Table of Contents

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The file is approximately 6 MB and 600 pages. Use the PDF file to search or print sections that you need.

Introduction

This information is intended to give you the information you need to know in order to be successful when profiling with ONYX workflow products. It covers specific instructions for using Media Manager and the built-in ICC Profile Generator that comes with ProductionHouse to get the best possible color output for your printing system. The Media Manager section outlines the additional features of the program.

The information is listed sequentially and new users may want to start with Profiling Fundamentals and then Getting Started - Preparing to Profile before exploring the information within Profiling Workflow. The Tips & Tricks area may be most useful to advanced users who understand the profiling workflow and are looking for specialized information.

As you come across concepts or terms with which you are not totally familiar, feel free to reference the Glossary which is a complete index of the information. Important concepts or steps in the process may have additional links which are cross-referenced. Clicking on any link will redirect you to a new page for further information. You can also use your browser <Back and Forward> buttons to navigate.

To get started, click the links below and select the topic(s) you are most interested in exploring.

Media Manager

In this section you can find information about the main features and tools within this software module.

Profiling Fundamentals

In this section you can find information about Color Theory, Color Management, and Understanding Print Quality. It also covers the difference between a "media" and a "mode", and why profiling is important.

Getting Started - Preparing to Profile

In this section you can find information about Preparing Your Printer, Configuring Color Sampling Devices, Configuring Printer Capabilities, and setting up Media Manager and RIP-Queue.

Profiling Workflow

In this section you can find information about Profile for Purpose and Profiling Step By Step.

Tips & Tricks

In this section you can find information about profiling for different ink configuration or printer technologies as well as general tips & tricks.

Glossary

In this section you can find a complete index of information and includes color, profiling, and digital-printing terminology.

For more information about ONYX Workflow Products, please visit: www.onyxgfx.com.

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Profiling Workflow

Back to Table of Contents.

Profile for Purpose

The profiling workflow is not only printer specific, but can be a very subjective process depending on the individual making the profile. The fundamental principle of profiling is to clearly state your purpose. When you decide on how you are going to Profile for Purpose, it will always result in greater accuracy, better quality, and improved results. Knowing the intended type of output can help guide your choices about how you make your specific profile.

Be sure to read Profiling Fundamentals and Getting Started - Preparing to Profile before continuing with these instructions.

Profiling Step By Step

The Profiling Step By Step provides detailed information for each step. This general workflow covers a halftone printing method using CMYKcm ink configurations and provides a baseline for understanding the profiling process. The information provided here is meant to guide you through making the best possible choices.

Once you have reviewed this section - See Tips & Tricks for additional information about different profiling scenarios.

Back to Table of Contents.

Profile for Purpose

Profiling for a purpose will always result in greater accuracy, better quality, and improved results. Knowing the intended type of output can help guide your choices about how you make your specific profile.

The type of target output you want to create determines your choices and how you select certain values for ink restrictions and ICC build options. The choices you'll make during the workflow need to remain focused on this purpose for each media you create. Consider the following when profiling your own media and answers some fundamental questions about your workflow:

- What is the purpose of your profile?
- How much ink will your media accept?
- How much time to I have to spend on profiling?
- What is more important: a large gamut or an accurate match to another device?
- Are you trying to match Pantone Spot colors?
- Will this profile be used with ICC profiles for more accurate output?
- Will the prints produces with this profile be used in Indoor/outdoor applications?
- What is the realistic viewing distance and resolution needed?
- Am I more concerned about print speed or print quality?
- Are B&W images or images with saturated colors going to be printed most?

Your answers will guide you during the profiling workflow and help you remain focused. Profiling your own media means expanding your options using the suggestions provided here to help you create better profiles.

Back to Profiling Workflow.

Profiling Step By Step

The following outline is a basic description of the process used to create a profile and is the foundation for profiling any other media mode.

Preparing Your Printer is the first step. Make sure your printer is printing properly, has no mechanical problems, and does not create artifacts due to mechanical inaccuracies. Regular printer maintenance is key to high-quality profiling.

Be sure to review Getting Started - Preparing to Profile before continuing with these instructions.

Whether you are profiling vinyl signs with solvent inks or a fine art reproduction on canvas, the issues and processes are similar. The test swatches are integrated into the software depending on you printer and profiling workflow. The files are also located in the \<Onyx_Install_Location>\Media Manager\swatches folder. If you need to browse for a specific test file you may choose to copy/paste the file into this folder for easy reference.

1. Creating a New Media

1. Media name and mode (resolution and dot pattern)
2. Media options

2. Ink Restrictions

1. Drop size controls (Variable dot printers only - See Profiling For VarDot)
2. Print ink restriction swatch - Print a sample to determine how much ink the media will accept for each color.
3. Determine ink restrictions - Set your ink restriction values in Media Manager based off your sample. This helps ensure that excess ink is never used when printing. Excess ink means wasted money.
4. Ink restriction settings and transition controls.
5. Print test image.

3. Calibration - Linearization

1. Print swatch calibration - Print a test swatch to determine how much ink the printer applies at certain levels. For example, if the image requires 15% Cyan, the software needs to know just how much ink the printer actually uses to reach that point.
2. Read in linearization data to establish target densities.
3. Apply media model - Establish a series of optical density targets based on the printer's actual output. This process is called Linearizing. When you linearize a printer, you determine the printer's actual output. You can then determine the best target for the ink and media based on that output.
    - Basic Density Curve - Media Model or Advanced Grayscale - Media Model - After you determine those targets, Media Manager will automatically calculate the required corrections for each job to make sure that the printer output matches the image color demand. This is referred to as the Media Model.

4. Ink Limits

1. Print ink limit swatch and determine ink limits - Once the software obtains predictable results from the linearization, the next step is to set limits on the amount of ink used to generate 1, 2, 3, and 4 color combinations. This process is called Ink Limiting.
2. Print test image.

5. Generating an ICC Profile

1. The last step is to create an ICC Profile. This step is optional but strongly recommended. The use of ICC Profiles allows the most accurate reproduction of an image with the least amount of modification. Most users can build using the default options. Advanced users can spend some R&D time in modifying the ICC Build Options for different results.
2. Print test image.

Advanced Users - See Tips & Tricks for additional information about different profiling scenarios.

Back to Profiling Workflow.

Creating a New Media

Creating a New Media - define the Media Group and Media Name

Once you have gathered the necessary information, create a new media by following these steps:

1. Within RIP-Queue, highlight the appropriate printer and click Media Manager. This opens Media Manager for the selected printer
2. Within Media Manager select > Create Media Profiles.
3. Select > Create New Media.
4. Select an existing Media Group from the drop down list or click > New... and enter a name for the desired Media Group. It is often useful to group medias by specific characteristics such as "Ink Type", "Print Path", or "Self Adhesive Vinyl". By creating groups you can keep things organized and display them later when creating QuickSets and other workflow choices. This is the Media Configuration Name you would select within RIP-Queue.
5. Enter a descriptive name for this media in the following field. Some customers list the media name as the descriptive name used by the media manufacturer. When finished with naming click > Next.

Creating a New Media - define basic settings for this media.

1. Define the ink configuration for this new profile as the same that is configured for the printer which will print to this new media.
2. Unless you are using a special printer, leave the color processing set to CMYK.
3. Spot Color Setup is used for printing on devices that support Spot Channel inks. Unless you need to configure this, don't click this option. To learn more click **here**.
4. Set any printer specific options by clicking the Printer Options button. This will display a dialog that allows the user to set any options that are supported by the printer. If an option is not listed it is not supported. These are determined by the printer manufacturer and are enabled by Onyx based on the manufacturer's recommendations. How to configure Media Options in the printer and on the RIP
5. Set the page sizes that can be displayed for the new media. In some cases it is a good idea to select only those page sizes that are supported for a particular media. That way when a mode is selected it ensures that no mistakes will be made when settup up job sizes

and/or tiling options. It is also a good idea to consider that a profile for a 24" roll media might have different characteristics than a profile for a 3 meter roll. Heater settings and print head characteristics will be different for different media widths. If this is a concern for future use of the media mode profile make sure to set only the page sizes that can be used for this new media. When this is complete click > Next.

6. The next step is adding a new mode to your new media.

Creating a New Media - define basic settings for this mode.

1. Now we set the name for the "MODE" for this media profile. The Mode contains all of the information regarding the resolution, dot pattern, ink restrictions, etc for this particular media profile. It is useful to include as much information as needed to allow those who use the mode for creating jobs to duplicate the settings and conditions for which the mode was created. The more variables involved in the printing process, the more information that should be provided as part of the Mode name. For example... If I am profiling a mode for a media on a solvent printer with 2 heater zones, and specific printer console settings I might name the Mode something like... "CMYKcm_6Pass_35C_45C_BiDir_300x600_Stoch" . This would help anyone using this media to know that this mode was used when printing on a printer that was configured for CMYKcm (Cyan Magenta Yellow Black with light Cyan, & light Magenta,) printing 6 pass with heater temperatures of 35 Celsius for the platten heater and 45 Celsius for the drying heater and printing Bi-Directional with a resolution of 300x600 and a Stochastic dot pattern.
2. Select the appropriate resolution and dot pattern from the drop-down list and click > Next.

Tech Note: Scale Adjust is not necessary for profiling but can be used when you have flexible materials or if the printed job is not the same as the desired measurements.

You are now ready for the next step - Ink Restrictions.

Back to Profiling Step By Step.

How to configure Media Options in the printer and on the RIP

Printer Front Panel Settings vs. RIP-Queue Media Options

You can set many printer settings using either the panel on your printer or using the Media Options dialog in RIP-Queue. Any settings made in RIP-Queue will override settings made on the printer. If no settings are made in RIP-Queue, settings made on the printer are used. Media Options include settings such as Pass Count, Print Direction, Heater Settings, Head Height, and so on. Each printer is different and, therefore, the settings available to you are different.

You can modify the Media Options for your printer in RIP-Queue by following these steps:

1. Open the RIP-Queue, and highlight the printer for which you want to set your Media Options.
2. Click Configure Printer. When the dialog box opens warning you that the server will shut down, click Yes to continue. This opens the Configure Printer window.
3. Click the Media tab, and then click the Options button. This opens the Media Options specific to your printer. The information displayed is the original settings used when the profile was first created and is usually suggested by the media/printer manufacture. This is also a good way to review media options for an existing media name. Each printer has different settings available. For more information on your printer's settings, click the Help button.
4. Set your Media Options. When you are finished, click OK.
5. Recalibrate after making media options to ensure optimal results. Be aware that making changes does effect print quality and may result is poor quality.

You can also modify your Media Options while profiling in Media Manager. To set your Media Options in Media Manager:

1. From the Home page, click Create Profiles.
2. Click Create New Mode and use the drop-down menus to select the desired media name, then advance through the profiling process until you reach the Basic Media Settings window.
3. Click the Media Options button located in the center of the screen. This opens the Media Options window. These settings are specific to your printer. For more information on your printer's settings, click the Help button.
4. Set your Media Options. When you are finished, click OK.
5. Recalibrate after making media options to ensure optimal results. Be aware that making changes does effect print quality and may result is poor quality.

Spot Color Setup For Spot Color Printers

Spot Color Setup Information Goes Here

Ink Restrictions

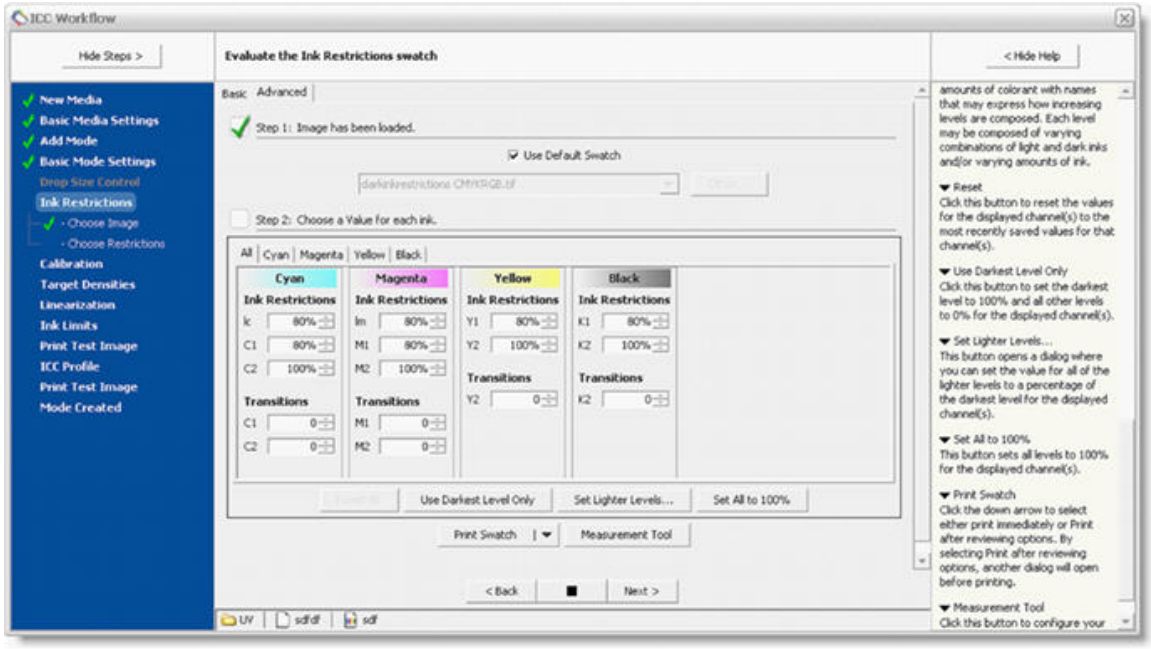
The purpose of ink restrictions is to ensure placement of the proper amount of ink and prevent over-saturation of primary inks. Review the following information for steps on setting Basic or Advanced Ink Restrictions as well as transition controls and how to handle printers with double-strike technology.

Once you have determined Ink restrictions you are now ready for the next step - Calibration - Linearization.

Back to Profiling Step By Step.

Advanced Ink Restrictions

Why use Advanced Ink Restrictions?

