Media Model and ICC Profile Creation Guidelines

How to Work with Media Manager to Create Media Models from Setup to ICC

Scope

The purpose of this document is to define a procedure for creating Media Models with ICC profiles for the Océ Arizona printers. For additional information on how to create Media Models with white ink refer to the section “How to Create a Media for White Ink Print Jobs” in your Océ Arizona User Manual.

Pre-requisites

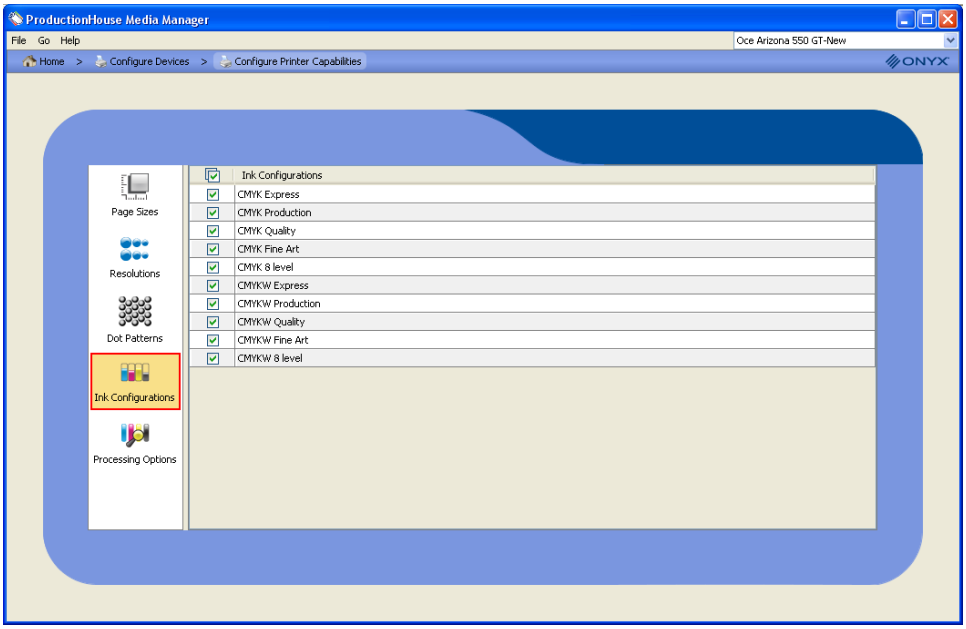
- Production House Version 7.3.X
- Spectrophotometer (Eye-One recommended)

Ink Configurations

You must use an ink configuration that supports the type of printing you will be doing with this media model. To set up the necessary configurations for a new media model use the following steps:

1. Highlight your printer and click > *Media Manager.*

2. Click > Configure Devices > Configure Printer Capabilities and ensure that ink configurations required are enabled.



If CMYK or CMYKW Express/Production/Quality/Fine Art is chosen, then only those ink levels recommended for use will be displayed. There are also an ink configurations called CMYK 8 level and CMYKW 8 level, which have no restrictions on ink levels.

Note: Express mode is only available on the Océ Arizona 550 printer and CMYKW ink configurations are only available on printer models with the white ink option.

