

This tutorial will explain how to calibrate a Calibrated Printing Mode, update the G7 calibration, and/or tune the profile.

Calibration and Profile tuning is only possible on custom-made Calibrated Printing Modes. Agfa certified CPMs are protected and may not be calibrated nor the profile may be tuned. See the “Creating a new derived CPM with G7 calibration” basic tutorial to create one.

A CPM is a layer of measurements and quality resources (the different steps in creating a derived CPM). This means that the resources should take this into account to maintain balanced CPMs.

The priority list in calibrating is:

1. Calibrate (as much as possible)
2. Calibrate G7 (as much as needed)
3. Profile tune (as little as possible).

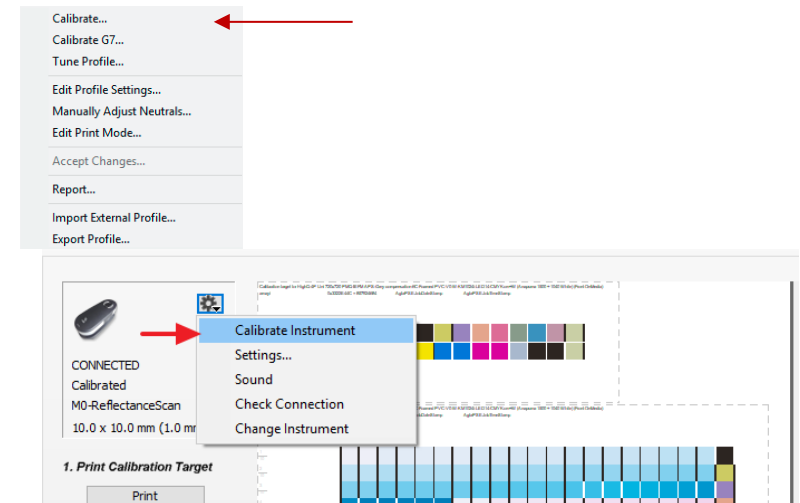
1. Calibrating a Calibrated Printing Mode

Due to changing circumstances prints can start deviating more and more from the initial quality. This can happen due to changed conditions in hardware (UV lights, ink system, print heads...), consumables (media, ink...), and/or environmental conditions (humidity...). Therefore printed result can be different as expected.

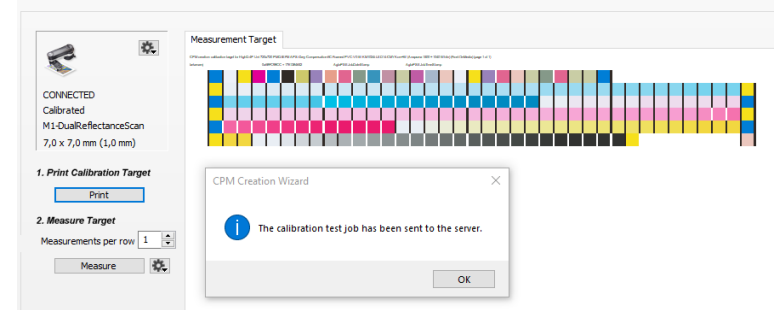
Calibrating a CPM will compensate for these variables and brings the printer back in the state of the first characterization.

Calibrating

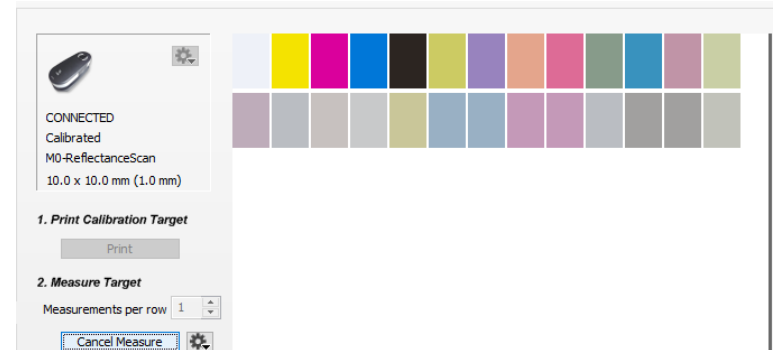
1. Open the Media Hub (context-click on the digital printer in the printer pane from the jobs overview)
2. Select the Calibrated Print Mode to be calibrated.
3. In the CPM details click on the cogwheel next to the to-be calibrated print application (e.g. Color on Media).
4. Select “Calibrate...”
5. The calibration wizard opens.
Select the measurement device (cogwheel – Change Instrument). If needed set measurement condition (cogwheel – Settings ...) and calibrate (cogwheel – Calibrate Instrument).