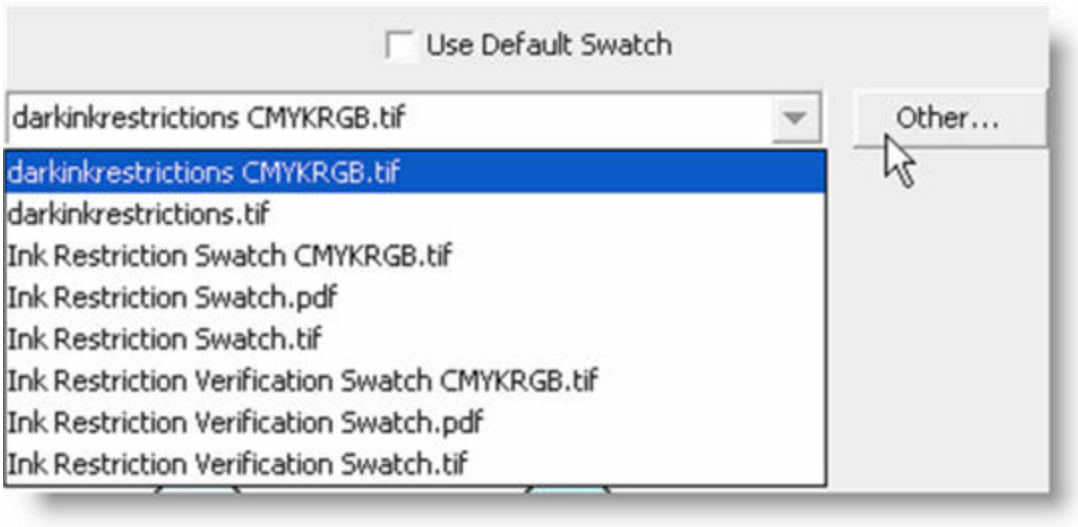


The Advanced Ink Restrictions option allows the user to add some refinement to the settings for Dark Ink restrictions, as well as a greater degree of control for setting Light Ink restrictions, or in the case of printers with multi-level dot size and/or multiple strike capabilities.

If your printer is a solvent printer with light inks, and you see issues with the light inks when you print Ink Restriction Verification Swatch.pdf file, you may want to set the "Light" Ink Restrictions lower than the 20% difference that is set when using the Basic Ink Restrictions option. For solvent printers we recommend 50-70%. Reprint the swatch to verify.

Advanced Ink Restrictions is the only place that Light Ink can be addressed. During this step you have a chance to restricted and limit the amount of light ink used in the print. The Ink Limits step later in the profiling process is only concerned with 3-4 color combinations of dark inks at the maximum level for the affected pixels.

How To Print Test Swatches:

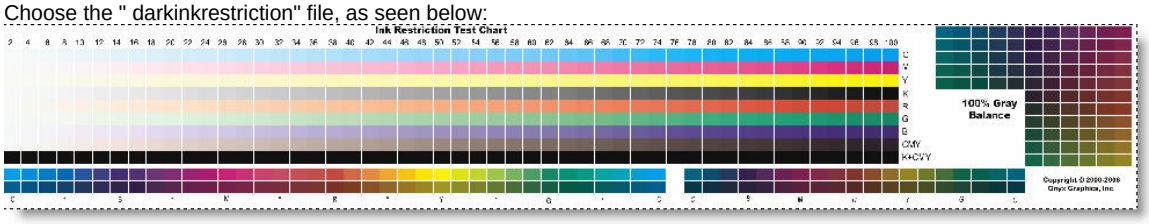


Default Test Print option on the Advanced Tab:

- Use the default swatch and click > Print Swatch. This will create 2 jobs that are sent to print. The first is a swatch that uses ONLY the Light inks. The second is a job that uses the dark inks with a blend of the light inks.

Custom Test Print options on the Advanced Tab - disabling the "default" check box and using the drop-down menu to select one of the following:

- Choose the " darkinkrestriction" file, as seen below:



- Or Choose the "Ink Restriction Swatch" file (use the CMYKRGB if you have this ink configuration).

These test swatches use a different layout patterns have the swatches in a different layout, this is a matter of preference. On some Grand Format and Superwide printers it might be desirable to enlarge this image to a more "Real World" size. Also printing multiple copies across the width of the printer helps to see the average print quality and determine if there are any heater issues with solvent.

You will want to evaluate the test prints for the following:

- Eliminate "Waste Ink" . With UV printers this also means preforming an "Abrasion Test" to make sure the ink does not come off easily.
- Look for cockling, bleeding, puddling, and other print quality issues to eliminate artifacts.

Setting Dark Ink Restrictions:

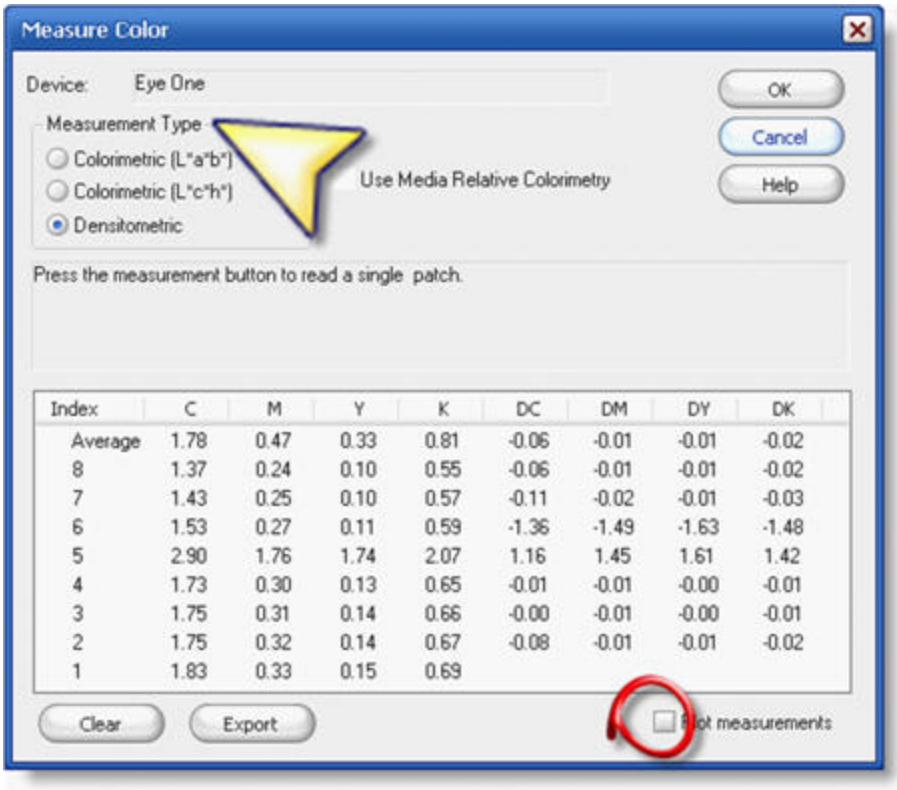
- Set all of the "Light" ink levels (designated by the lower case letters) to 0% and the "Dark" ink levels (designated by the upper case letters) to 100% and click > Print Swatch.
- If you are using the "darkinkrestriction" file, review the CMY row and look for the maximum swatch that displays no artifacts. Double-check your secondary (RGB) colors on either side of the desired percentage. This percentage is a starting point for setting your dark ink values.
- If you are using the "Ink Restriction Swatch" file, review each of the primary color channels and look for the maximum swatch that displays no artifacts. To dial in the exact percentage, use a hand-held color sampling device and click > Measurement Tool to get objective data.

Measurement Tool - Measure Color Dialog

Choose the desired measurement type:

- LAB
- LCH
- Densitometric (Density Values). Also see Target Density.

Records a series of measurements, when you



switch between types you will start with a new index.

Follow the on-screen instructions for calibrating the device and measuring the patches.

Review the values in the column for the channel you are currently working on.

Watch as the values increase and decrease, it will display Deltas against previous measurements.

You can click > Clear to start a new index.

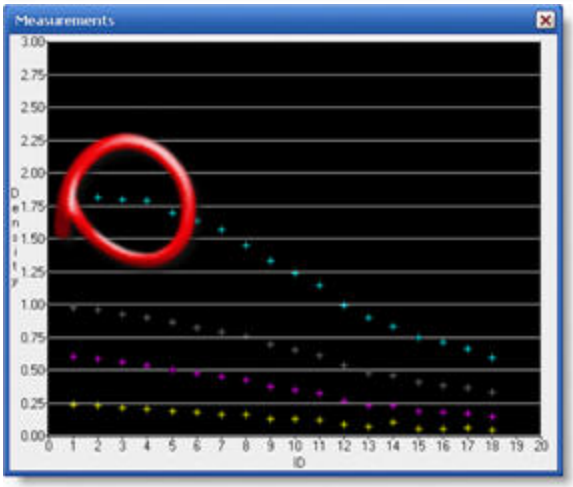
You can click > Export to save readings as .den or .txt file.

Enable > Plot Measurements to see a chart of your readings based on your measurement type.

There are two different methods for determine the optimal percentage of ink. Both methods are valid and lend to achieving different output objectives.

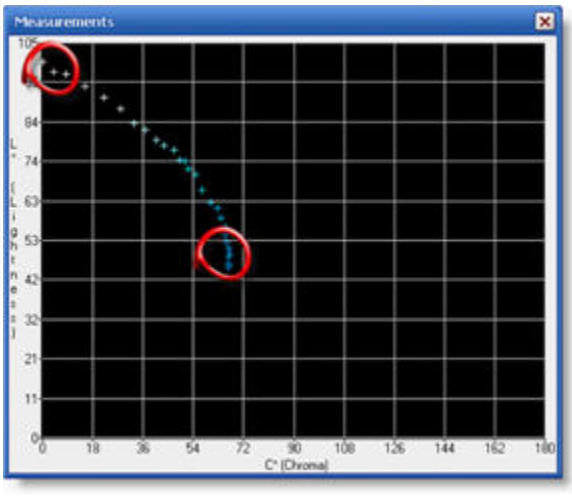
1) Density - Find the point where additional ink does not increase in optical density.

You can use the Target Density chart or plot the measured points to find a "plateau" in the readings.



Look for flat lines because "plateaus" indicate excessive ink.

Generally, Target Density is used when you are proofing or trying to simulate a different printing method on a digital printer.



2) Chroma - Find the point where additional ink does not increase in chroma or hue.

Look for a Chroma Hook when you plot the measured points to find the percentage just before the curve.

A Chroma "Hook" mean no gain in hue for that channel so the Gamut does not benefit from more ink.

Generally, the Chroma method is used to achieve maximum gamut on a digital printer.

Setting Light Ink Restrictions:

Once you have determined you "Dark" ink levels, enter a percentage for your "Light" ink levels.

- Most water-based printers - set the light ink levels to 80% of the dark ink level.
- UV printers - set the light ink levels to 80% of the dark ink level.
- Solvent printers - set the light ink levels to 50-70% of the dark ink level.

Reprint to verify:

Use the drop-down list to select the "Ink Restriction Verification Swatch" and click > Print Swatch. This will create a new test file using the values

seen in the software.

- We will need to evaluate this combination to make sure that the use of so much light ink doesn't cause problems.
- Observe the transition from light to dark. Is there a smooth transition? If an abrupt change is noted, you will need to consider lowering the light ink restriction.
- Examine the swatches on the left side of the print. This area shows combinations of ink in which the demand is for 100% of one color and then increasing amounts of a light ink.
- As the light ink increases, look for problems in the 2 color combination that become visible as the demand increases. An example would be the row that has 100% Magenta in every patch. As the demand for Cyan ink increases, the first swatches are printed with more and more Light Cyan. At 50% demand for Cyan, you will see the maximum use of Light Cyan. As the demand for goes above 50% the Light Ink decreases as the Dark Cyan increases. If there are problems with too much carrier or solvent with the Light Ink it will show as bleeding or puddling problems as the use of Light Ink increases. This will be seen at the "130 to 150" range.
- Based on where the bleeding or puddling occurs you will be able to determine how much to lower the Light Ink restriction. Again, for example, if the puddling is seen at 150 but not at 140, that means that the Light Ink is too much when set to match the Dark Ink setting. Lower the Light Ink setting to 80% of the Dark Ink setting. (40% =80% of 50.).
- Go back to the software dialog to re-set the ink restriction values to reflect the appropriate changes.
- Reprint to verify as many times as needed.

Note: *Some user prefer to set light inks lower (around 30-40%) and go up if needed instead of using the "Ink Restriction Verification Swatch" to verify you haven't used too much. This may require more test prints to verify you are getting the most out of your light inks as possible, but in some cases it give sharper results for first-time users.*

Unless you have seen a need in previous profiling for your ink and media to adjust the Transition Controls, make sure the settings for this option are at (0). Click here for more information on when to use Transition Controls.

Once you have set the ink restrictions and there are no puddling or bleeding issues exhibited, go on to the Calibration - Linearization step.

Back to Ink Restrictions.

Abrasion Test

An "Abrasion Test" can consist of rubbing the surface of the ink with a hard object such as you finger nail.

You can also simulate how these prints are handled in the real-world; for example from how they are packed, what they go thoruhg duirng shipping/delivery, and what happens to them before they actually get installed.

Think about how full size prints are packaged together one on top of another - take two pieces and rub the inked surface with the back of a non-ink surface. Also when prints are shipped they tend top move around if not secured. When prints are installed, the installers are usually not wearing gloves and they may be set up againts a wall or other hard surface.

See Profiling for UV.

