



Guidelines for successful Hydra Profiling® with Alwan ColorHub 7.0



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Introduction

This document is a guideline that lists key points and recommendations which will help you accurately profile or edit the profile of your print device with Alwan Hydra Profiling® using Alwan ColorHub (ACH/ X). For more information regarding ACH/X settings and features, please refer to ACH/X manual available from Alwan ColorHub Help menu.

Hydra Profiling® is an option that is available since ACH/X version 6.0. To activate this option, you can use a Time Limited Demo code for temporary tests or a dongle with Hydra Profiling® option. You can check whether Hydra Profiling® option is activated in the "About Alwan ColorHub" window.

Note that Hydra Profiling advanced options are available in [Alwan ToolBox](#).

About Hydra Profiling®

Hydra Profiling® is a new and revolutionary technology developed and patented by Alwan Color Expertise.

Hydra Profiling® main purpose is to allow manufacturers and users of print devices to accurately profile their device in production without the necessity for tedious and costly profiling sessions.

Hydra Profiling® main strength is to build a standard v4 ICC profile from spectral Color Characterization Data Set (CCDS) generated by Hydra Profiling® or from any available standard or custom spectral dataset. CIELAB data sets can be used but are not recommended.

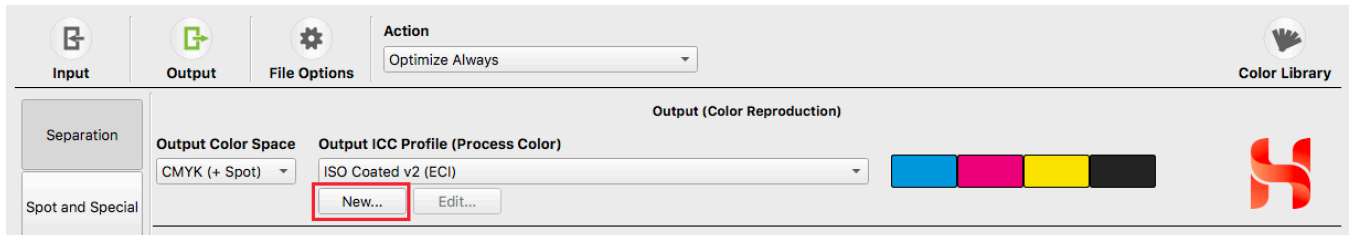
You can use Hydra technology to:

- create output device ICC profile from spectral measurements of a control strip or a color characterization data set;
- create output device ICC profile from several spectral measurements of control strips or color characterization data sets;
- edit device ICC profile by adding or removing a primary channel.



Build output device ICC profile with Hydra Profiling® using single-CCDS files


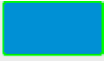
When Hydra Profiling® option is activated in your dongle, a new button [Create Output ICC Profile](#) is available in [Queue / Task Settings / Output](#) window:



Hydra Profiling® allows you to import one or several datasets, in order to create or edit an Output ICC Profile.

Click the [Add Data Source](#) button to import a new CCDS. You can import up to 7 CCDS that will be used for your device profiling.

When you import several single-file data sets:

- make sure that imported data sets aim for the same target printing conditions i.e. do not mix data sets of different processes or of the same process with different printing conditions unless you know what you are doing;
- select primary channels you want to use for your profile creation by double-clicking the corresponding color button.  means that this channel data will be used for profile creation;
- discard primary channels you do not want to use for your profile creation by double-clicking the corresponding channel.  means that this channel data will not be used for profile creation;
- choose profile settings such as profile tables number of grid points, GCR etc. For more details, please refer to Alwan ColorHub manual;
- a channel that is selected multiple times is averaged;
- resultant color gamut corner points, 2D visualization and 3D volume are displayed;
- click [Build Profile](#) to create the new profile.



Input Output File Options Action: Optimize Always Color Library

Profile Primaries:

Reference Gamut: ISO Coated v2 300% (ECI)

Add Data Source

Data Source 1: DataSet
Delete Data Source
Import Data... 2020_03_04_15h44m44s
Channels:

Data Source 2: DataSet
Delete Data Source
Import Data... 2020_03_04_16h49m15s
Channels:

Data Source 3: DataSet
Delete Data Source
Import Data... 2020_03_04_17h22m27s copy
Channels:

Data Source 4: DataSet
Delete Data Source
Import Data... 2020_03_04_10h50m31s
Channels:

Reference Gamut: ISO Coated v2 300% (ECI)

	New Gamut			Reference Gamut			Difference		
	L*	a*	b*	L*	a*	b*	ΔE_{00}	ΔC	Δh ...
White Point	93.2	3.1	-10.9	95.0	0.0	-2.1	7.7	9.2	10.7
Black Point	19.8	-1.6	3.5	8.7	-0.2	2.1	7.6	1.7	15.7
Cyan	56.7	-19.7	-48.8	55.0	-37.0	-50.0	7.3	-9.6	11.6
Magenta	49.2	65.1	0.4	48.0	74.0	-2.9	2.8	-9.0	2.6
Yellow	85.3	-7.5	81.6	89.0	-5.0	93.0	3.7	-11.2	1.3
Black	20.8	0.3	-0.5	16.0	-0.1	0.0	3.4	0.5	118.1
Estimated ...	278 136			412 677					

Profile Settings

A2B Table Size: Large (25 pts)
B2A Table Size: Large (33 pts)
Smooth Profile Tables:
Profile Version: 2.1 4.0
Estimated Profile Size: 6 MB

Output Separation

Separation: GCR

TAC (%): 300
K Start (%): 5
K Max (%): 100
GCR Level: Medium GCR (2.4)

Profile Name: KM1_255A-4C_2L_BCR Cancel Build Profile


Build output device ICC profile with Hydra Profiling® using multiple-CCDS files

Some profiling software - like Esko® software - generate multiple charts for n-channel device profiling such as 7 color profiles. Once measured, multiple-CCDS files are generated such as CMYK.txt, OMYK.txt etc. to cover all ink combinations as shown below.

