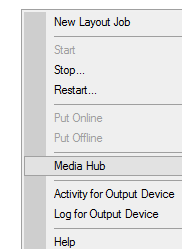In this tutorial, you will learn how to generate a CPM from scratch. The intention of the CPM from Scratch wizard is to take control of the color behaviour where all aspects of the unique ink, media and quality combination is considered natively.

The wizard is strongly automated and guides the operator through different steps from setup until a ready for use CPM.
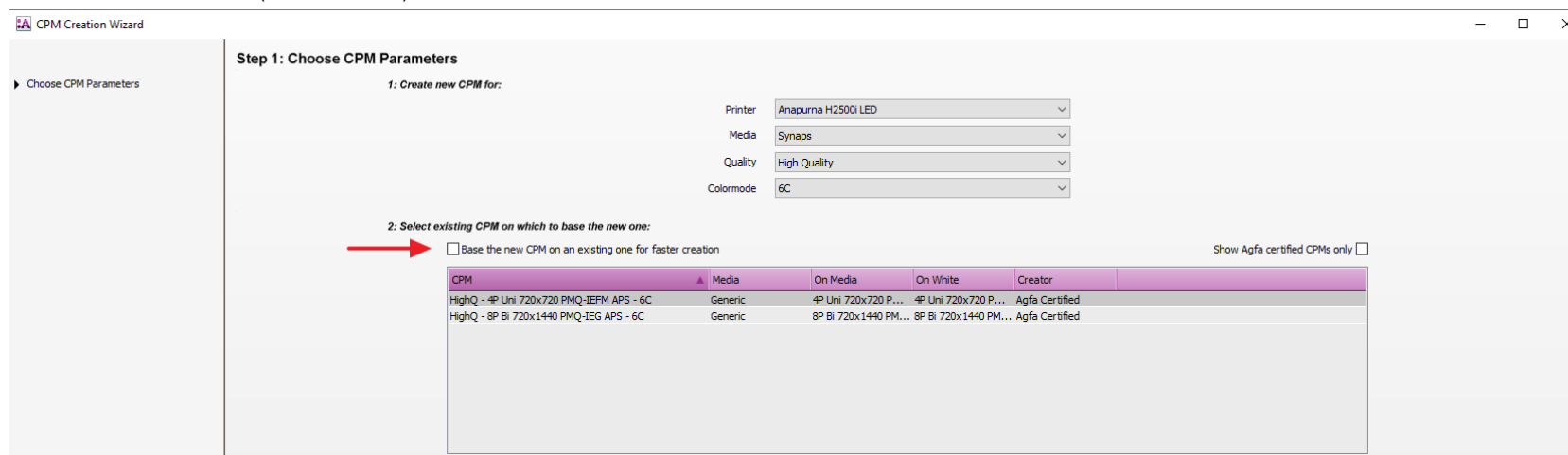
1. How to create a CPM from scratch

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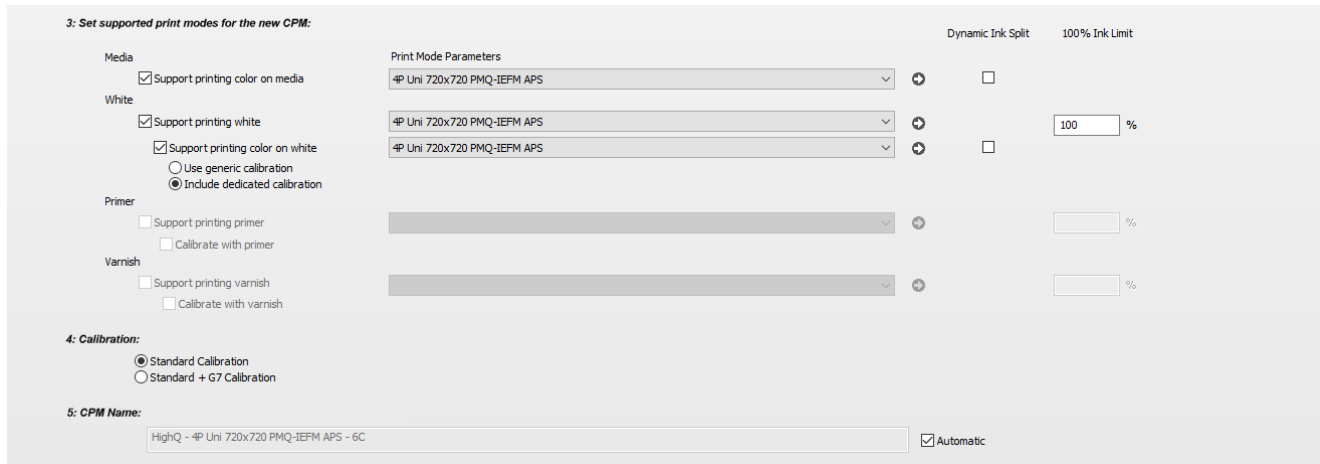3. Select File > New Calibrated Printing Mode