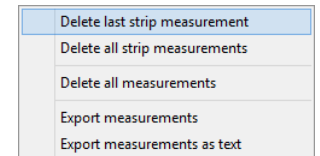
- 6. Click “Print” to print the calibration strip. The wedge is automatically generated in Asanti and dispatched to the Anapurna or Jeti or another device.
- 7. The measure button will only be available when the measurement device is available. After calibration click measure. Follow the wizard.



- 8. Depending on the measurement device an ID strip needs to be measured first or a measurement task needs to be selected from a drop-down menu. Based on this information Asanti will recognize which Calibrated Print Mode needs to be calibrated. The wizard will automatically switch to the next step when the ID strip is measured: the calibration strip itself.



- 9. A successfully measured row will receive a green checkmark (minimal amount of measurements reached depending on the value set in the left pane). Notice the sound generated when a row is measured (different if successful or not). Useful when measuring strips printed on large substrates. It’s advised to measure each wedge 2 times.



- Measurements can be deleted or exported by context clicking at the target.
- 10. The result of the measurement is displayed once all patches are measured. The curves display the decline from light to dark (L value) for cyan, magenta, and black. Yellow uses chroma (C value). A warning will be posted when the

measurements deviate too much from the target values (see info window). The values displayed here are in $L^*a^*b^*$.

Calibration

Calibration linearizes the ink table for the combined partial inks: multi-density, multi-drop or multi-color. Print and measure the target to create the initial calibration. After measuring you can inspect the curves for indications of measurement failure (such as sharp transitions instead of smooth curves). Click 'Finish' to finalize the calibration and close the window.

1. Print Calibration Target
Print

2. Measure Target
Measurements per row: 1
Measure

3. Finalize Calibration
Apply Calibration

Info:
Measurements complete. Check the curves for sudden changes. If they are OK you can apply the calibration. If not, you can print and measure again.

Ignore ID Mismatch

11. Click Apply Calibration to accept when satisfied.

The Media Hub will warn/fail when the measured results differ too much from the reference value. The current quality deviates too much from the reference values. Another action is needed: check output quality (clogged nozzles, damaged strip ...), engine state (UV, inks ...) ...

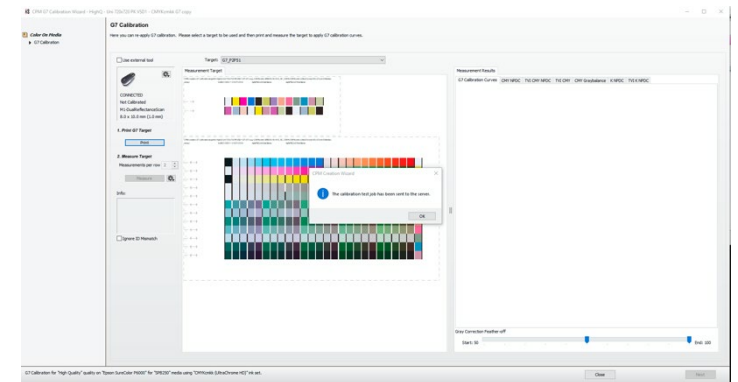
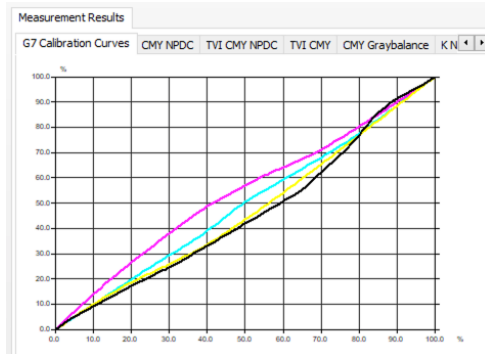
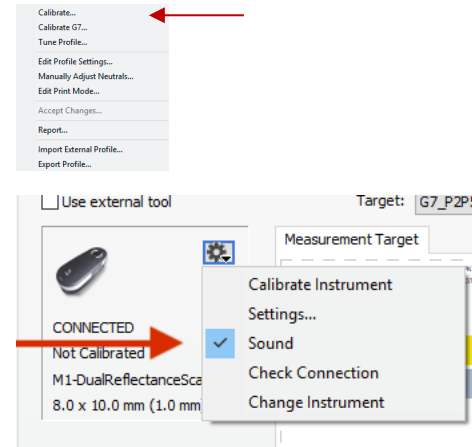
2. Updating the G7 calibration

After calibrating a G7 calibration can be done to improve the neutral grey balance of the calibration.

