creat	e new CPM for:							
			Printer	Anapurna H2500i LED		\sim			
			Media	Synaps		\sim			
			Quality	High Quality		\sim			
			Colormode	6C		\sim			
	2: Solor	t existing CDM on which to base the new one.							
	2. 500						Channe & affer any life of CDMA and u		
		Base the new CPM on an existing one for faster cre	eation				Show Agta certified CPMs only		
		CPM	🔺 Media	On Media	On White	Creator			
		HighQ - 4P Uni 720x720 PMQ-IEFM APS - 6C	Generic	4P Uni 720x720 P	4P Uni 720x720 P	Agfa Certified			
		HighQ - 8P Bi 720x1440 PMQ-IEG APS - 6C	Generic	8P Bi 720x1440 PM	8P Bi 720x1440 PM.	Agfa Certified			



5. Add the necessary print application(s). In this tutorial, we will make a CPM with an "on media" and "on white" calibration.

3: Set supported print modes for the new CPM:		Dynamic Ink Split	100% Ink Limit
Media	Print Mode Parameters		
Support printing color on media	4P Uni 720x720 PMQ-IEFM APS V	•	
White			
Support printing white	4P Uni 720x720 PMQ-IEFM APS V	0	100 %
Support printing color on white	4P Uni 720x720 PMQ-IEFM APS V	•	
Use generic calibration Include dedicated calibration			
Primer			
Support printing primer		0	%
Calibrate with primer			
Varnish			
Support printing varnish		0	%
Calibrate with varnish			
4: Calibration:			
Standard Calibration			
Standard + G7 Calibration			
5: CPM Name:			
HighQ - 4P Uni 720x720 PMQ-IEFM APS - 6C		Automatic	

- Enable *Support printing color on media* and select a matching print mode.
- Enable Support printing color on white, activate Include dedicated calibration
- 6. Click next to proceed.

3: Set supported print modes for the new CPM:



Step 2 – Pure ink characterization

- 7. During the pure ink
 - Select *Change Instrument* from the cogwheel when *NO INSTRUMENT SELECTED* is shown in the instrument pane. Select your measuring device e.g. i1 iO Pro 2 by clicking on the cogwheel. If available, select M1 as the <u>measurement condition</u>.
- 8. Click *Print*. The print target window will be displayed. The output size can be changed (this will rearrange the targets automatically). The print options with offset and media thickness are only useful for Jeti Tauro devices. The wedge (ID strip and Calibration target) is automatically processed by Asanti and dispatched to the press after clicking *OK*.
- 9. Notice the percentage at the bottom of the calibration wedge. This percentage allows for limiting ink usage (step 8) before printing.

In this stage, the limitation should only be done when the wedge can't be measured (sticky ink, drying issues, vulnerability...). Print artifacts that can be measured shouldn't be limited to allow the biggest possible gamut (print artifacts will be filtered out during the proceeding steps).

- 10. Click *Measure*. Depending on the selected measurement device the wizard will act differently. Click next to proceed.
 - X-Rite eyeone, iSis, and eXact: the wizard will recognize the ID strip and proceed automatically to the pure ink characterization wedge.
 - X-Rite eyeone iO: ID strip and pure ink characterization wedges are measured automatically after positioning.
 - Barbieri Spectropad/Spectro LFP and Konica Minolta FD-9: Select the measurement description file (double-check the Job ID which is printed in the header of the wedge).

Media Size	Roll Media			Ink Limits Reduce ink limits if the ink to measure.	print produces too muc
	Size:				
	(Custom)		~		Max Ink Load %
	1260 mm x	0 mm	(W x H)	LightCyan_drop1	100.0
		~ ·		Cyan_drop1	100.0
	O Portrait (Landscape		LightMagenta_drop1	100.0
				Magenta_drop1	100.0
Print Options				Yellow_drop1	100.0
	Rotate the test targ	jets ets for transparer	nt media	Black_drop1	100.0
	Add Post White for	transparent medi	a		
	Horizontal Offset:	15 mm	1		
	Vertical Offset:	15 mm			
	Thickness:	125 micron			



A CPM calibration wedge can only be used once. When submitted multiple times, the wizard will only accept the last submitted one as valid (otherwise a warning will be posted).