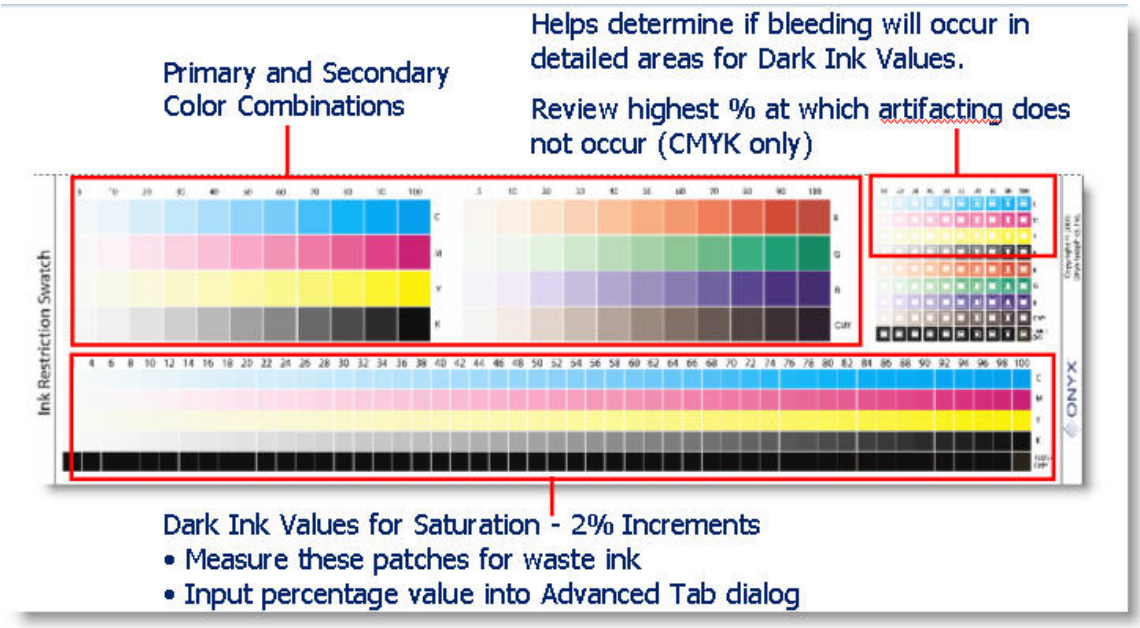
Chroma Hook

A Chroma 'Hook" is displayed on a graph as the point where the transisiton form light to dark no longer increases in value but decreases after a certain percentage point. This creates a hook in the graph and means that there is no gain in hue (or color capability) for that channel.

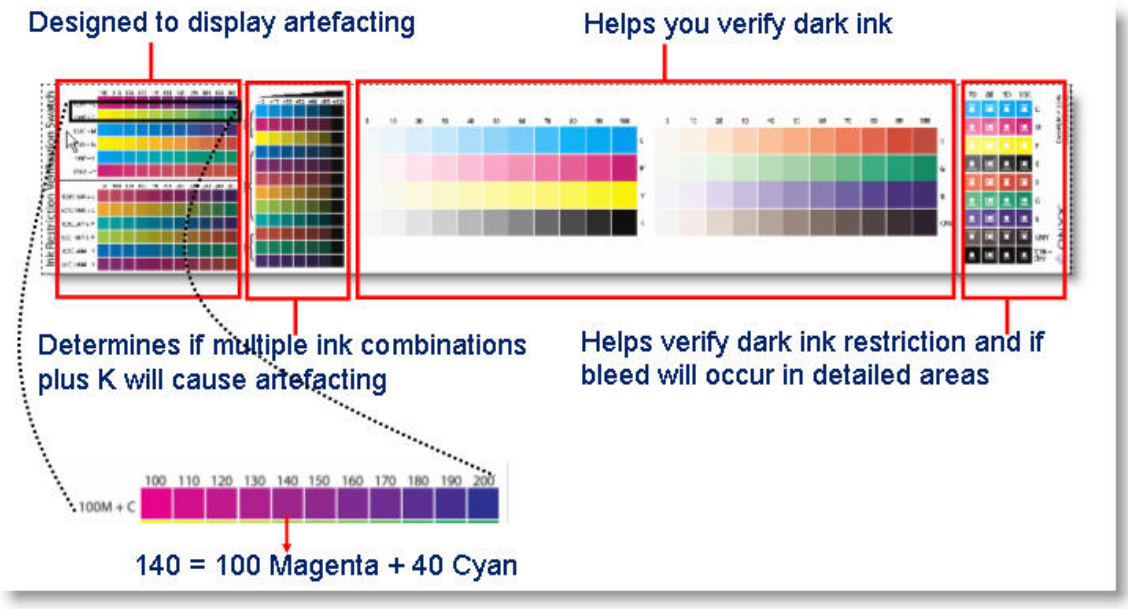
During the ink Restriciton step, you'll want to choose a percentage value before a hook occurs to reduce waste.

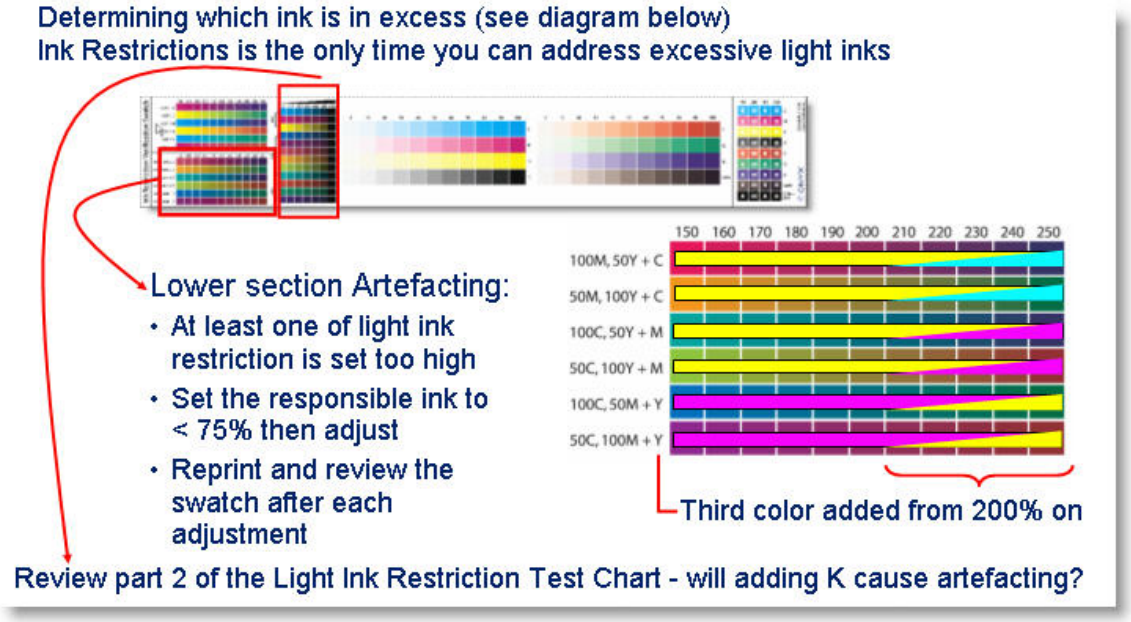
See Chroma.

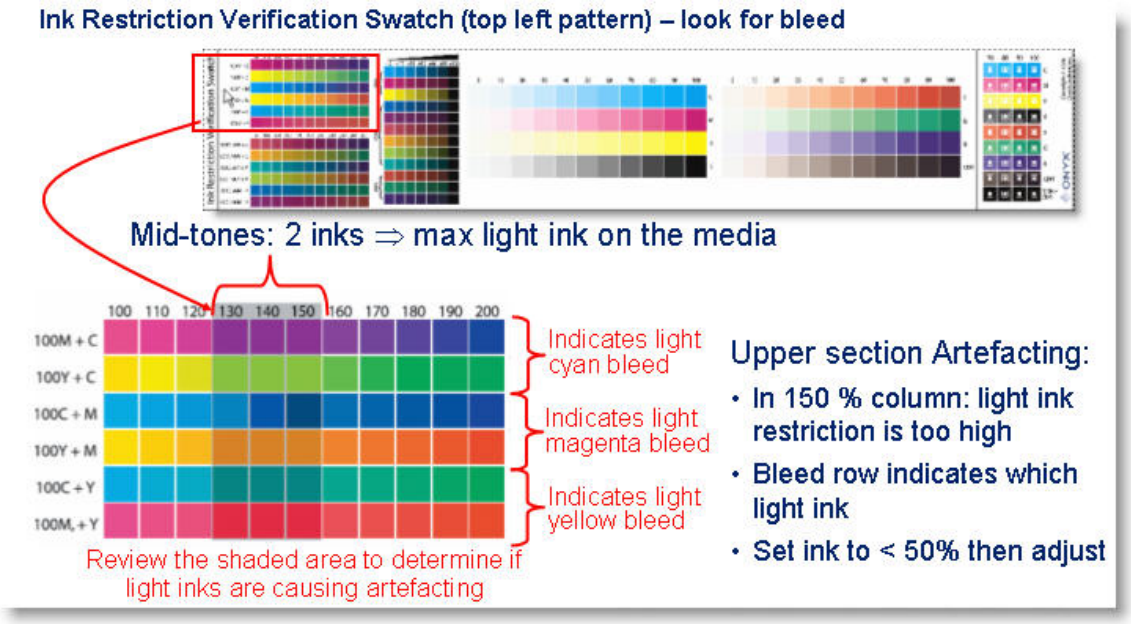
Ink Restriction Swatch



Ink Restriction Verification Swatch







Measurement Tool

Measurement Tool - Measure Color Dialog

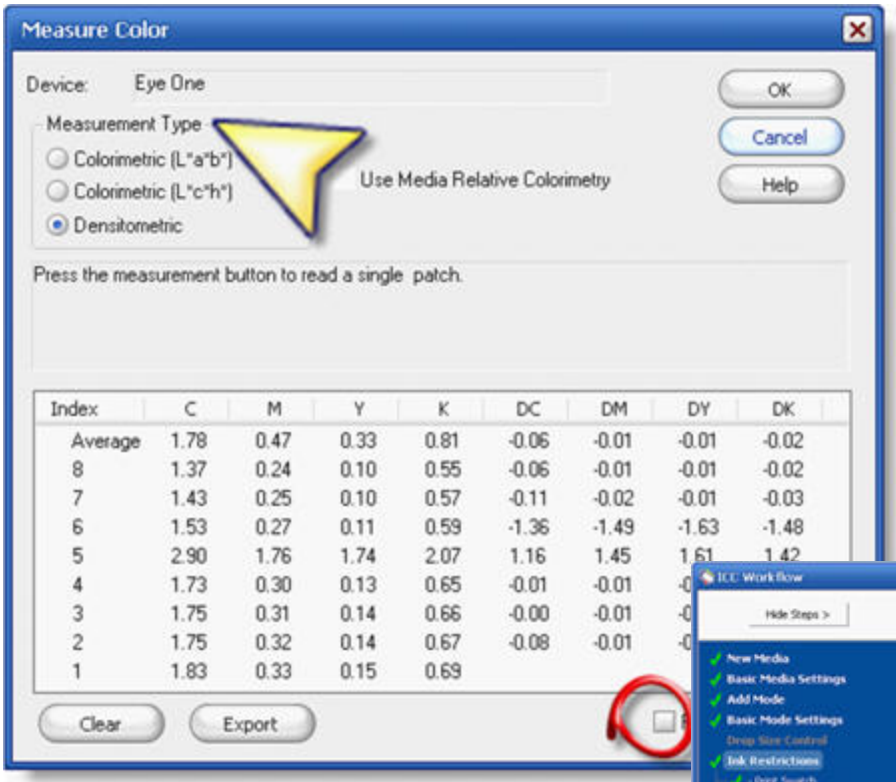
Choose the desired measurement type (L*a*b*, L*c*h*, and Density values).

Records a series of measurements, when you switch between types you will start with a new index.

Follow the on-screen instructions for calibrating the device and measuring the patches.

Review the values in the column for the channel you are currently working on.

Watch as the values increase and decrease, it will display Deltas against previous measurements.



You can click > Clear to start a new index.

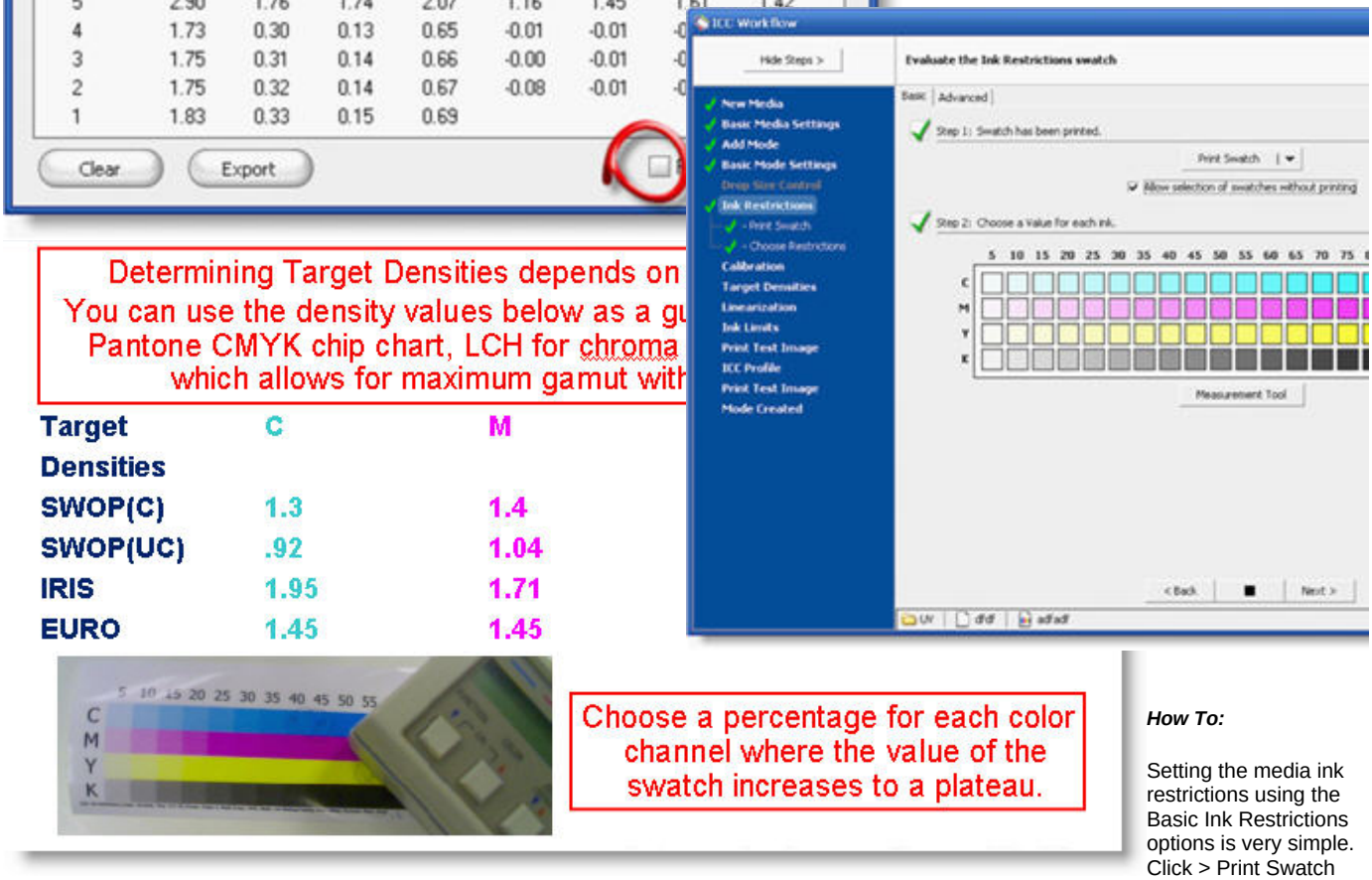
You can click > Export to save readings as .den or .txt file.