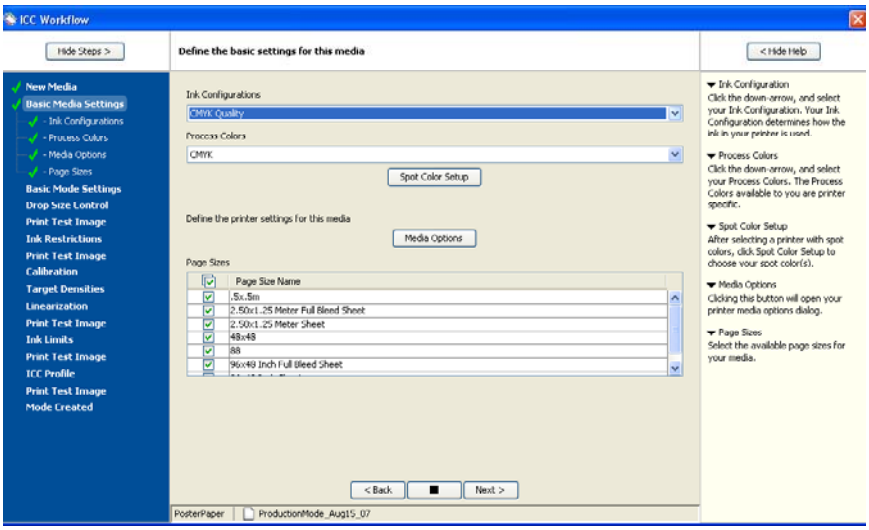
Creating a Media

When you select Create New Media, for Media Group we recommend differentiating between Rigid and Flexible media, but what each operator chooses to use depends on their own standard print production.

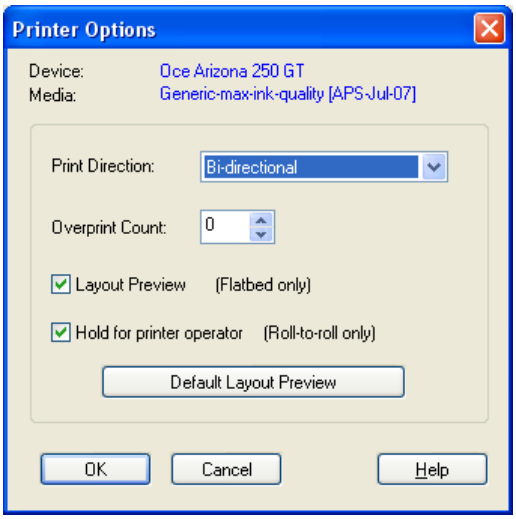
- Use only ASCII characters, avoiding such characters as é, &, %.

Basic Media Settings

In Basic Media Settings you have the choice of Ink Configurations that have been enabled. Choose the appropriate one from the drop down menu.



In Basic Media Settings window, click on the *Media Options* button and use the defaults: *Bi-directional* and *Overprint 0* (unless changing for specific reasons such as imaging on transparent media) Click the box if you want to see a *Layout Preview* or not. The *Hold For Printer Operator* option refers to roll-to-roll printing only. If not selected, a roll-to-roll designated job will immediately start printing, if the Roll Media Option unit is in a ready state.



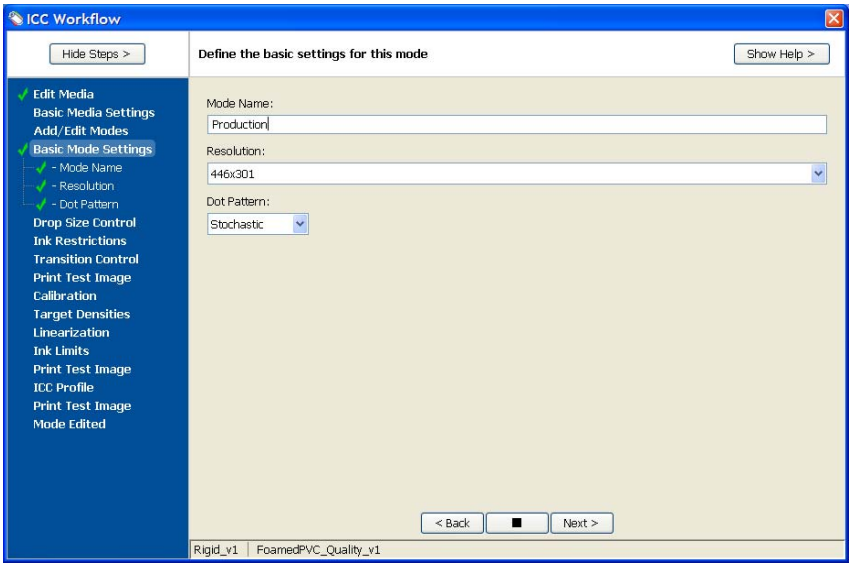
Basic Mode Settings

Enter a valid mode name e.g. Production, Quality or Fine Art

• Select Resolution:

- Production 446x301
- Express 446x451
- Quality 446x451
- Fine Art 446x601

Select Dot Pattern: *Stochastic*



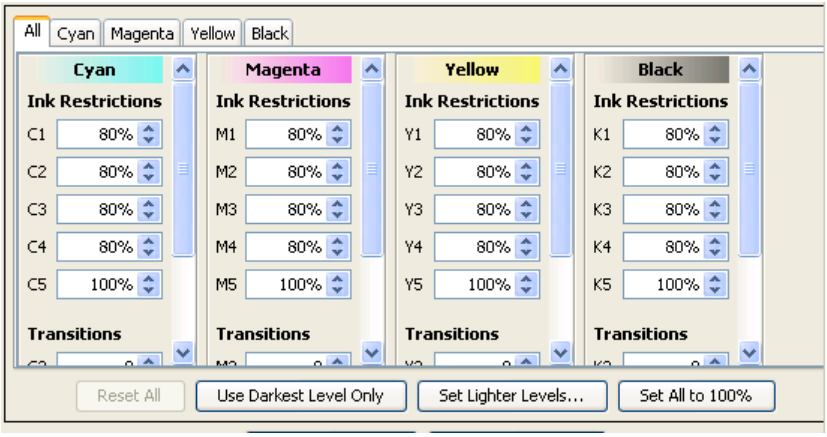
Setting Ink Restrictions

- Select the Advanced Tab in the ink restriction dialog
- Setup ink restrictions following guidelines in the table and notes below

Print Mode	Drop Levels Used	Overstrike	Ink Restrictions	Notes
Express	1,3,4,5	No	L1 must be no more than 75%, 50% recommended. L2 should be 0.	Even at 100% Level 5, max densities are lower in this mode than other modes
Production	1,3,4,5	No	L1 must be no more than 75%, 50% recommended. L2 should be 0.	Restricting L1 results in grainier but more banding artifact forgiving data.
Quality/Quality Matte	1,3,4,5,6	Yes, L6.	L2 should be 0.	This mode is capable of laying down a lot of ink. Restriction of L5 may be necessary for color balance, especially if not using ICCs.
Fine Art	1,3,4,5	No	L2 should be 0.	

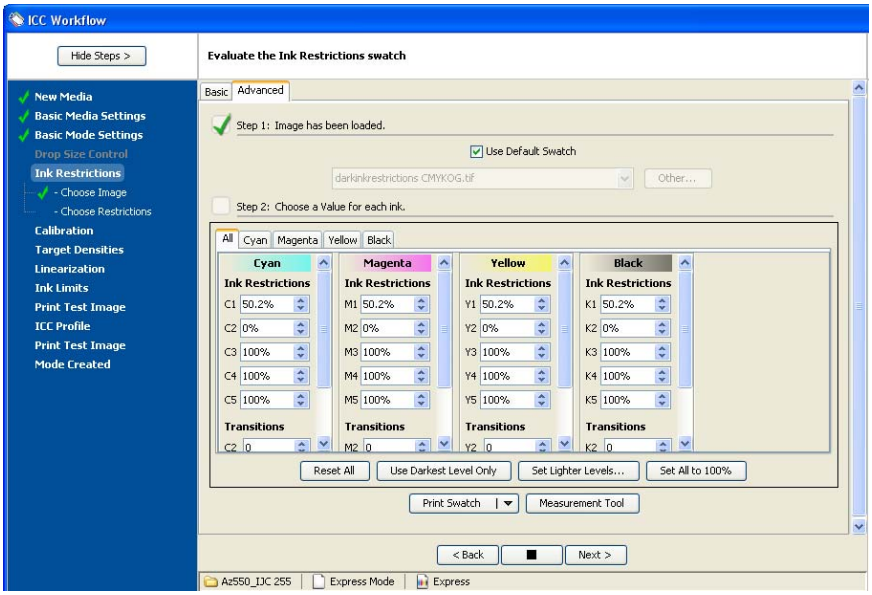
In Production and Express Modes, Level 1 should not be higher than 75% or streakiness of the printed output will result. Grainy output will be most evident when printing with single color cyan, magenta or black. This is intentional, since the graininess can hide possible nozzle-outs, which are not tolerated well in these modes.