Step 3 – Ink set setup

- 11. In this lesson, it is the intention to make a CPM with the biggest possible color gamut.
 - Click *Print* to print the banding target.
 - Set absolute max ink load: The maximum ink load is the patch (%) which is not affected by any print artifact (banding, curing, durability against scratches ...).
 - Calibration settings:
 - CPM gamut: Select *Create CPM with the largest gamut possible*
 - Calibration Unit: Automatic
 - Click next once all parameters are set.



In the automatic wizard Asanti will calculate the best ink usage based on measurements (step 2) and limitations set by the operator (step 3). This will allow combining both routines into an initial calibration step (step 4). Asanti will lower the ink usage when more ink does not make sense (no additional color gamut or Chroma) even when the maximum ink load may go way higher before running into print artifacts.

Step 4 – Calibration

12. During the calibration step, an initial calibration is done. Select your measurement device (if not available yet). Click *Print* to submit the wedges. Once printed click *Measure* and proceed with the measurement as described in point 10.

Upon completion, a graph will be generated displaying the tonal behavior in lightness (cyan, magenta, and black) of Chroma (yellow and eventual additional colors). A small step can be distinguished for multi-density inks where the light tint is replaced by the heavy



tint. Click next to proceed.

Step 5 – Overprint Ink Limits

13. All previous steps were about limiting individual inks. Output by Asanti is (almost) never the pure ink individual. Colors are achieved by mixing 2 or more inks to reproduce thousands of colors. In step 5 the ink behavior of 2 or more mixed inks is checked and if necessary limited.

From the "Print Overprint chart" drop-down menu select the *Default Overprint Chart* and click *Print*. The target is dynamically created based on the used ink set (additional orange, green, and blue ...).



14. Overprint target: The overprint target contains a series of



wedges here gradually ink is increased. Judging this printed chart is a matter of finding the right limitation to avoid print problems. Eventually, use a sclerometer or something else to test the durability against scratches. Choose for each wedge the best level (higher level = banding, drying issues, scratches ...) and update the overprint limits. Click next once finished.

The limitations set on this target are "virtual" which means that they do not have any influence in the previous set of limitations on the pure in. They are taken into account when creating the profile in the next step. A TAC is determined to select a good profiling target.

Step 6 – Profile creation.

- 15. Again, select your measurement device (if not active yet). The layout of the profiling target is automatically adapted to the active profiling target. Click print to print the target.
- 16. Click measure to measure the target. Once complete, a Profile Steering file can be selected. Select WF-LightGCR-v2 and click *Create a profile*. Click *Next*.



Step 7 – CPM quality report

17. The CPM quality report contains all details on how the CPM was made (ink table) but also how it scores against a reference profile. This allows judging whether a CPM might be used to simulate press conditions such as a Fogra or IDEAlliance standard.



- 18. Click *Next* to proceed if a dedicated white calibration set needs to be added. Click *Finish* if not the case.
- 19. The CPM is now available in the media hub.