Step 1 – Choose CPM parameter

4. First step is to link all elements (printer, media, quality …) which make a CPM.

   - Select your printer
   - Select your media
   - Select a Quality
   - Disable "Base the new CPM on an existing one for faster creation"
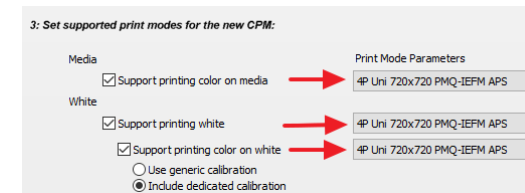   - Select a Colormode (if available)

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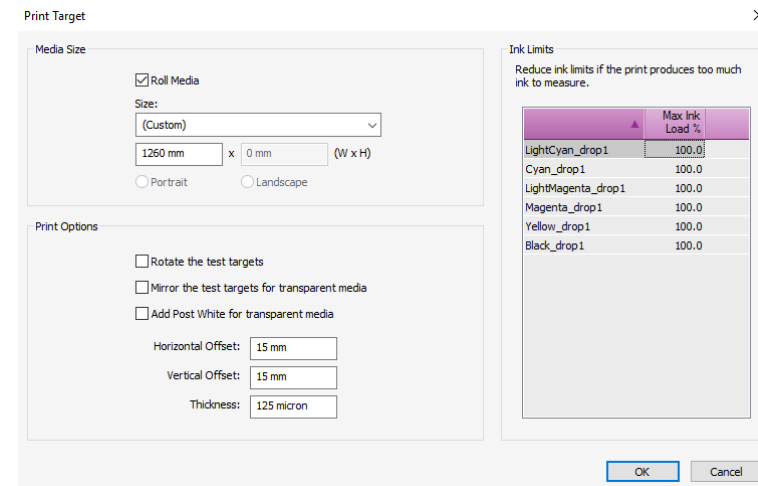

- Enable *Support printing color on media* and select a matching print mode.
- Enable *Support printing color on white,* activate *Include dedicated calibration*

6. Click next to proceed.

Step 2 – Pure ink characterization

7. Select "Change Instrument" from the cogwheel when "NO INSTRUMENT SELECTED" is shown in the instrument pane. Select your measuring device e.g. EyeOne iO Pro 2.

8. Make sure the spectrophotometer is connected correctly, select the "settings…" option from the cogwheel menu, to modify the patch size and Measurement Condition for the CPM. Close the window.

9. Click "Print". The print target window will be displayed. The output size can be changed (this will rearrange the targets automatically), as well as other print options and pre-print ink limitations.
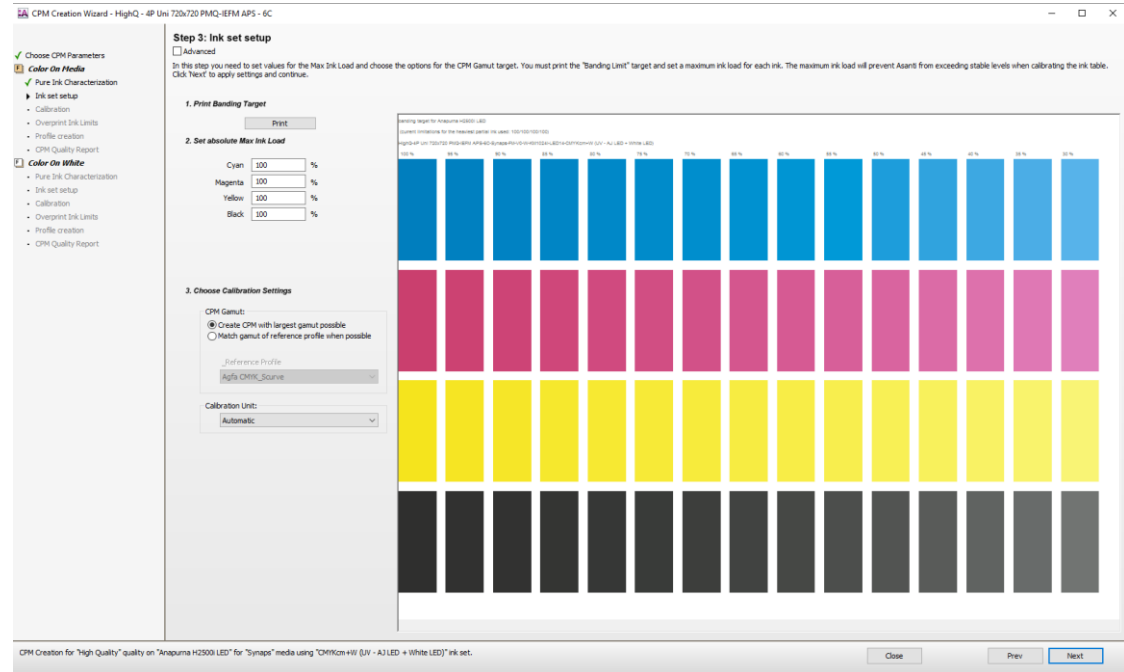
Notice the percentage at the bottom of the calibration wedge. This percentage allows to limit the ink usage (step 8) even before printing.