Enable > Plot Measurements to see a chart of your readings based on your measurement type.

Target Density

When you measure the patches, find the percentage that gives you the desired target density. This is your ink restriction percentage.

Basic Ink Restrictions



Choose a percentage for each color channel where the value of the swatch increases to a plateau.

How To:

Setting the media ink restrictions using the Basic Ink Restrictions options is very simple. Click > Print Swatch and review the output. On Grand Format and Superwide, UV, and Solvent printers it is recommended that the swatch be enlarged to printed the full width of the printer, or that enough copies are printed to allow the printer to come up to full production speed and temperature, etc.

Evaluate the swatch by eye and choose the patch for each color where any bleeding occurs. If no single color causes bleeding, select the highest percentage patch where there is no color difference. You can also click > Measurement tool to use a color device to determine the density or chroma for the channel. Click on the patch to accept the desired values, then click > Next.

Things to think about:

Setting the ink restriction is intended to make sure that you don't get so much ink in a 1 or 2 color pixel that bleeding or other undesirable artifacting occurs. Make sure that when you set ink restrictions that you consider "Real World" dry time, heater or other printer settings that affect how much ink is used. The ink restriction is a way to make sure that we never put more ink on the media. In the later Ink Limits step you can control 2,3, and 4 color combination if needed. In order to get the most color gamut for each media, it is vital to apply as much ink for 1 or 2 color pixels as the media will accept.

When using the Basic Ink Restriction method any light ink levels are automatically set to 80% of the value of the dark ink restriction value.

The Basic and Advanced Tabs are linked, so you can start with the Basic settings and switch between the tabs as you become more experienced to verify your setting. The Advanced tab allows you to access more complex test files and options.

Once you have determined Ink restrictions you are now ready for the next step - Calibration - Linearization.

Back to Ink Restrictions.

Double-Strike

What about Double-Strike?

Some printers have ink configurations that allows for printed dots to be "struck" a 2nd time. Regular ink configurations are "Single-Strike" and use one pass per channel to obtain maximum coverage. In some cases one strike (or pass) is not sufficient, so ink configuration with "Double-Strike" allow for a second pass which lays down 200% ink. This means the printer will put down more ink to obtain complete coverage or higher density. The ink configuration is usually labeled DS.

If you have this type of printer and are using this ink configuration, you will see on the Advanced Ink Restrictions tab a second field options such as the following example for the Cyan settings:

lc = 80 (Cyan Light Ink Default Setting is 80% of Dark Ink Value)

C1 = 100 (Cyan Dark Ink Single-Strike)

C2 = 100 (Cyan Dark Ink Double-Strike)

In this case having C1 set at 100 means that 100% of the dots to be printed are "struck" once and C2 at 100% means that dots are doubled. By using the C2 setting we can increase the number of dots that are "struck" a second time.

To determine Ink Restrictions using Double-Strike

You will want to set both C1 and C2 to 100% and lc to 0%, then use the drop down list to choose the Ink Restriction Swatch and print the swatch with these values.

Use the same method for determining the desired dark ink restriction percentage as you would with a single-strike printer, then multiple that percentage by 2. For example: if you choose to select the 72% as your dark ink restriction, you would use 144% (72 x 2 = 144) ink to achieve your desired ink restriction for Cyan.

Setting C1 to 100 and C2 to 44 would cause 100% of the printed dots to be "struck" one time and then a randomized selection equal to 44% of the original dots would be "struck" a second time. This would increase the amount of ink used to give better coverage and increase the optical density. Typically it is preferable to use 100% of the first strike ink coverage before increasing the value for second strike coverage, but you can split the difference if you prefer and use 72% for both C1 and C2. If you find that you do not need the second strike for coverage consider using the regular ink configuration.

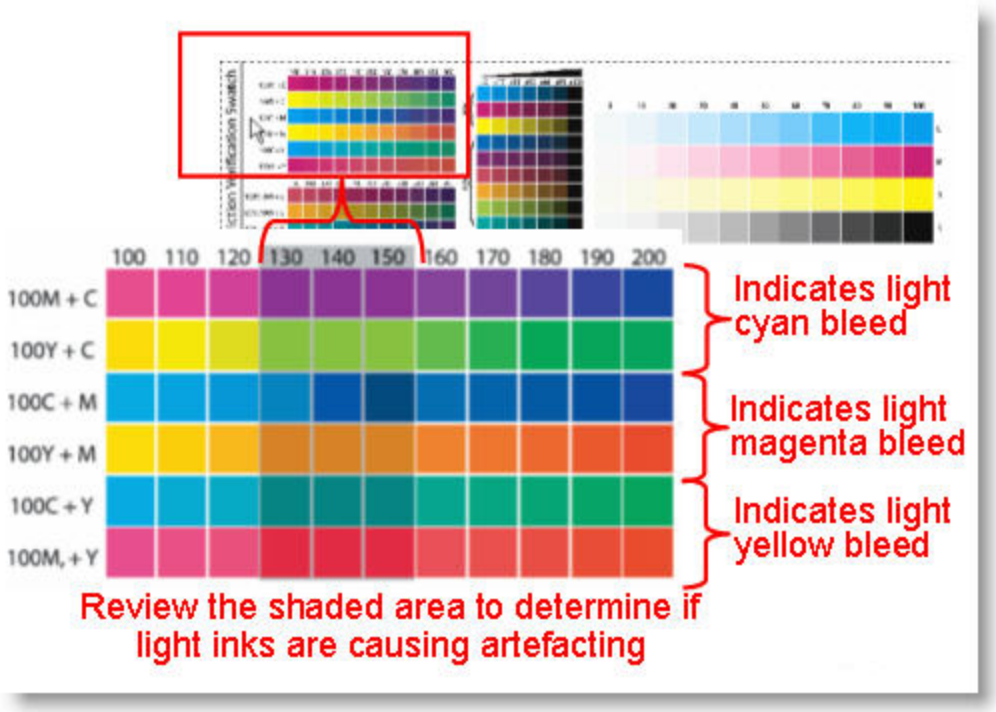
Repeat for each channel to set the dark ink values.

Setting Light Inks with Double-Strike

You would still set the light inks based on the single strike percentage. Water based inks start at 80% of the dark ink value and Solvent/UV at 50%. In this case since the C1 is 100%, the lc would be set to 80%. Another example would be if your C1 is 72% and your C2 is 0%, then your lc would be 58% (72 X .8 = 57.6).

Do not use the Macros buttons for setting light inks with a double strike - this will take the percentage of the C2 value (theoretically the darkest level) and change both the C1 value and the lc value.

Make your changes manually into the software interface and use the drop-down list to choose the Ink Restriction Verification Swatch. Print the file to verify your results before continuing paying close attention to the upper left-hand side of the swatch. This area helps shows issues if the light ink is set too high.



As of this writing there are no printers that use multiple size or variable size dot technology in conjunction with "Double-Strike" technology.

Back to Ink Restrictions.

Transition Controls

What is Transition Control?

When printing with a device that uses multiple ink levels (including Variable Dot, Double-Strike, and Light Ink), you must set the Transition Control. This option determines the transition from light inks to dark-inks. This prevents a sudden shift from light ink to dark-ink which can cause steps of shading in your gradients. Sometimes the hue or density of these different levels can be seen in the output.

The default value is set at 0 and you may not need to set a transition control value for most media. Even if you are using CMYKcm (darks and lights only) we recommend you use the default value.

How to determine if you need transition controls:

The best way to determine if you need transition controls is to print a swatch that has a tonal gradient to see the transition between the levels. If you see a shift in your gradients you may need to set a tranistion control value of 4 or 8 depending on the output.

You can do this within the Advanced Ink Restrictions window.

1. Change the transition control value as desired for each channel.
2. Load a test image by clicking > Other.
3. You can browse for a custom image of your choice or use the ONYX Quality Test.
4. The ONYX Quality Test is located in the Onyx root directory > Samples> Profiling folder.
5. Click > Print Swatch and review the Cyan and Magenta gradients at the top.

The transition control helps to "blend" the dark, med, light ink levels to create a smooth gradient.

Transition Factors

If you see an extreme transiton from light to dark in which the dark ink displays a very rapid increase in density at the transition boundary from light to dark ink you may gain some improvement by increasing the Transistion Control Factor settings. Such a change in the gradient may not be obvious by visual inspection, and may not be observed until the Calibration / Linearization steps. Examining the graph of the actual Calibration Swatch Readings may show a very steep gradient increase as the transition from light ink to dark ink occurs. This is not normally the case. Most ink manufacturers do a good job of creating inks that blend smoothly from light to dark.

If you see a very sudden, steep gradient in the graph of the linearization readings, it is first recommended to lower the light ink restriction by 10% -

20%. Reprint the linearization swatches and observe if the transition is improved. As a final means of improving transitions from light to dark the Transition Control Factors may be adjusted to alter the relationship of light to dark at the transition boundary. The range of settings is from 1 to 10. Experimentation will be needed to determine the most suitable setting.

When you are done setting Ink Restrictions and transition control the next step is Calibration - Linearization.

Back to Ink Restrictions.

Light Ink

Light Ink was developed to enhance skin tones. Printers with light ink usually use a light cyan and a light magenta. Some printers also have a light black which enhances black and white prints.

Light inks are generally half the color density or their dark ink counterpart, although when determining ink restrictions most users start at 80% of the dark ink value when setting the light ink percentage.

See Profiling For CMYKcm.

Variable Dot

Variable Dot refers to a printer that has the ability to print with small, medium, and large dot sizes.

See Profiling For VarDot.

Calibration - Linearization

What is Calibration?

Calibration is the process of telling the Media Manager how your printer uses ink when specific demands for each color are given. If the output matched the demand, then we could plot the results as a 1 to 1 graph. Such a graph would be a straight line. Thus the term "Linearization".

But just because we know how our printer is using ink, it doesn't mean we can get reproducible results from print to print or from day to day. We need to use that information along with a set of targets. If you were using a bow and arrow, you would need to know how far your arrow will go based on your strength and aiming abilities. But in order to know you are really accurate you aim for a specific target. When you hit the target you are at your peak of performance. Tell Media Manager how much ink to use for each color across the range of color demands by setting your "Target Density" for your profiling purpose. If we hit the same target densities from print to print and from day to day we will be achieving reproducibility. Such reproducibility is the foundation of getting accurate results.

How to create a calibration table:

Calibration is preformed after setting Ink Restrictions and any Transition Controls (not needed for most media). To begin the calibration process, make sure you have a densitometric color sampling device connected. See Densitometer.

1. Click the Print Swatch button from the "Print and read the calibration swatch" dialog. This opens a print dialog.
2. Verify that the densitometric device that is plugged into your system is displayed in the Device box. If not, click the drop down list and highlight your device.
3. If you don't see your device you can click Setup > Measurement Device > Add to select your device from the list of supported densitometers.
4. Once you have changed any Setup settings click > Print to send the swatch job to the print queue.

****NOTE**** The default swatch prints 31 patches with a variance of approximately 3% per patch. There are a few scenarios when you may wish to change this options for the number of patches printed on the calibration swatch. For example: if your media is textured like a canvas or porous like a perforated vinyl, or if you are using a grand format printer you may get better results if you use fewer swatch patches for each color. For example some printer manufactures such as HP/Scitex recommends 19 (4%) or 24 (5%) patches.

To change the number of patches before you print the calibration swatch:

1. Click > Setup > Options.
2. On the Options tab enter the desires value (either 19 or 24) in the field and you will see the % displayed to the right.
3. If you are confident that your printer has fairly linear output you can use fewer patches. In some cases fewer patches will also result in readings that have fewer "spikes" in the readings. Very rarely is there any advantage to be gained by using more than the default 31 patches per color and this is not recommended. Too much detail can result in profiling issues later on in the workflow.
4. Click > OK.
5. Click > Print.
6. Once the swatches have had adequate Real World click > Read Swatches.
7. Follow the instructions given for this step. Depending on the color sampling device you may be required to calibrate the device with the manufacturer's calibration swatch as well as taking an initial "white" reading on the media being profiled.
8. Once the readings are complete click > OK to accept.
9. Click > Build to create the calibration table.

****NOTE****When you click > OK to accept the calibration readings, you'll may see a pop-up window with the options to manually edit or

automatically correct for invalid readings. Invalid readings are usually numbers or numbers out of sequence with a regular tonal change. Basic users are encourages to click > Auto Edit which allows the software to correct the values. Advanced users may wish to review the values and make the changes manually. To do this use the following steps:

1. Click > Manually edit and locate the values you want to change.
2. Click your mouse into the field and remove the . Or take an average of the readings above and below to decide the approximate value.
3. You only need to be concerned with the numbers displayed in the column for the color channel shown on the left-hand side.
4. Once you have made your corrections click > Build to create the calibration table.

The next step is to choose a Media Model which will use the calibration table to create a series of target densities from which a linearization curve is built.

Back to Profiling Step By Step.

Media Model

Determining a Media Model

A media model defines the targets used for calibrating for different classes of inks. There are two ways to create a media model for the target densities: Basic Density Curve - Media Model and Advanced Grayscale - Media Model. To learn about each one click on the name to be taken to a page that describes each method and how to use Media Manager for either one.

The recommended workflow is to use the Basic Density Curve - Media Model.

Basic Density Curve - Media Model

When an ICC Workflow is planned, this quick, straightforward method creates target densities that are adequate for getting "acceptable" color and move you quickly to the next steps of Ink Limits and ICC Profile generation. Click the title link above to see more information using this method.