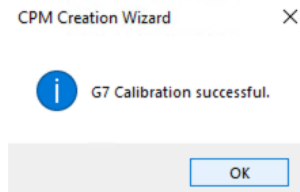
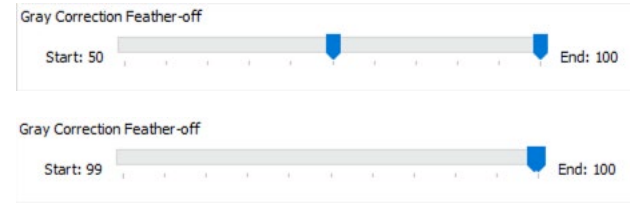
Calibrate G7...

The Calibrate G7 option will only be available for CPMs with a G7 calibration in it.

1. Open the Media Hub (context-click on the digital printer in the printer pane from the jobs overview)
2. Select the Calibrated Print Mode to be calibrated.
3. In the CPM details click on the cogwheel next to the to-be calibrated print application (e.g. Color on Media).
4. Select “Calibrate G7...”
5. The G7 calibration wizard opens. Deselect “Use the external tool” if enabled.
6. Select the measurement device (cogwheel – Change Instrument). If needed set measurement condition (cogwheel – Settings ...) and calibrate (cogwheel – Calibrate Instrument).
7. Click “Print” to print the G7 (P2P) strip. The wedge is automatically generated in Asanti and dispatched to the Anapurna or Jeti or another device.
8. Measure the wedge. After completing the measurement, the G7 calibration curves will be calculated and displayed.



- Below the curves, the feather-off option is displayed. The feather off will indicate the point in the tonal range when the G7 calibration calculation is smoothed out. By default, this goes from 50% (middle indicator) to 100% (right indicator). For wide format printing, move the middle indicator to the far right (start 90). Click next to update the G7 calibration.
- Click OK and Finish to confirm.

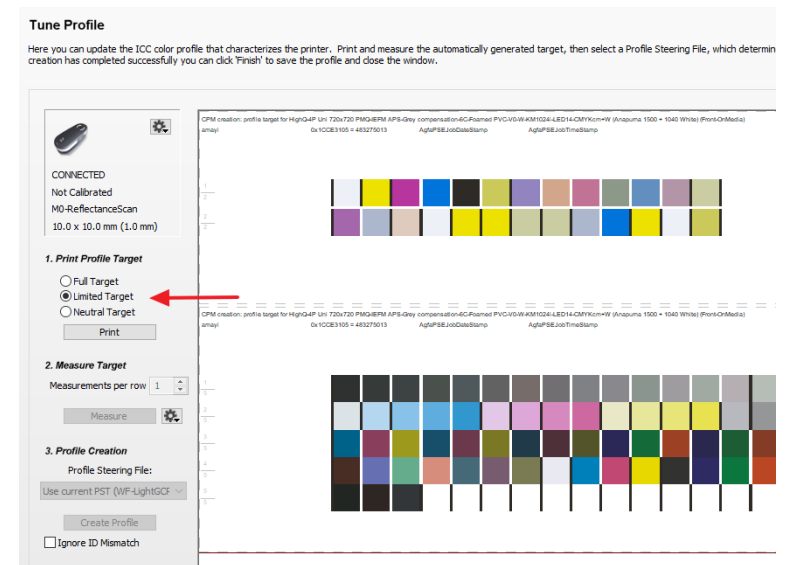


3. Profiling

It may sometimes be necessary to switch profiles for content-related issues (less GCR...). No need to generate a completely new CPM. The profile tuning option offers the possibility to update a profile in a small wizard-based cycle.

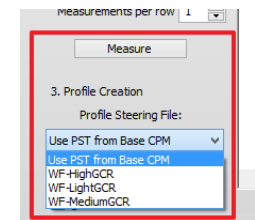
Tuning a profile

- Open the Media Hub. Browse to your CPM.
- Unlock the CPM (if locked) and click the cogwheel.
- Click "Tune Profile..."
The Profile Tuning wizard opens.
Connect a supported measurement device (EyeOne, EyeOne IO, or Barbieri Spectro LFP *and the others see p.1*). Click the cogwheel to change and/or calibrate the device. Notice that the calibration strip will automatically be created for the selected measurement device (calibration is automatically done for EyeOneIO and Barbieri Spectro LFP).
- Select the Limited Target.