When you import multiple-CCDS files:

- check and rename primary channels when necessary as non CMYK inks are often labelled CMYK. You can rename a channel by clicking on the channel color button with your mouse right-click / [Rename](#) as shown;
- make sure that imported data sets aim for the same target printing conditions i.e. do not mix data sets of different processes or of the same process with different printing conditions unless you know what you are doing
- select primary channels you want to use for your profile creation by double-clicking the corresponding color button. means that this channel data will be used for profile creation;



- you can discard one or more primary channels you do not want to use for your profile creation by double-clicking the corresponding channel.  means that this channel data will not be used for profile creation;
- choose profile settings such as profile tables number of grid points, GCR etc. For more details, please refer to Alwan ColorHub manual
- a channel that is selected multiple times is averaged
- resultant color gamut corner points, 2D visualization and 3D volume are displayed
- Click [Build Profile](#) to create the new profile.

Reference Gamut: ISO Coated v2 300% (ECI)

	New Gamut			Reference Gamut			Difference		
	L*	a*	b*	L*	a*	b*	ΔE_{00}	ΔC	Δh ...
White Point	90.8	-1.5	1.9	95.0	0.0	-2.1	5.1	0.3	76.6
Black Point	5.5	-1.9	2.2	8.7	-0.2	2.1	3.1	0.8	6.3
Cyan	52.6	-37.4	-48.1	55.0	-37.0	-50.0	2.4	-1.3	0.9
Magenta	49.1	70.9	-0.7	48.0	74.0	-2.9	1.6	-3.2	0.8
Yellow	87.0	-6.6	97.5	89.0	-5.0	93.0	1.7	4.6	0.6
Black	16.3	-1.0	0.7	16.0	-0.1	0.0	1.5	1.1	10.1
Green	63.1	-67.1	-2.1	-	-	-	--	--	--
Orange	65.0	50.9	66.6	-	-	-	--	--	--
Violet	31.1	39.8	-59.1	-	-	-	--	--	--
Estimated ...	621 942			412 677					

Profile Settings

A2B Table Size: Large (9 pts)
 B2A Table Size: Large (33 pts)
 Smooth Profile Tables:
 Profile Version: 2.1 4.0
 Estimated Profile Size: 56 MB

Output Separation

Separation: Minimum TAC and Ink Usage
 TAC (%): 300
 K Start (%): 5
 K Max (%): 100

Profile Name: IT8_CMYK Cancel Build Profile



ACH/X 7.0.0 Profiling Dos and Don'ts

Hydra Profiling® technology implements new color science areas (spectral prediction) to new application areas (printing).

Please read carefully the following recommendations that will help you avoid unexpected results and successfully profile and color manage your device.

• Areas of application

- Ink and toner printed on reflective and transparent substrates.
- Conventional Offset, Flexo and Gravure and Digital inkjet and toner.
- For other applications such as printing on textile, ceramics... please contact your Alwan partner or support@alwancolor.com.

• Printing characterization charts

- Please keep in mind that it is paramount that your print device be calibrated before profiling. Alwan PrintStandardizer is our recommended device calibration tool.
- For more information on this software, please visit alwancolor.com or contact your Alwan dealer.

• Measuring characterization charts

- Use M0 condition for better inter-operability with previous standards, CCDS and ICC profiles (2014 and before).
- Use M1 condition for better inter-operability with recent industry standards, CCDS and ICC profiles (2015 and later).
- Use M2 condition to get fluorescence independent CCDS.
- Use M3 condition when measuring wet ink to get fluorescence independent and dryback independent CCDS.
- Use a spectrophotometer with transmittance measurement mode for transparent substrates, film, foil etc. Measuring transparent foil on standard white reflective surface in with a reflective spectrophotometer is possible but results are not guaranteed.



• Tips

- For best results with Hydra Profiling® please use CCDS with spectral data whenever possible
- As a general rule, profile accuracy is proportional to CCDS number of measured patches
- Profile accuracy is proportional to measurement instrument accuracy
- If the profile selected in [Queue](#) / [Task Settings](#) / [Output ICC Profile](#) list is a Hydra Profile®, when you click [Edit...](#) button, you will automatically retrieve all data and settings used to create the Hydra Profile®.

• Known limitations

Please note the following limitations of ACH/X 7.0.0 profiling, we are working on addressing them in the following versions:

- Profiles of processes that are not accurately calibrated may have high maximum ΔE .
- With noisy data sets high maximum ΔE can be registered, in this case, averaging of data sets gives better results.
- Use a spectrophotometer with transmittance measurement mode for transparent substrates, film, foil etc. Measuring transparent foil on standard white reflective surface in with a reflective spectrophotometer is possible but results are not guaranteed.