Advanced Grayscale - Media Model

For a Non-ICC Workflow the user would still like to have neutral gray and colors that approach what they would expect from a SWOP press. To help hit this sort of target Onyx has created the Advanced Grayscale method to create Target Densities automatically. Click the title link above to see more information using this method.

Once you have determined the Media Model by going through one of the workflows above, the next step will be Ink Limits.

Back to Calibration - Linearization .

Back to Profiling Step By Step.

Advanced Grayscale - Media Model

When and Why should you use the Advanced Grayscale method for creating target densities?

This is the recommended Media Model to use when building profiles in a non-ICC workflow.

If you want to create a media that controls ink usage, but you don't have the time or ability to create the ICC table, it is strongly recommended that you use the Advanced Grayscalemethod for creating target densities. The Advanced Grayscale method of creating target densities is for obtaining output that approximates SWOP press colors with an expectation that by obtaining neutral gray at 25%, 50%, and 75% the colored output will be correct as well. This method is recommended when a customer chooses a non-ICC based workflow. This method requires a colorimetric color sampling device.

It determines where gray is the most neutral in the density midpoint (default is 55%) and then sets the points along the tonal curve based on this determination. Therefore, the density of C, M, and Y at the midpoint of the tonal curve matches the density of K at the same point. The advantage to using the advanced grayscale media model is that it provides the most predictable color and balances gray along the curve. However, while gray may be balanced at the points along the curve, they do not necessarily increase in balanced increments to produce a smooth gradient. This media model adjusts the N-Factor values (used to calculate midtone densities) as well as the DMax (maximum density) for you, but you still have the option of modifying these options.

If you are not satisfied with the results using the Advanced Grayscale method, you may consider making adjustments to the media model target densities using the N-Factor and Scale Adjustment Tools. Please note that such changes will require extensive "Tweak & Test" adjustments and test prints. Without an ICC to provide color accuracy the only color control available outside of the Preflight Color Correction Tools is the adjustment of target densities.

This media model is much like driving an automobile with an automatic transmission on your trip. The "auto transmission" does most of the shifting for you, but you still have the option of changing gears if you so desire.

Using Advanced Grayscale

1. After reading in the regular calibration/linearization swatches, click > Next.
2. Select the Advanced Grayscale tab and click > Print Swatch.
3. From the Print Swatch dialog click on Setup.
4. Click the Black Setup tab.

Here is where we tell the software how we want to determine the appropriate gray neutrality for our target densities. Note that you can select a single gray midpoint target or multiple points at 25%, 50%, and 75%. We recommend the selection of multi-point grayscale. The default is to approximate the gray neutrality of a US Web, Coated SWOP media. The settings for each channel are based on 25%, 50%, and 75% Cyan. Only Magenta and Yellow can be modified. If you prefer you can edit the settings for Magenta and Yellow, or select the button to balance the demand for all 3 colors.

Remember, that since our inks are not the same as press inks the software will have to create enough swatches to obtain readings to give us a fair idea of how the 3 colors combine in various levels of gray neutrality. Unless you have tried and found that the color ratios need to be changed, leave the settings as they are.

To build this media model using the additional "Grayscale" swatch:

1. Click > OK to exit the setup tab and then click > Print.
2. When the swatches have printed and had adequate "Real World" dry time, read them with a colorimetric or spectral color sampling device.
3. When the swatches are read, click > OK and then > Build.
4. Click > Next and then click Build Linearization.
5. When the graph of the Linearization is displayed make NO CHANGES to the settings. Otherwise you invalidate all the work you have done to this point.
6. Click > Build to complete the creation of the Linearization.

Once you have determined the Media Model you are now ready for the next step - Ink Limits. Back to Media Model. Back to Profiling Step By Step.

Basic Density Curve - Media Model

This Media Model is recommended if you are using an ICC Workflow.

For an ICC workflow using Basic Density Curves is the most simple and straightforward method to create target densites. It automatically sets the maximum density values and provides good contrast for bright images and a smooth gradients. It's recommended to leave the maximum target densites as is to ensure consistency with recalibration.

Once the calibration swatches are read, choose the Basic Density Curves tab. Remember to use the calibration data and existing calibration table that were created during the reading of the calibration swatches. Verify the radio button and selected table are the same names as those created in the previous step.

To build this media model:

1. Click > Build Table and then click > Next.
2. Click > Build Linearization.
3. Click > Build.
4. A series of tabs will display the Target Densities, Swatch Measurements, and Lineaizarion curves.
5. Review the data and analyze the curves before continuing to Ink Limits.

Desired Target Tab

The first tab represents the desired targets. This is what you want based on your ink restriction target densities and calibration data.

On this tab you can modify the N-Factor and Scale to adjust the curves.

Advanced Profiling Tip: When reviewing the curve, you'll notice that the slope is steady up to about 70% density. Once density increases above 70%, some posterization (loss of detail) can occur. This media model allows you the controls to adjust the NFactor values (used to calculate mid-tone densities) and DMax values (maximum density) to achieve optimal output. If you modify the Dmax values you run the risk of "locking" in those values which can cause issues with recalibration especially if the printer is able to achieve a higher density that what is "locked". This media model is much like driving an automobile with a manual transmission on your road trip - while you have more control over which gear you use for which part of the trip, you have to do a lot of shifting during the journey.

Swatch Measurement Tab

The second tab is the data from your readings. This is what got from reading in the calibration data from the current output.

Linearization Table Tab

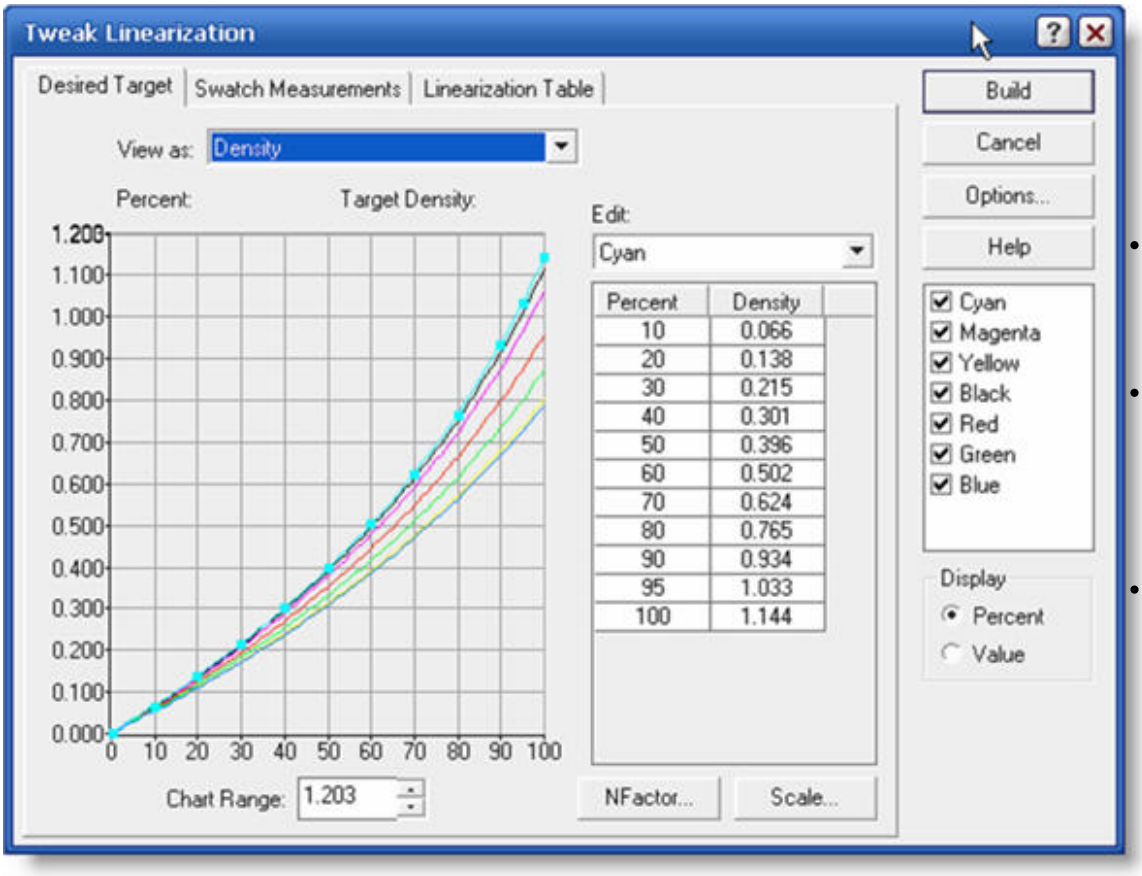
The third tab is the corrections. This is the "compromise" between the two previous sets of curves to create a linear output.

Once you have determined the Media Model you are now ready for the next step - Ink Limits. Back to Media Model.

Back to Profiling Step By Step.

Desired Target Tab

By default the software does not create a 100% target value. This allow the maximum percentage value to "float" ensureing you can always achieve the maximum gamut of the printer.



N-Factor

The default N-Factor is set at 2.0 and controls the slope of the curve.

- Adjustments to the shape of the target density curves can be made by changing the "N-Factor" value for each color channel.
- Raising the N-Factor value will shape the graph of the target densities with a more nearly linear series of targets. This will tend to add saturation in the mid-tones.
- By lowering the N-Factor value the elbow of the graph curve will sharpen. This will de-saturate the mid-tone colors for the selected color channel.

Make the desired changes and then click > Build to update the target densities.

Print a test image and compare to a known proof to see if the adjustments are satisfactory. Don't worry about the overall total ink at this point because ink limiting can be adjusted in the next step. The primary reason we consider modifying the desired target curve is because some inks are non-linear, meaning that at 10% you may not be getting a true 10% work of ink.

The basic considerations for this test after tweaking the target densities is to verify that colors are correct and that the gray balance & gray neutrality are ok. If they are still not correct go back to the display of the target densites graph by clicking on Build Linearization. Remember that this method may require a lot of repeated "Tweak and Test" steps.

Specific applications (such as Screen Printing and Press Printing) may require a more linear target and thus you would want to make adjustments to the N-Factor to compensate for these types of printing applications. Increasing the N-factor value gives you greater mid-tone saturation. Some addition vertical markets where this is applicable include:

- Dye-sub
- Backlit
- Clear Film
- Proofing
- Screen-printing (You may choose to view the target densities in terms of "Dot Gain". this allows you to match the dot gain to a typical press)

See Desired Target Tab.

See Basic Density Curve - Media Model.

Scale

The graph of the target densities can also be modified by changing the Scale of the targets.

By selecting Scale, and then lowering the value the entire range of target densities is adusted to the new value of the changed scale.

For example to lower all target densities by 10% you can select Scale and set the value to 90%.

NOTE It is important to understand that by changing the scale you re-set the scale. In otherwords, if you clicked OK and then opened the Scale adjustment again it would now show 100% as the value. If you want to re-set the value to the old setting, make sure you remember the original change. Reset the target densities to their previous value by entering the quotient of the 100% and the previous change. For example, if I set the scale from it's original 100% to 80%, clicked ok, built the Linearization and printed a test that was unsatisfactory I migth want to return to the original target densities. To do this I would need to divide 100 by 80 and get the result of 1.25. To reset the target densities to their original value I would need to set the new scale value from 100% to 125%.

You will also want to double-check that the N-Factor is still set at 2.0.

See Desired Target Tab.

See Basic Density Curve - Media Model.

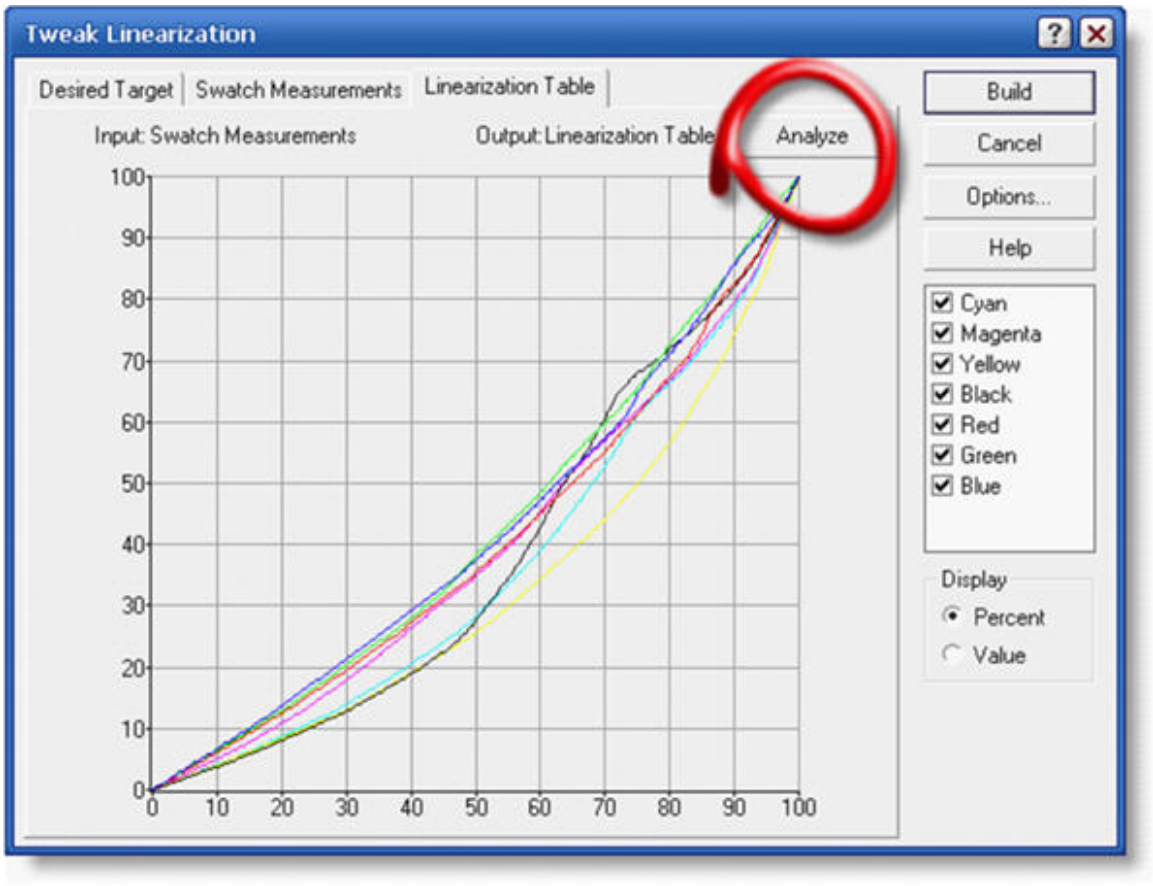
See Media Model.