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

10. Click measure. Depending on the selected measurement device the wizard will act differently. Click next to proceed.

- Eyeone: the wizard will recognize the ID strip and proceed automatically to the pure ink characterization wedge.
- Eyeone iO: ID strip and pure ink characterization wedges are measured automatically after positioning.
- Barbieri Spectro LFP: select the measurement description file (double check the Job ID which is printed in the header of the wedge).
- X-Rite iSis: similar to eyeone – measure the ID wedge and the wizard will proceed to the pure ink characterization wedge.

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

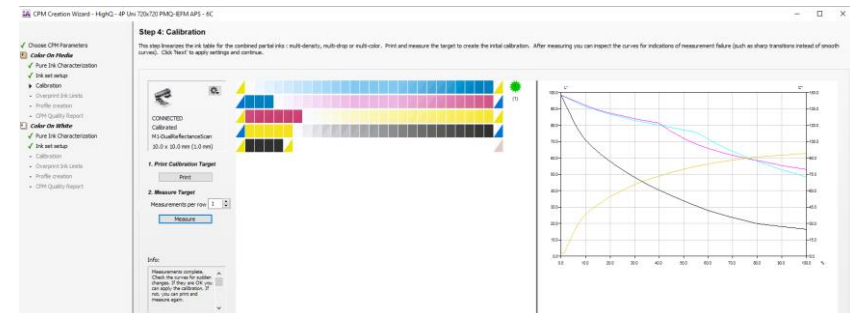11. In this lesson, it is the intention to make a CPM with the biggest possible color gamut.

    - Click print to print the banding target.
    - Set absolute the max ink load: the maximum ink load is the patch (%) which is not affected by any print artefact (banding, curing, scratch resistance…).
    - Calibration settings:
        o CPM gamut: select *Create CPM with largest gamut possible*
        o 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 eventual limitations set by the operator (step 3).

Step 4 – Calibration

12. During the calibration step an initial calibration is done. Click print to submit the wedges. Once printed click Measure and proceed the measurement as described in point 10. Once completed a graph will display 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.
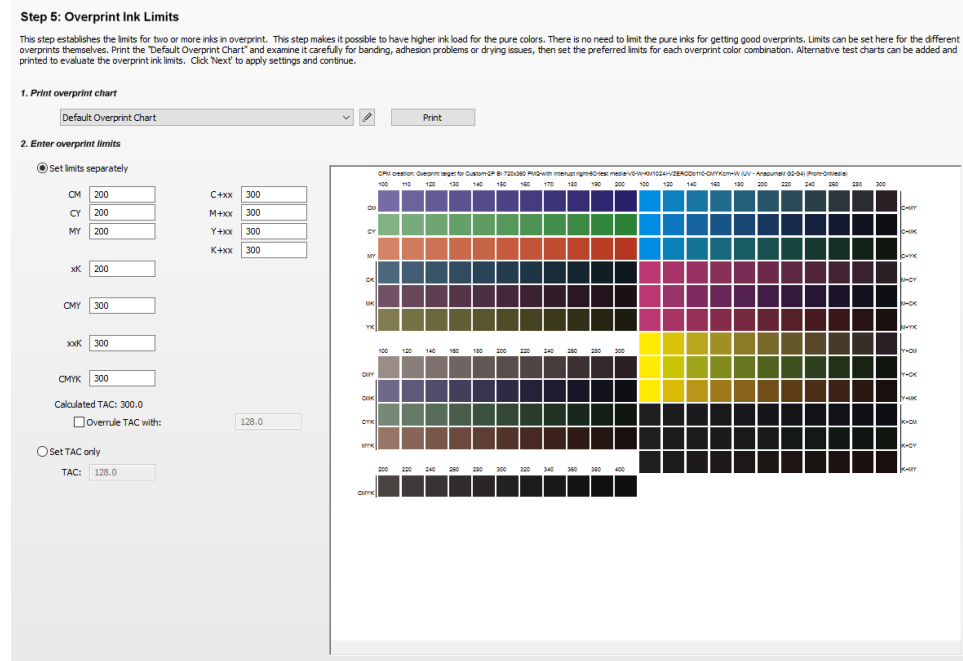
Step 5 – Overprint Ink Limits

13. All previous steps were about limiting individual inks. 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, blue ...).
14. Select "Set limits separately"
15. Visually inspect the overprint ink limits target and fill in the highest values for the different combinations for which no artefacts can be seen.