	Step 7: CPM Quality Report						
toose CPM Parameters Solor Con Media Pure Ink Characterization	You have successfully created a new CPM. The CPM is ready for use. F	or your information, you can consult, save or print the repo	rt in this step.				
/ Wistestup / Overprint Link Links / Overprint Link Links / Hvdler creation & OM Quality Report Coder du Wither / Pare Link Characterization / Ink ast setup / Calibration / Deerprint Link Links	CPM Quali	ty Report:					1
Profile creation CPM Quality Report	Calibrated Printing M	lode: HighQ - 4P Uni 720x7	20 PMQ-IEFM APS - 6C				
	Device: Anapura H Ink: CMYKcm+1 Quality: High Quality Printing Mode: 4P Uni 720 Media: Synaps Instrument: Ink Table: HighQ-4P L Profile: HighQ-4P L	2500i LED Y (UV - AJ LED + White LED) x720 PMQ-IEFM APS Ini 720x720 PMQ-IEFM APS-6C-S Ini 720x720 PMQ-IEFM APS-6C-S	Applicat Calibrat Characterizat Profile Steering F Reference Pro Measurement Condit ynsps-FM-V0-W-KM1024i-LED ynsps-FM-V0-W-KM1024i-LED	Ion: OnMedia Ion: 01/24/17, 10:27:37 Ion: 01/24/17, 11:14:49 File: WF-LightGCR-V2 file: ISOcoatedv2 Ion: M1 4-CMYKcm+W (UV - AJ LED + 14-CMYKcm+W (UV - AJ LED +	White LED) White LED)		
	Calibration Info						
	Cyan	Magenta	Yellow	Black			
	Actual Ink Tables						
	Max Light Ink: 52.9% Max Heavy Ink: 80.1%	Max Light Ink: 31.0% Max Heavy Ink: 81.4%	Max Int: 90.7%	Max Infc 90.0%			
	S	% Reference Profile: 1000	%	%			÷
PM Creation for "High Quality" quality o	"Anapuma H2500 LED" for "Synaps" media using "OHMKon+W (UV - A) LED	+ White LED)" ink set.		Class	Dura	Next	-



2. Redoing a CPM

After completing a CPM, the quality will probably be validated by printing a series of test images. It can then happen that the result is not 100% satisfying: problems with adhesion, and color gamut restrictions ... Some "problems" can be fixed by modifying the CPM to change the print mode or replacing the steering file of the profile. However, these parameters have little influence on the true ink behavior. Ink drying issues can partially be fixed by restricting the profile (needs to be done with external profiling tools such as ColorTune Output) but are off-topic when it comes to color-accurate Calibrated Printing Mode.

By redoing a CPM, the CPM can be opened. All steps of the wizard become available for tweaks and changes.

In this lesson, we will change the DLC (overprint ink limits) from our previously made CPM. This will be done on a duplicated version of the CPM.

- 1. Look for the CPM in the Media Hub. Click on the CPM cogwheel and from the dropdown menu: click on *Duplicate...*
- 2. A new CPM will be generated with a copy suffix.
- 3. Select the new duplicated CPM. Again, click on the CPM cogwheel and now click on *Redo Wizard...*

Rename CPM
Accept Changes
Revert
Redo Wizard
Resume Wizard
Duplicate
Delete
Export

4. The CPM will open with on the left-hand side all (completed) steps. Completed steps can be recognized by their green checkmark.

The first step (Choose CPM Parameters) cannot be changed since changes here can result in a total new CPM.

Used for: High Quality on Anapurna H2500i LED on Tutorial Accept Changes Inks: CMYKcm +W (UV - AJ LED + White LED) Colors: CMYKcm Created: 01/24/17 13:43:34 Creator: CPM Wizard (from scratch) Comments: Delete Export	Used for: High Quality on Anapurna H2500i LED on Tutorial Inis: CMYKom+W (UV - AJ LED + White LED) Colors: CMYKom Created: 01/24/17 13:43:34 Creator: CPM Wizard (from scratch) Comments: Delete Export	Name:	HighQ - 4P Uni 720x720 PMQ-IEFM APS - 6C	Rename CPM
Colors: CM/Kcm Redo Wizard Creater: 01/24/17 13:43:34 Creator: CPM Wizard (from scratch) Duplicate Comments: Delete Export	Colors: CMYKcm Redo Wizard Resume Wizard Created: 01/24/17 13:43:34 Creator: CPM Wizard (from scratch) Comments: Delete Export	Used for: Toks	: High Quality on Anapurna H2500i LED on Tutorial	Accept Changes Revert
Creator: CPM Wizard (from scratch) Comments: Delete Export	Creator: CPM Wizard (from scratch) Comments: Delete Export	Colors	: CMYKcm : 01/24/17 13:43:34	Redo Wizard Resume Wizard
Comments: Delete Export	Comments: Delete Export	Creator	: CPM Wizard (from scratch)	Duplicate
		Comments:		Export



- 5. Click Next *until* the step needs to be changed. In this lesson, we will go to step 5 Overprint Ink Limits. Change for example the TAC and click next.
- 6. The CPM is now changed (again incomplete). Print again the profiling target, measure, and create a <u>new profile</u> (see the previous lesson for detailed information).