Generally, the term scale means to enlarge or reduce an image by increasing or decreasing the number of scanned pixels, or the sampling rate, relative to the number of samples per inch needed by the printer or other output device.

Linearization Table Tab

The curves on this window should be fairly linear or straight from corner to corner.

Click > Analyze for feedback.



Swatch Measurement Tab

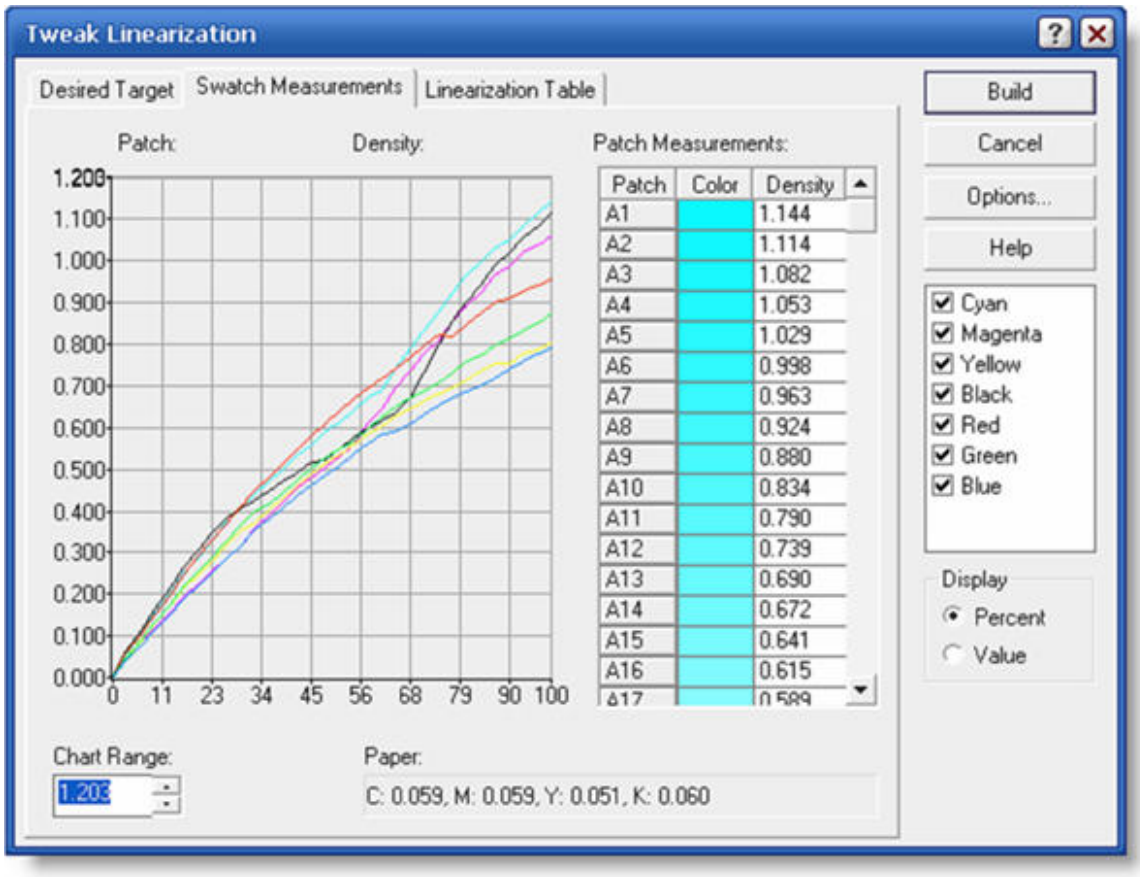
Tips for analyzing the Swatch Measurement Tab:

Look for "Plateaus"

A "plateaus" in the curves can be seen either when light and dark ink levels mix or if the original ink restriction value maxes out before reaching 100%. If you see this behavior in the middle of the curve, go back and use Transition Controls. If you see this behavior at the upper edge of the curve, go back to Ink Restrictions and lower you dark ink value.

Look for "Hooks"

A "hook" in the curve is usually seen in the upper 90-100%. It means that your Ink Restriction is set too high. If you see this behavior at the upper edge of the curve, go

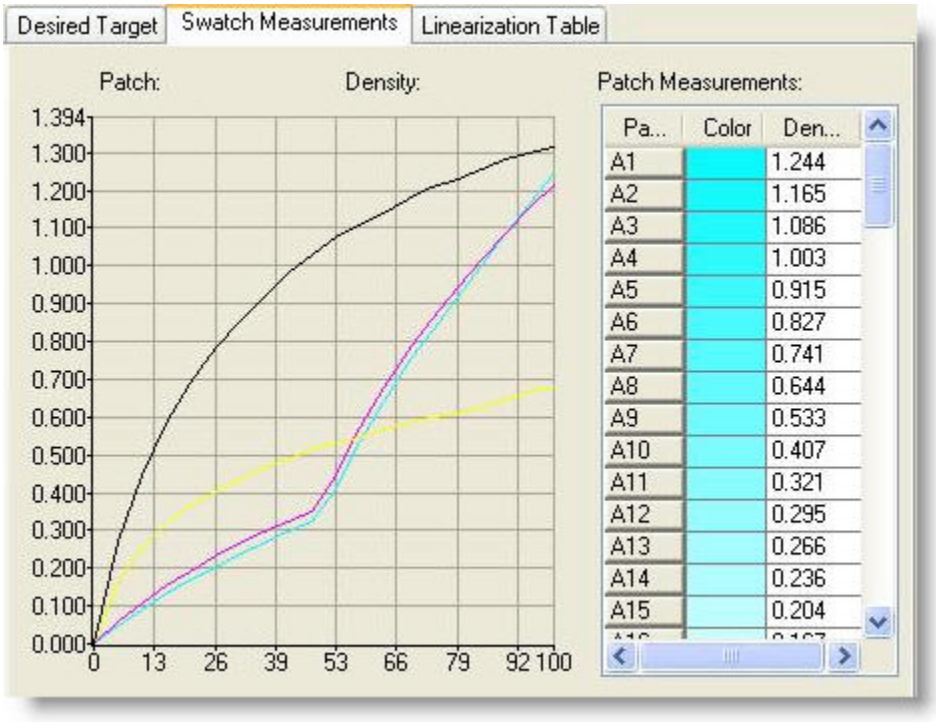


back to Ink Restrictions and lower you dark ink value.

Look for "Spikes"

A "spike" in the curve is usually a mis-read where the device zeros-out so no data is recorded for a given percentage. If the curve displays several spikes it could be that your media is very pourous and the light that is reflected into the color sampling device is distorted. If this is the case, you can print a calibration swatch with fewer number of patches to help smooth out the curve. Go back to the Calibration - Linearization step and reprint a new calibration swatch. When you click > Print remember to click > Setup > Options and change the number of swatches to 24 or as low as 19 before clicking > Print Swatch.

Curves with a "Sea Gull" shape



This issues displayed in the swatch measurement curves is indicative of the "Light" ink levels having a very light density scale in relationship to the "Dark" ink level.

Transition controls are meant to adjust for this and using a setting of 8-10 is going to be the best method for correction. You can also try increasing the light ink percentage to equal that of the dark (as long as there isn't' any bleeding issues) or lowering the dark ink levels while also keeping the 100% target at an acceptable percentage. Even if the curves still display the "sea gull" shape, the nature of the ink chemistry is to blame.

There is nothing in the software that can compensate for the behavior, but the linearization tab should do most of the work so the affects aren't seen on paper.

ICC Workflow

A color management workflow that uses input and output profiles to ensure color quality.

See Color Management.
See ICC.
See ICC Profile.

Non-ICC Workflow

A Color Management workflow that may use input profiles, but does not use an output profile for the printer.

Some printers with very large gamuts prefer not to use an ICC Workflow because it may dull the overall image. This is an acceptable method and would follow the same steps up to the ICC step for creating a media within ONYX.

Real World

Dry Time and Printing Considerations

A real world dry time refers to how long prints will need to dry in a production enviornment. This will vary from shop to shop and can be as little as 5 minutes to about 20 minutes. If you need to wait 12-24 hours for the prints to dry before handling consider that the ink and media are not compatiable or reevaluate your ink restrictions before continuing.

Here are a few example of how to determine the best dry time.

1. When does the print hit the floor or is taken up by a reel?
2. How long does a print need to stabilize before lamination or mounting?
3. What is a realistic production time?

Some additional printing considerations require you to keep the printer actively printing from edge to edge. This helps to evaluate the heaters under the print head and any variations with the printer vacuum system.

Ink Limits

Ink Limiting is the process of restricting the total amount of ink applied to a media by adjusting the maximum percentage of the color values in a processed image.

The purpose of ink limits is to prevent over-saturation of three and four color combinations. As far as determining where to set the Ink Limits, generally one should look for the following indicators:

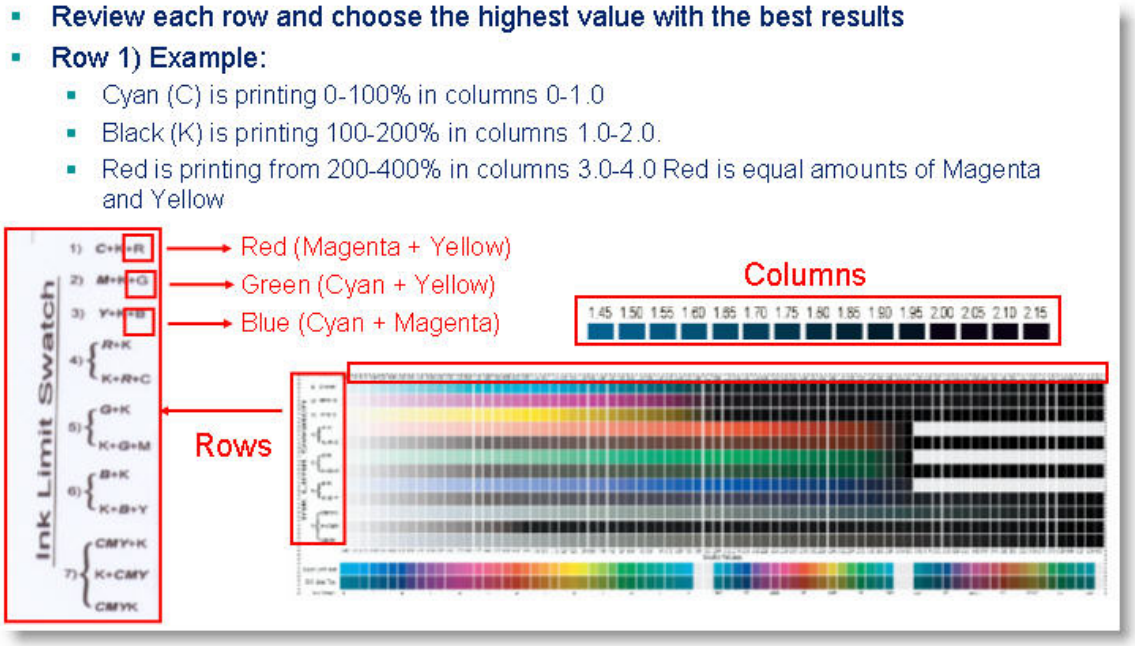
1. Point at which Bleed, Mottling, Embossed, or Raised look occur in the patches.
2. Point at which Hazing (gloss media), Sheen (Matte media) occurs.
3. Point at which a darker hue not being achieved (i.e., ink is simply being wasted).
4. Good two color combinations vs. all of the above.

Notes: *The ONYX Profiling Lab does not use (or recommend using) the Basic Ink Limit settings.CMYKOG and CMYKRGB printers each have unique ink limit swatches with additional rules for setting Advanced Ink Limits. Black Ink is not limited and therefore compensation for actual black ink present needs to be made. See Profiling For CMYKRGB.*

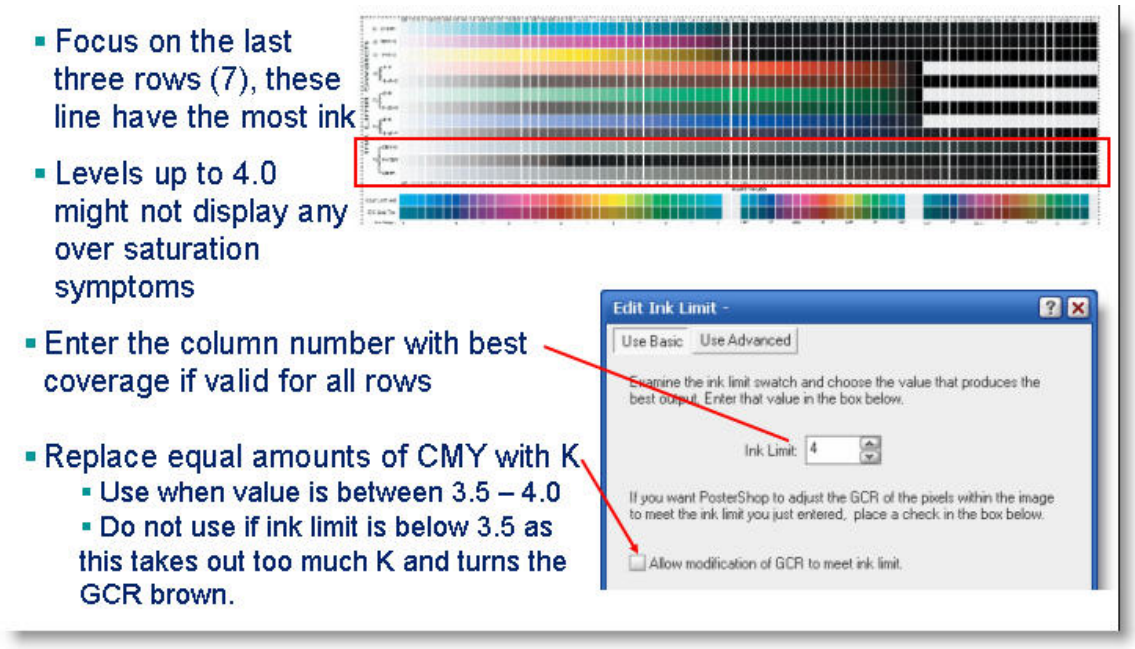
Print The Swatch

The first step is to print the swatch. No device is needed for this step. You will be evaluating the swatch based on visual observations. Please be aware that for some ink configurations such as CMYKRGB, etc you will be printing a very large swatch. On some Grand Format printers with wide media it is suggested that the file be opened into Preflight and enlarged 50% - 100%. This will make it possible to have a more Real World evaluation.