The limitations set on this target are applied on the ICC profile which means that they do not have any influence in the previous set limitations on the pure in. The calculated TAC determines the profiling target (step 6), and normally needs no overruling.

Click next to proceed.

Step 6 – Profile creation.

16. Select the measurement device. The layout of the profiling target is automatically adapted to the active profiling target. Click print to print the target.
17. Click measure to measure the target. Once complete, a Profile Steering file can be selected. Select WF-LightGCR-v2 and click create profile. Click next.
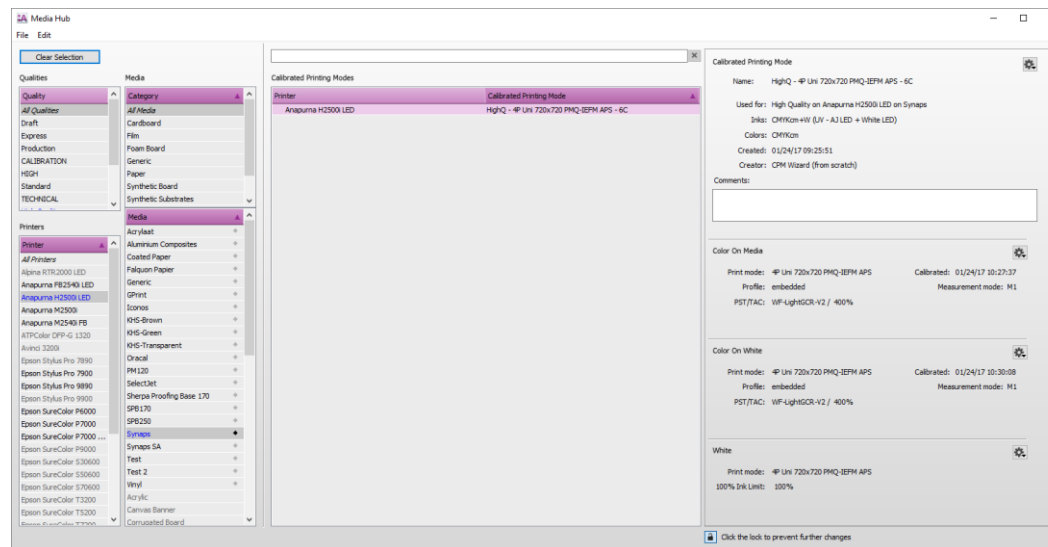
Step 7 – CPM quality report

18. 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 to judge whether a CPM might be usable to simulate press conditions such as a Fogra or IDEAlliance standard.

19. Click next to proceed if a dedicated on white calibration set needs to be added. Click finished if not the case.
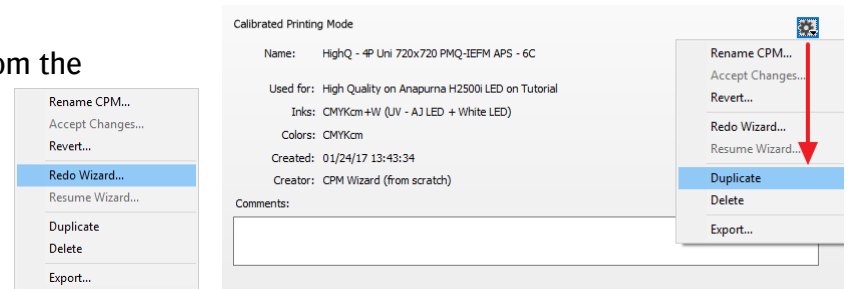
20. The CPM is now available in the media hub.

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, color gamut restrictions ... By redoing a CPM, all steps of the wizard become available for tweaks and changes. The redo wizard starts with step 2, when no changes are required for a certain step click next. As soon as a change is applied which requires a re-print and re-measure all consecutive steps also needs to be redone with print/measure actions.

Only CPMs made with Asanti 3.0 can be redone.

In this lesson we will change the *overprint ink limits* (step 5) 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…"
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 in here can would result in a total new CPM.

5. Click next until the step which needs to be changed. In this lesson we will go to step 5 – Overprint Ink Limits. Change for example the overruled TAC to 340 % and click next.
6. The required target to make a profile is now changed (to contain patches up to 340 %). So print and measure the profiling target to create a [new profile](#) (see the previous lesson for detailed information).