Recommended setting for Level 1 is between 50 - 75%, but it depends on where you prefer seeing the transition from smooth to grainy. The recommended default value is 50%. Reducing the percentage introduces grain sooner, while increasing introduces grain at a later point. To test the visual representation of this setting, print gradient blend images.



The default Ink Restrictions display appears as above. To continue, first chose the Set All to 100% button, then modify levels with recommended settings, such as below.

Drop Level 2 should be set to 0 for all print modes, failing to do so will affect print quality reliability.



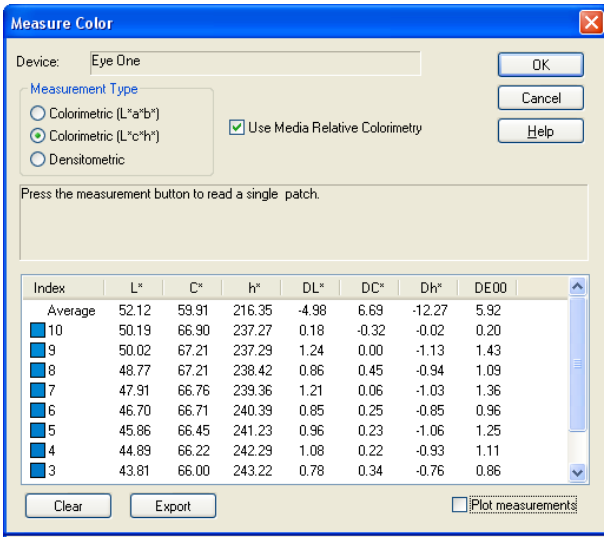
Other than the above two noted points, ink restrictions should be left at 100% unless a non-ICC workflow is desired. When ink restricting for non-ICC workflow, aim for approximate Dmax density ink balance (i.e. SWOP values) rather than setting to 100% and having the linearization process balance. We find this method results in better neutrals and fewer transition problems. If ink restrictions are not implemented, then the Cyan Dmax will be much higher than the other colors and Yellow Dmax will be much lower. This indicates that Cyan ink should be restricted the most and Yellow the least.

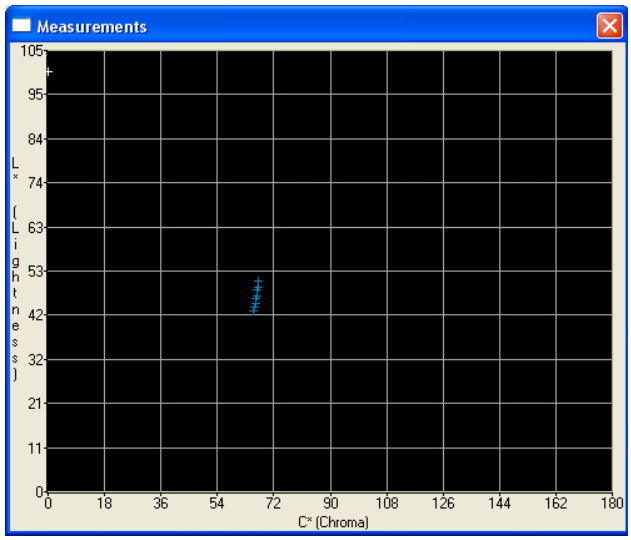
When creating a Quality mode profile there is an extra level, Level 6 that can be used to increase primary color ink density. What this level does, is that in a percentage equal to the amount of overstrike, the printer will put two Level 5 drops in that particular location.

Quality, Quality-Density and Quality Matte modes do not require separate profiles. Create the media model using Quality mode and send to the printer. Then you can copy and modify the print mode in the media model or you can alternatively select to print a job in Quality, Quality-Density or Quality Matte mode using the printer's user interface.