Interpreting Ink Limits



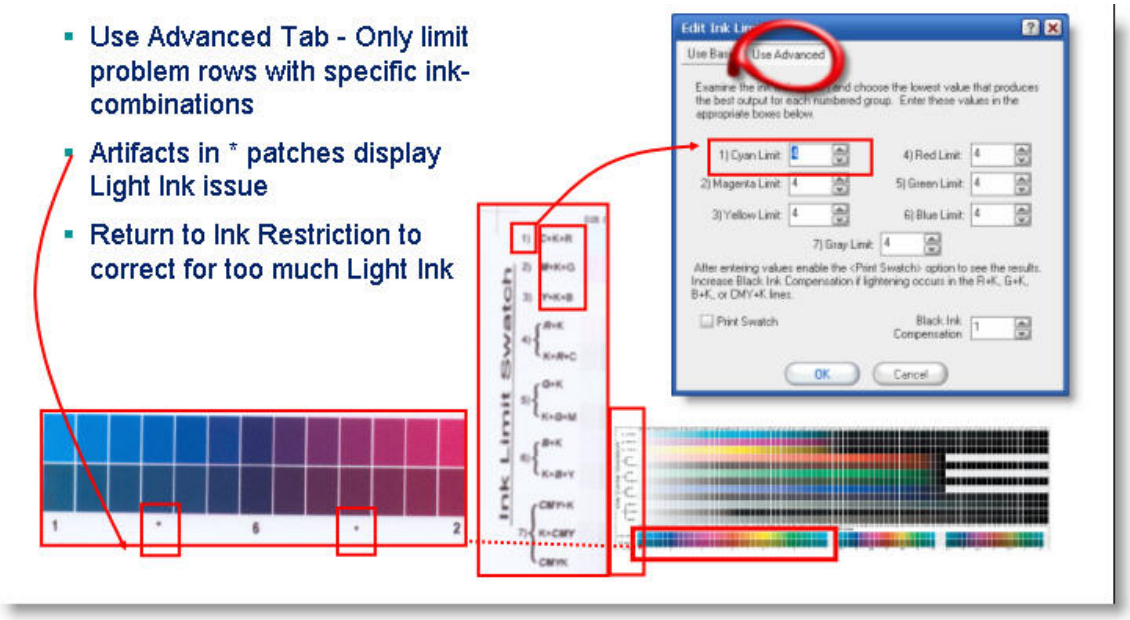
Basic Ink Limit



Review the swatches and if you can choose a value that is acceptable across all rows, you may use Basic Ink Limits. Click > Read Swatch and enter in the value as seen on the column of your choice.

If specific rows require different settings depending on the combinations, you must enter in the values on the Advanced Ink Limits tab.

Advanced Ink Limits



The numbers located on the left-hand side of the printed swatches correspond the the fields within the software. When evaluating the Ink Limit swatch, review each row or group of rows and keep the following in mind:

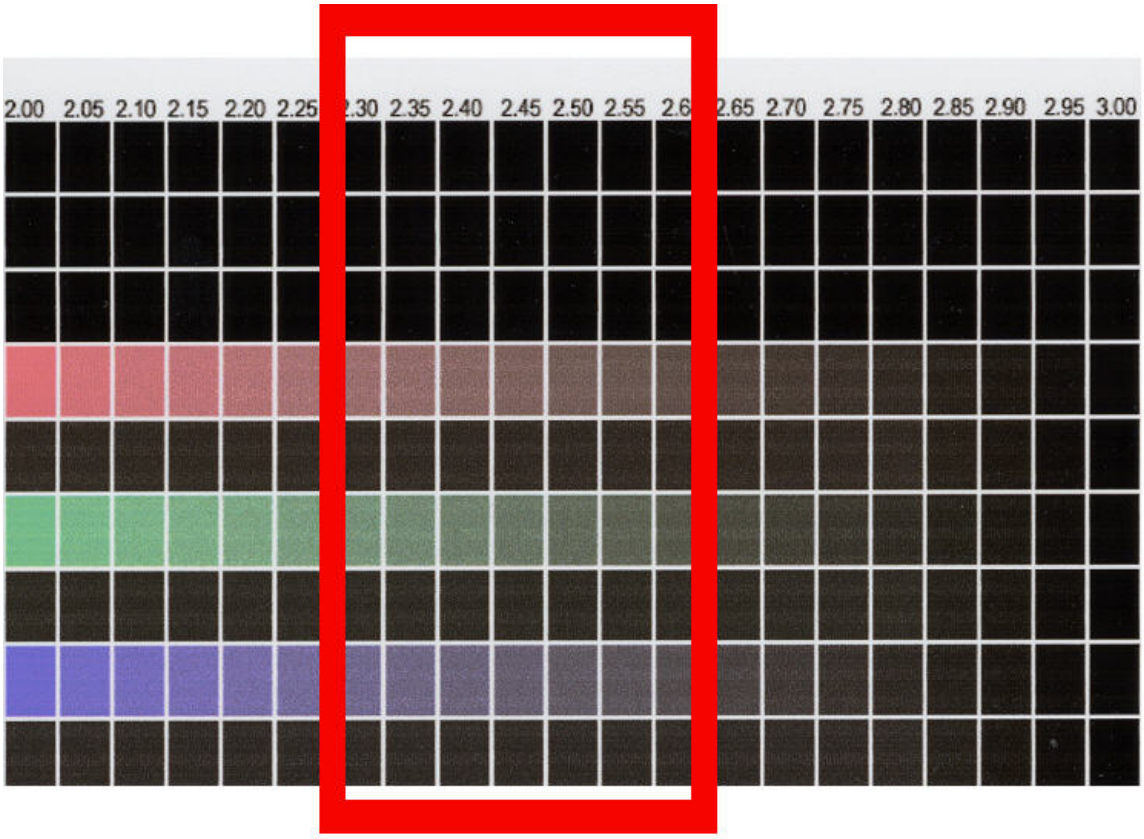
1. Set the ink limit as low as needed for each "group". That means for group 1 Cyan, set the ink limit to the point where there is no bleeding, puddling, etc. Do the same for each "group" It is acceptable to set ink limits as low as 2.2 in order to control the unacceptable output issues.

2. Set the ink limit for Hi-Fi Colors (CMYKOG, etc.) based on the lowest ink limit for the group. These printers will have large "groups" with various combinations of the various colors. The ink limit for each group must be set low enough to eliminate the undesirable artifacts.

Note: *If you are profiling CMYKRGB you will have a different swatch that contains additional rows of ink combinations needed for the profiling workflow. See Profiling For CMYKRGB.*

Black Ink Compensation

As ink limits are lowered there may be some apparent "lightening" in 3 color pixels. The second row in groups 4, 5, and 6 in the Ink Limit Swatch are useful to see if this is occurring. This apparent lightening is caused as Reds, Greens, Blues, etc. are created with less ink. In order to compensate so that the darker 3 color pixels have the correct color appearance you may need to increase the level of "Black Ink Compensation", also known as BIC.



For example if you set your first round of ink limits and then do a test print and see that your colors are turning "gray" before the are turning "black", you will want to use Black Ink Compensation. This increases the use of black ink to maintain dark saturated colors.

One way to determine whether the BIC selection is valid is to print another Ink Limit swatch after setting the ink limits (prior to making a BIC setting). When reviewing this print you will want to look for a point from about 2.3 to 3.0 where the hue suddenly stops getting darker and actually gets lighter before getting darker above 3.0. Its been found that Red and Green (4/5) are typically the easiest areas to observe this. After setting a BIC, you can print the swatch again to see if this lightening of the hue was corrected. Make adjustments as needed.

The following examples are typical of the settings we use in the Profiling Lab based upon the average Ink Limits (1-7):

- 1.5 - 2.0 BIC = 4-5
- 2.0 - 2.5 BIC = 3-4
- 2.5 - 3.0 BIC = 2-3
- 3.0 - 4.0 BIC = 1-2

To determine the needed BIC amount:

1. Set the value (range 1 - 5)
2. Check the box to Reprint Swatch
3. Click > OK to reprint the swatch
4. Evaluate the new swatch to determine if the Black Ink Compensation should be reduced or increased

Once you have determined Ink Limits you are now ready for the next step - Generating an ICC Profile.

Back to Media Model.

Back to Profiling Step By Step.

Black Ink Compensation

Black Ink Compensation, also known as **BIC** increases the use of black ink to maintain dark saturated colors.

One way to determine whether the BIC selection is valid is to print another Ink Limit swatch after setting the ink limits (prior to making a BIC setting). When reviewing this print you will want to look for a point from about 2.3 to 3.0 where the hue suddenly stops getting darker and actually gets lighter before getting darker above 3.0. Its been found that Red and Green (4/5) are typically the easiest areas to observe this. After setting a

BIC, you can print the swatch again to see if this lightening of the hue was corrected. Make adjustments as needed.

The following examples are typical of the settings we use in the Profiling Lab based upon the average Ink Limits (1-7):

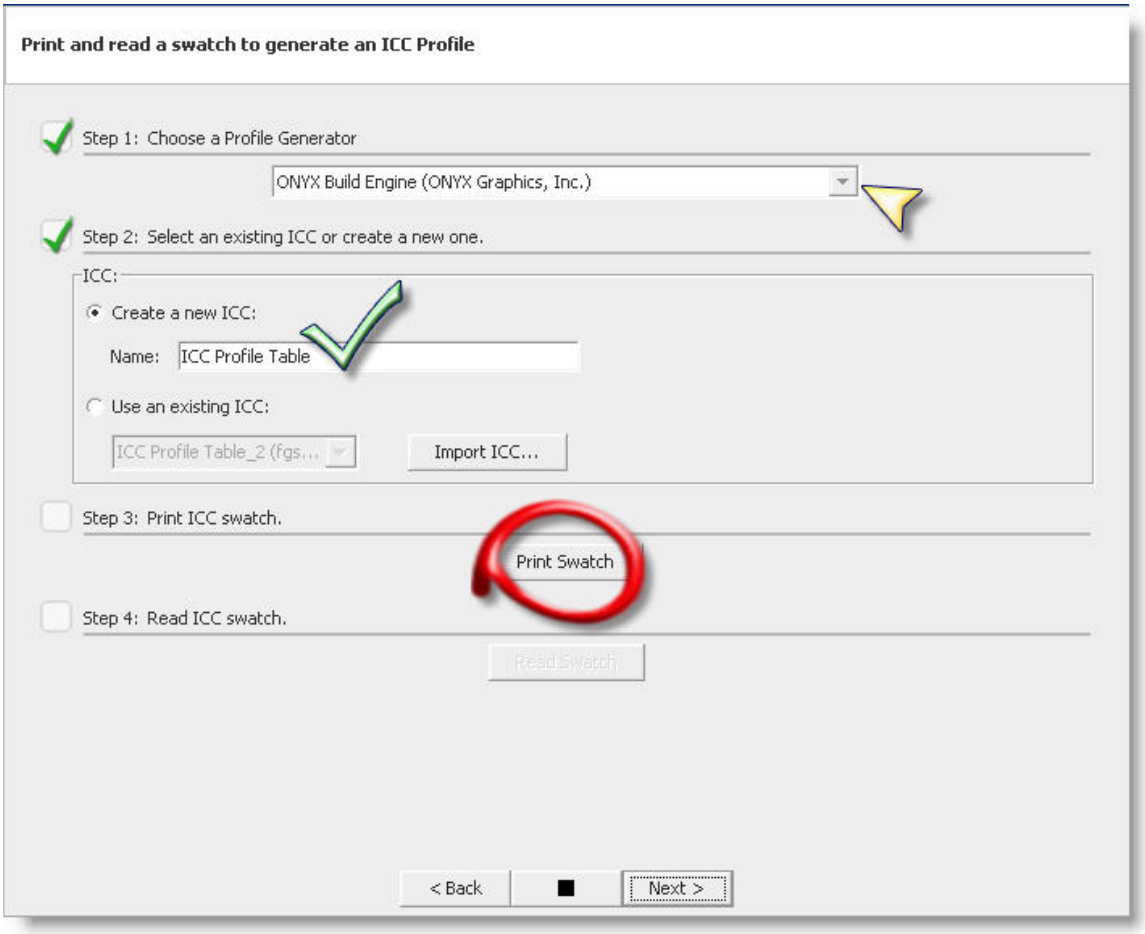
- 1.5 - 2.0 BIC = 4-5
- 2.0 - 2.5 BIC = 3-4
- 2.5 - 3.0 BIC = 2-3
- 3.0 - 4.0 BIC = 1-2

See Ink Limits.

Generating an ICC Profile

ICC

The next step is to print and read a series of swatches to generate an ICC profile.



Step 1: Choose the profile generator from the drop-down list. If you are using ONYX ProductionHouse to create your profiles the <ONYX Build Engine> is selected by default. Legacy users may also have Logo/Gretag as an option if purchased separately prior to version 7. This profiling workflow covers steps using the ONYX Build Engine.

Step 2: The default will automatically creates an ICC Profile Table. If you are creating multiple icc ouput files to R&D your setting, you can come back to this screen using the back button or access it by going to Edit Media. The next time you see this window you will want to rename the table with a sequential number to create a separate icc output file. Continue to Step 3.