Annex: Measurement devices

Measurement conditions

A measurement condition is a standardized method to cope with components in the substrate that can influence the tonal response (color) detected by the measurement device. Typically, paper manufacturers may add an optical brightener (OBA) to the formula. This component will reflect parts of the invisible UV light into the visible blight to make it look brighter.

- M0: no compensation the reflected light from the bulb inside the measurement device is considered.
- M1: compensation the reflected light from the bulb inside the measurement device is compensated to match the human eye (a certain level of UV accepted).
- M2: UV cut filter the light of the bulb is filtered (mathematically or by physical filter) before it is reflected by the substrate (no UV at all)

Choose measuring instrument X Instrument Barbieri Spectro LFP Barbieri Spectro LFP gb Barbieri Spectropad eXact EveOne EyeOneIO EyeOneiSis i1 Pro 2 i1 Pro 3 i1 Pro 3 Plus i1IO 2 i1IO 3 i 110 3 Plus Konica Minolta FD-5 Konica Minolta FD-7 MYIRO-1 MYIRO-9

M1 is used for all Agfa-certified CPMs (Generic). M1 can be used in all circumstances even if there are no OBA in the substrate.

	Measurement conditions
Barbieri Spectro LFP	MO
Barbieri Spectro LFP qb (NEW)	M0, M1, M2, M3
Barbieri SpectroPad	M0, M1, M2
X-Rite i1 (UV cut)	M0 (M2)
X-Rite i1 Pro II	M0, M1, M2
X-Rite i1 IO Pro (UV cut)	M0 (M2)
X-Rite i1 IO Pro II	M0, M1, M2
X-Rite i1 Pro III (NEW)	M0, M1, M2, M3
X-Rite i1 Pro III Plus (NEW)	M0, M1, M2, M3
X-Rite i1 IO Pro III (NEW)	M0, M1, M2, M3
X-Rite i1 IO Pro III Plus (NEW)	M0, M1, M2, M3
X-Rite i1 iSis Pro	M0, M2
X-Rite i1 iSis Pro II	M0, M1, M2

Select the program features you want installed.		ASAN
lick on an icon in the list below to change how a fea	ture is inst	alled, Feature Description Apogee Client and Apogee QMS applications and their documentation.
Konica Minolta Myiro 9 XRite i1 X-Rite i1Pro/i1IO 3 (Pi X-Rite exact X-Rite EyeOneiSis	us)	This feature requires 0KB on your hard drive. It has 0 of 3 subfeatures selected. The subfeatures require 0KB on your hard drive.

X-Rite eXact scan	M0, M1, M2
X-Rite eXact scan 2	M0, M1, M2
Konica Minolta FD-5	M0, M1, M2
Konica Minolta FD-7/FD-5BT*	M0, M1, M2
Konica Minolta FD-9 (old model of Myiro 9)	M0, M1, M2
Konica Minolta Myiro 1 (NEW)	M0, M1, M2
Konica Minolta Myiro 9 (NEW)	M0, M1, M2

Run the client installer (custom setup) again when your measurement device is not available in the list.

I1 Product family

There is a dedicated driver per generation (new since Asanti v5). It is key to match the right driver with your measurement device.

Device	Look	Driver Media Hub
I1 first generation (before 2010)	Grey hard plastic	EyeOne (iO)
I1 Pro II (2010)	Black rubberish plastic	l1 (i0) 2
I1 Pro III (2019 and later)	Black hard plastic	l1 (i0) 3
I1 Pro III Plus (2019 and later)	Black hard plastic with a large aperture	I1 (iO) 3 Plus