Optional – Setting Ink Restrictions Based on Maximum Chroma

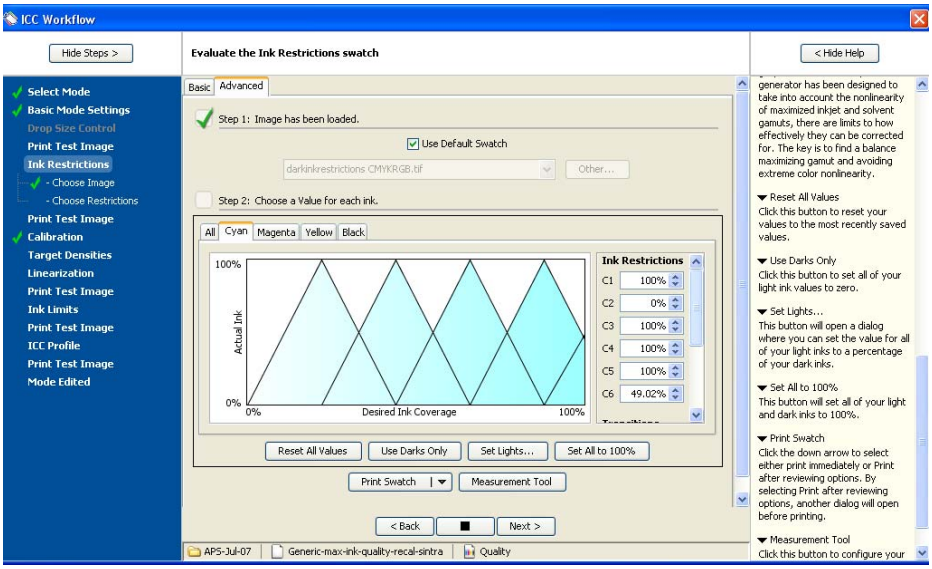
In most cases it is not necessary to restrict ink other than the guidelines mentioned above, however if desired, Ink Restrictions can be made based on Maximum Chroma, that is the point at which additional ink adds little or nothing to gamut. To do this, chose Measurement tool at bottom of Ink Restrictions Window. You will need to set up and calibrate your device. Note the settings below.





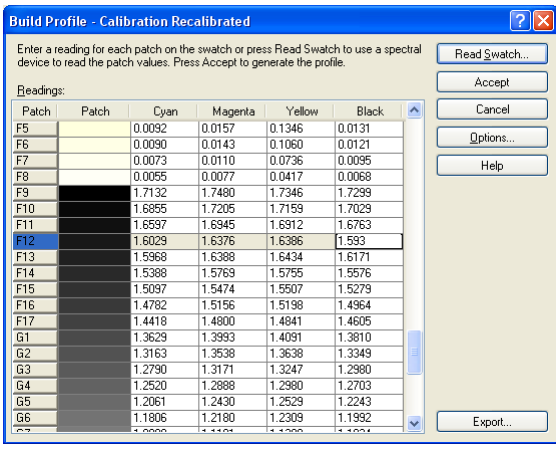
Once you have read a few patches from the dense end of the calibration swatch, click on *Plot Measurements* to enable a graph view. Chose a percentage at which the graph curvature begins to change direction. In this case Cyan is saturated at about 49%.

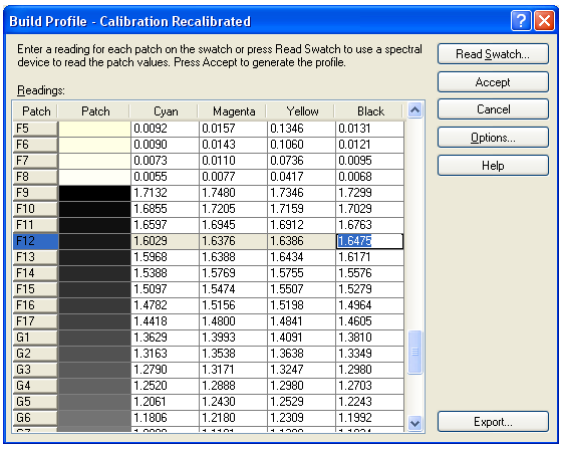
Place this value in the appropriate level restriction. Value representation should look like below.