There are 3 target options for profiling: “Full Target”, “Limited Target” and “Neutral Target”. The limited target will print a smaller strip. The measured results are combined with the original profile into a new tuned profile. A full target will print the same target as used for the original profile. The profile is then generated from scratch. Advantage: more exact profiles. Disadvantage: a lot more work to measure (especially with a handheld device). The “Neutral Target” is explained below.

5. Click “Print” to print the profile target strip. The wedge is automatically generated in Asanti and dispatched to the Anapurna or Jeti. It is advised to measure the calibration strip twice.
6. The measure button will only be available when the measurement device is available. After calibration click measure. Follow the wizard.
7. The ID strip needs to be measured first. The ID strip is necessary for Asanti to recognize which Calibrated Print Mode needs to be profiled. The wizard will automatically switch to the next step: measure the calibration strip itself.
8. A successfully measured row will receive a green checkmark (minimal amount of measurements reached depending on the value set in the left pane). Notice the sound generated when a row is measured (different if successful or not). Useful when measuring strips printed on large substrates. Measurements can be deleted or exported by context clicking at the target.
9. Keep the profile steering file on “Use PST from Base CPM”. Click “Create Profile” to complete the profile tuning cycle.

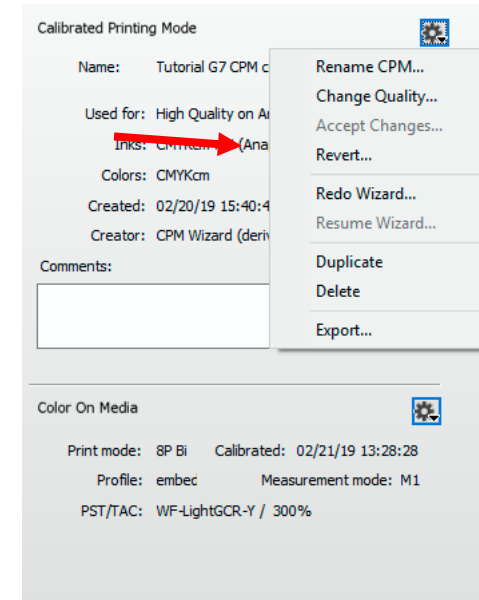
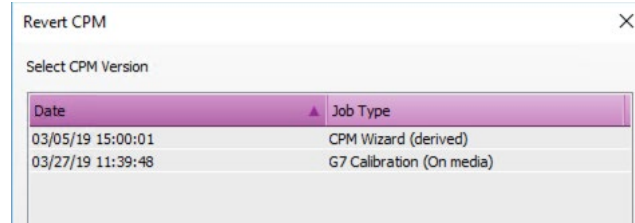


Depending on the type of target (especially the full target) the profile creation may take a significant amount of processing time. This isn't always a bad thing since the profile is regularized. During this profile regularization, the profile is manipulated in such a way as to smooth out eventual small measurement errors or other effects by too noisy drops in faster print modes such as express modes. The Windows Task Manager will report a significant CPU usage when the Asanti client is regularizing the profile although the application is “non-responding”.

4. Reverting to a previous state

It is sometimes needed to go back to a previous CPM state due to quality problems (bad calibration, wrong profile measurements ...). Reverting a CPM allows one to go to a previous state. After reverting all following steps (calibration, profile, neutral tune ...) will be lost.

1. Open the Media Hub. Browse to your CPM which needs to be reverted.
2. Click on the cogwheel next to the CPM.
3. Click "Revert..."
4. An overview of all previous CPM tweaks. Select the wanted stage and click "Revert".



5. Reporting

A validation report can be made. This validation report contains 3 components: CPM details (calibration date, media ...), calibration info (usage of individual inks, tonal response), and characterization info (validation against a reference profile)

In this validation report, the CPM is matched to a reference (e. g. ISOcoatedv2 or Gracol Grade 1).

1. Open the Media Hub. Browse to any CPM.
2. Unlock the CPM (if locked) and click the cogwheel.
3. Click "Report..."
4. A report is generated with all kinds of info:
 - CPM info: ink, quality, printing mode, calibration...
 - Calibration info: ink usage
 - Characterization info: validation report (ISO15311-2) against a reference profile.