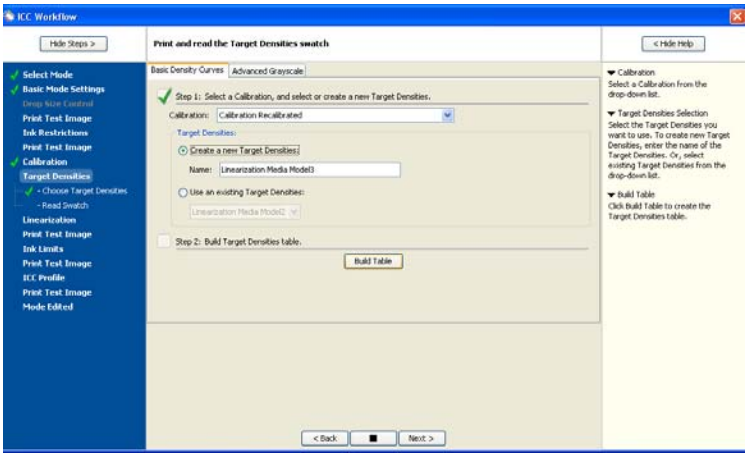
Calibration

Calibrate next, printing and reading in the calibration swatch. Save the measured densities, checking for any spikes or dips in the readings and manually edit these to more linear values. See below for example. Export readings, leaving Options at defaults. Click on Accept, then on Build Table.



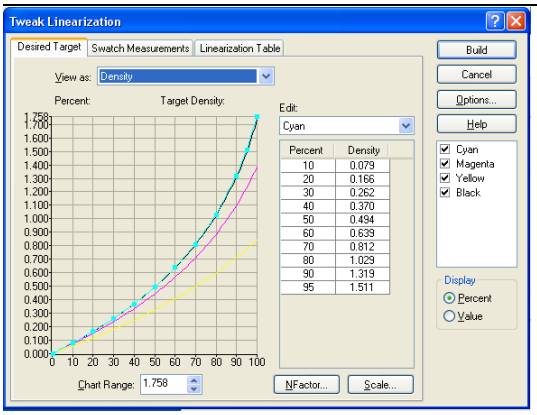


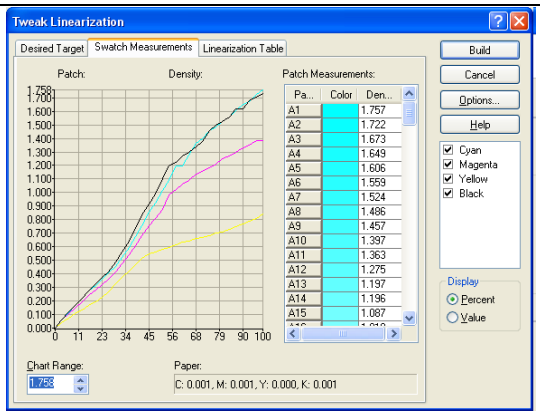
Chose Next and click on Build Linearization, then Build. We strongly recommend using the Basic Density Curve rather than Grey Balance.



Optional – Adjusting N Factors

If the intention is to work without ICC profiles modification of the n factors is required to achieve correct saturation levels and grey balance in the quartertones. Because Cyan ink density is so much greater than Yellow and Magenta, increasing default N factors of M&Y and reducing that of Cyan may result in better output. If using an ICC workflow, then leave NFactors at defaults of 2.0.



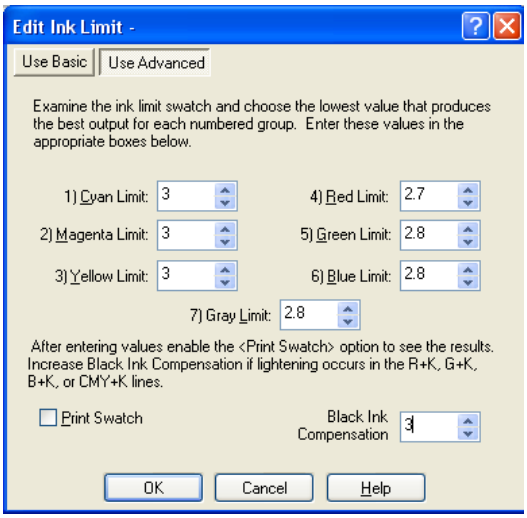


Curves should look something like those above. Leave all colors at 95% and all Options at defaults. Since Express Mode provides low maximum densities, you may want to pull sliders up to 100% for this mode. If density spikes or drops were edited in calibration phase there should be no objectionable areas on graph, but some editing of density irregularities is also possible in Desired Target window. Some slight irregularities in curve are normal. Build.

At this point it is a good idea to print a few different test images before proceeding.

Setting Advanced Ink Limits

Ink limiting using Advanced Ink Limiting option is an important step. Print the ink limit swatch, then click read. To evaluate swatches look at the individual groupings 1 – 7 and determine where maximum ink limits are. Note where artifacts or defects begin, where density no longer increases, or where adhesion issues occur. Enter corresponding values in Advanced Ink Limit Screen. Values should not be lower than 1.7, anything less begins to compromise primary densities.

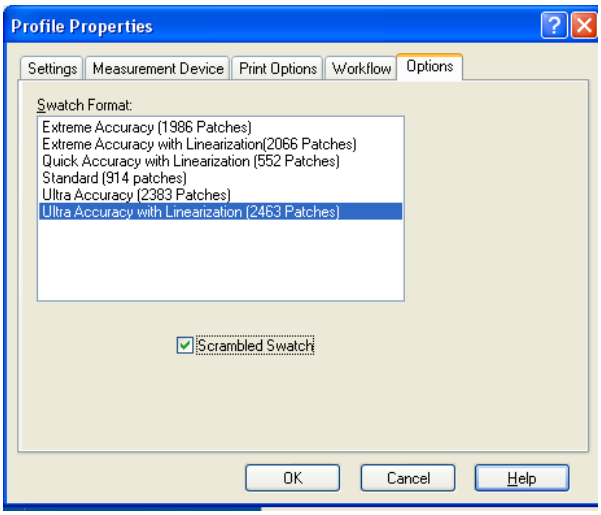


Setting Black Ink Compensation

This value helps to restore density to those colors affected by lower ink limit values. For example, if your ink limits are around 1.8 – 2.3, your Black Ink Compensation should be about 4.5. A value of 2 or 3 is a good starting point for average ink restrictions, but in cases where restrictions are minimal leave value at 1. To ascertain the required level it is best to print a variety of images with mixed shadow density and color composition.

Creating An ICC Profile

When using the Onyx Profile Engine, Onyx recommends ICC creation with 2463 patches for optimal accuracy, but reasonable results have been obtained with fewer. It is a good idea to use the scrambled swatches option for ease of reading by hand. Also, print 2 copies of ICC patches whenever possible, in case some areas bear marks or artifacts from media surface irregularities.



Measure the output, taking care to read the correct patches when prompted. Export the readings for backup purposes.

Below are the Onyx ICC engine default recommendations. Begin by using these and adjust the option settings to address any special uses or print artifact issues.

Build Option Setting Tips

If you plan to create ICCs using multiple build options, it is a good idea to save copies of media and name these copies according to build variations.

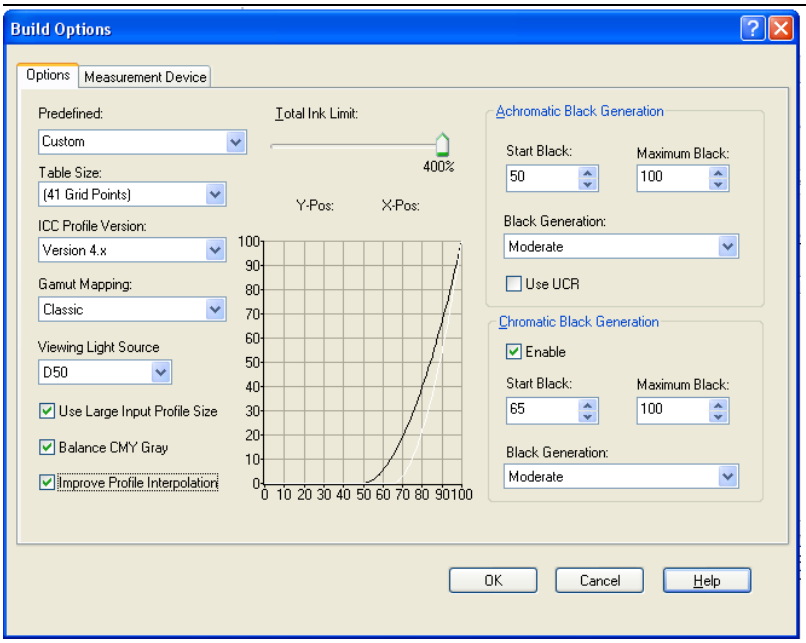
Using UCR provides better neutral greys by replacing color information with Black, but may increase “peppering” and negatively affect ¾ tones transition to full shadow density.

Starting Achromatic (source color data contains some K element) Black sooner will reduce the ink usage and create more neutral greys, but also increases “peppering”. This value should be no lower than 30.

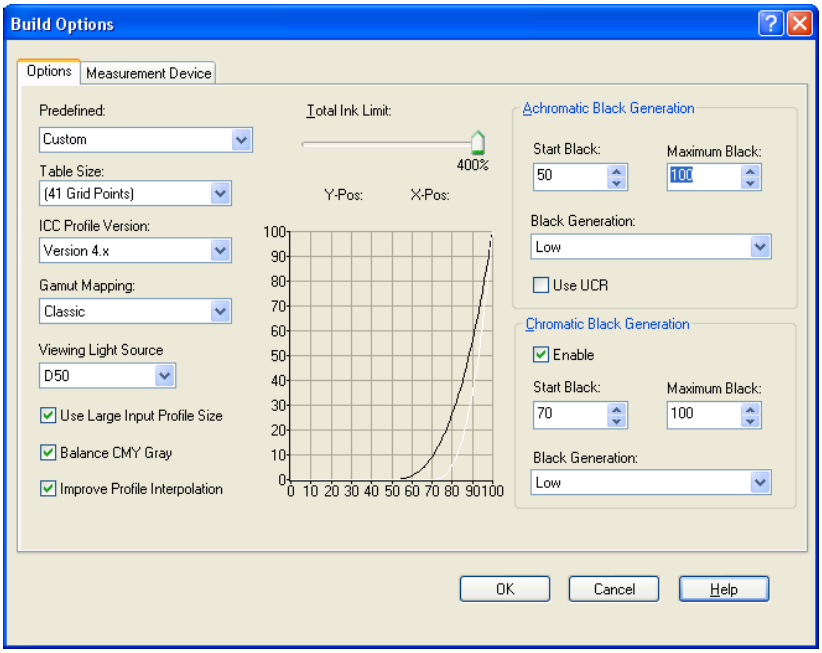
Improve Profile Interpolation may result in more accurate ICC profiles, especially when dealing with gradients and blends, but provides the most benefit when utilized in conjunction with 2463 patches. Some increase in calculation time is necessary.

The Chromatic (source color data contains no K element) Start Black should not be set to begin too soon or primaries may be polluted with un-wanted Black density, but leaving until too late may result in shadow posterization. This value should be between 50 and 70. Do not adjust the total ink limit.

Balance CMY Grey option is the preferred method, but may slightly reduce overall gamut.



Default ICC build options should be sufficient to create an acceptable result. However, in testing we found the below options resulted in more pleasing output when working with Express Mode on the Océ Arizona 550GT.



Print a suite of various images to verify acceptability of ICC. Make sure to include some RGB files as well as those for which a proof is available for comparative evaluation.

Creating Media Models For White Ink Print Jobs

For additional information on how to create Media Models with white ink refer to the section “How to Create a Media for White Ink Print Jobs” in your Océ Arizona User Manual.