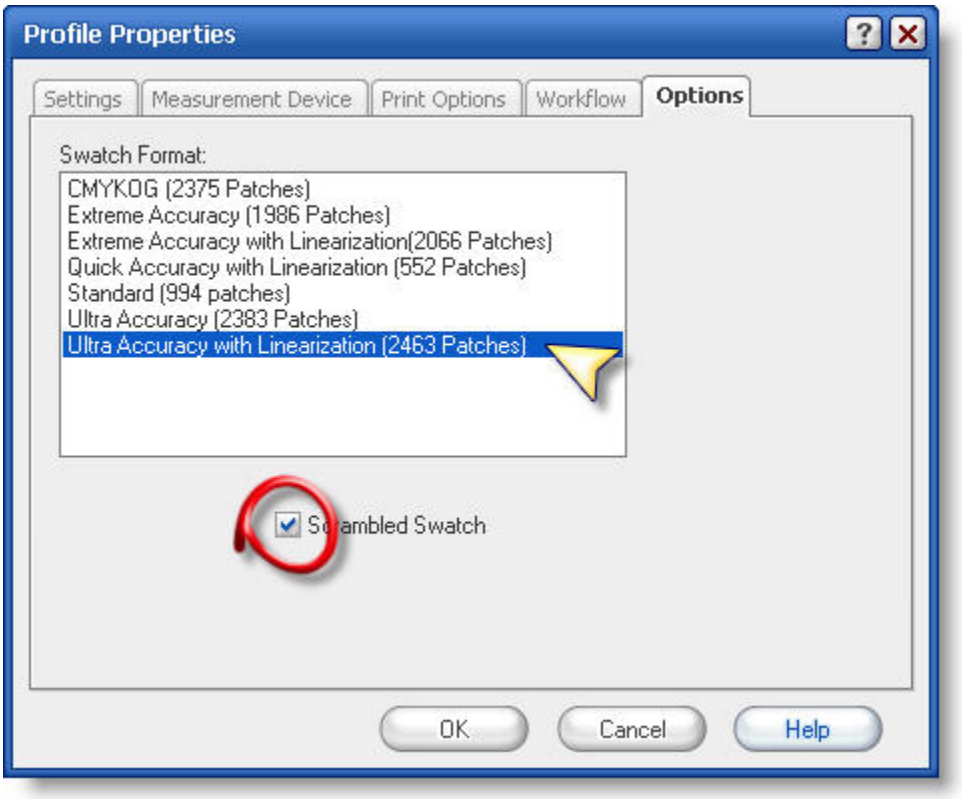
Tech Note: If you are Using 3rd Party ICC Color Profiling Engines to create your ICC file, you must save the media at this point using the stop button at the bottom of the screen and use your other software package to generate the .icc/icm file.

Step 3: Print ICC Swatch.

1. Click > Print Swatch and select the color sampling device from the drop-down menu.
2. If you want to use the default options, Click > Print.

Note: To modify the default options before printing the swatches, click > Setup.

- The **Settings** Tab displays profile name. type and settings. You can review the Printer Options, but it is strongly recommended not to make any changes.
- The **Measurement Device** Tab allows you to Add, Remove, or Setup a devices number of readings per patch or connectivity.
- The **Print Options** Tab allows you change the orientation of the print, selected page size and print label.
- The **Workflow** Tab allows you to change delete and hold operations and archiving properties.
- The **Options** Tab allows you to select the desired **Swatch Format**. The default selection is **Standard (994 swatches).**
    - ONYX recommends using **Ultra Accuracy with Linearization (2463 Patches)** for a more accurate profile.
    - Enable the **Scrambled Swatch** selection to vary the patches. This is recommended to reduce printer inconsistencies and possible user error when reading in the measurements.

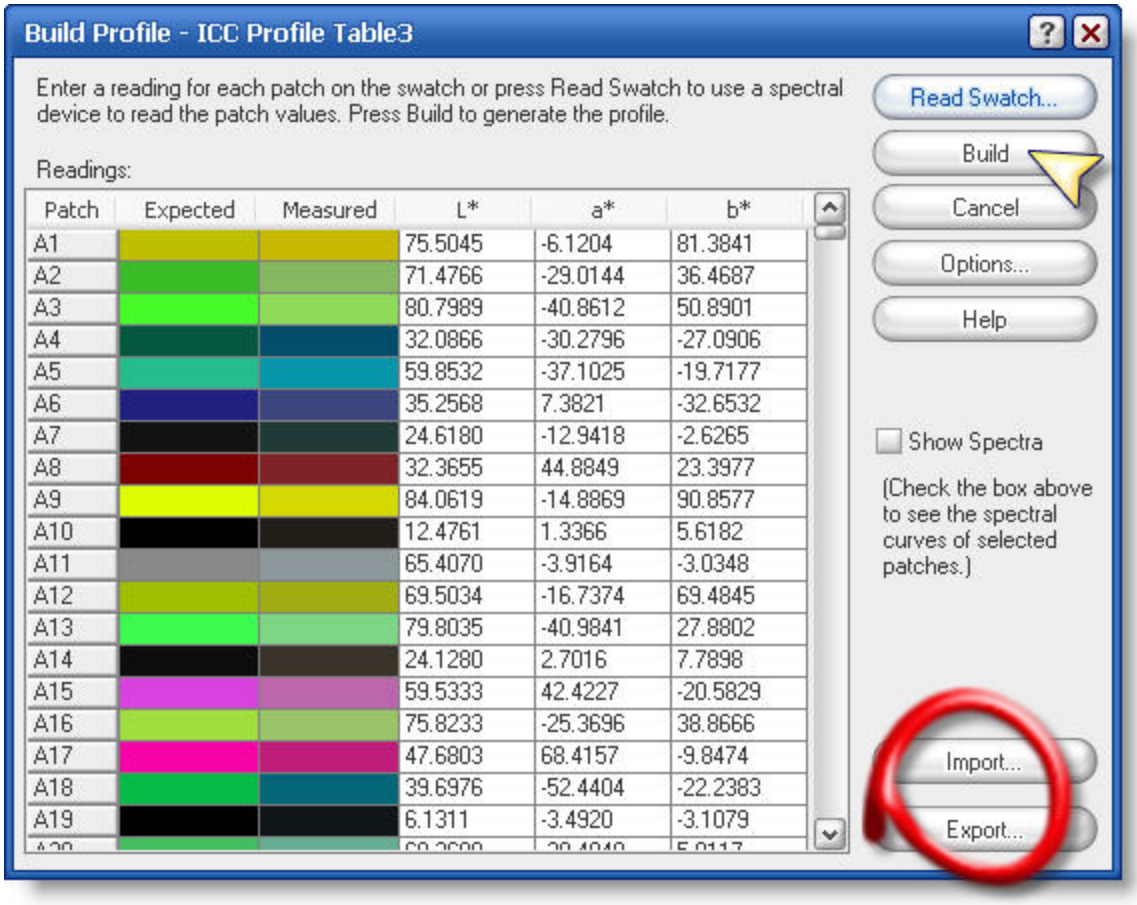


Note: The list of swatch formats matches the type of printer you are profiling. If you are profiling a **CMYKOG Printer** you must choose **CMYKOG Patches** and if you're profiling **CMYKRGB Printer** you must choose the **CMYKRGB Patches**.
Step 4: Read Swatches.

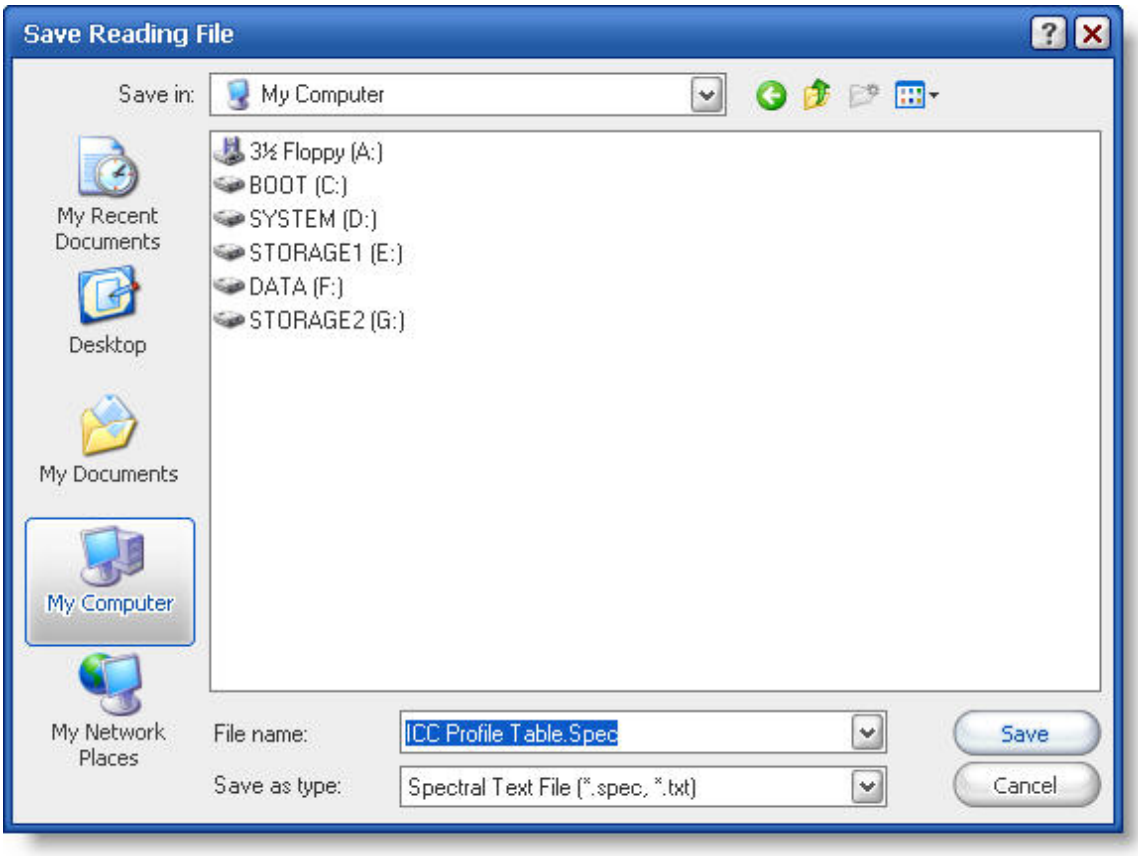
1. When the swatches are dry, click > Read Swatch to open the Build Profile - ICC Profile Table window.
2. Click > Read Swatch and follow the on-screen instructions for entering the data.
3. Click > OK to accept the readings. This will bring you back to the Build Profile - ICC Profile Table window.

If you want to build the profile using the default ICC Build Options , click > Build.

Optional Step - Importing and Exporting



1. This option allows you to reuse measurement data for building profiles with different ICC Build Options.
2. The file that is saved works when you are using the same patch set and initial media/mode options.
3. When you are done reading in your ICC swatches, click > Export to save the data to a .spec file.



Now that you've saved your measurement data you can continue building your profile with the default options or to modify the default ICC Build Options, click > Options before you click > Build.

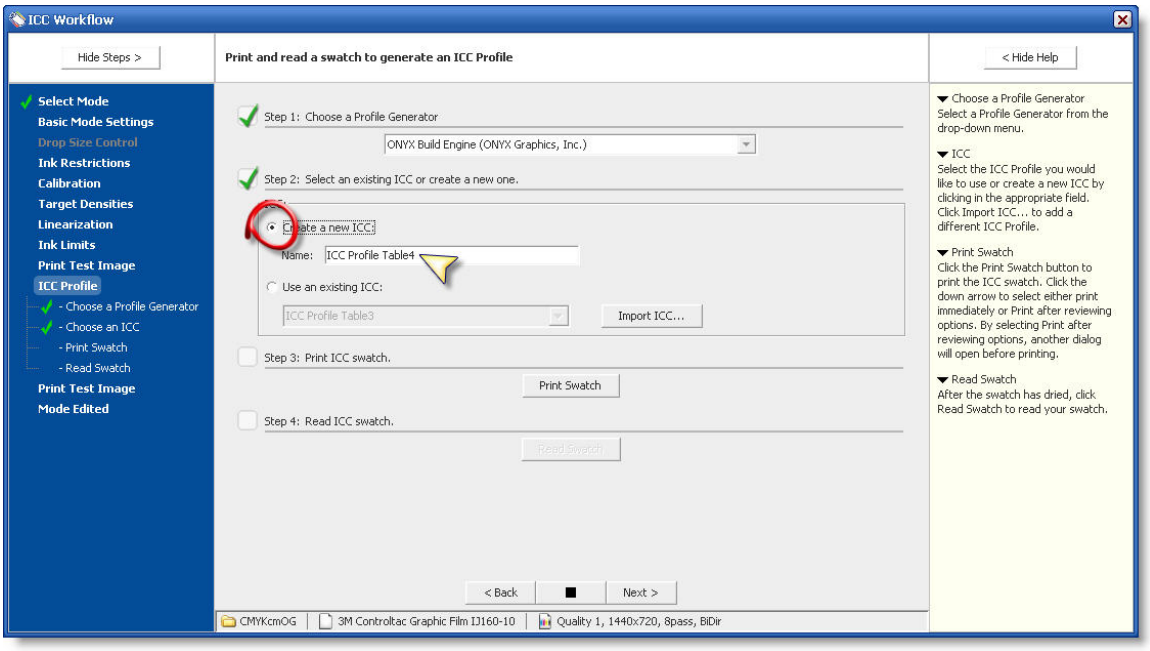
When the profile has completed the build process all of the steps will have green check boxes and you can click > Next to continue.

Once you have built your profile, you can go to the next step - Print Final Test Image.

To create multiple profiles based on previous measurements:

After you have created a default ICC profile table, you can modify the build options by clicking on the <Back> button.

If you want to override the existing profile, you only need to change the build options and click > Build.



If you want to create a new Profile table, select the radio button 'Create a New ICC" and give the table a new name for example "ICC Profile Table 4".

1. Click > Print Swatch to allow the Read Swatch button to become active.
2. and set the same swatch options for number of patches etc.
3. Click > Read Swatch and this open a browse dialog for you to select your data file.
4. When the data has been imported into table, you can click > Options to change the build settings as desired.
5. When you have made your desired selections click > Build and continue with your test prints as normal.

Note: You can do a similar step when analyzing calibration data by adding a Density Text file device and exporting/importing the density text file (for verifying calibration data).

Back to Ink Limits.

Back to Profiling Step By Step.

Analyzing the Final Output

What does a "good" profile look like?

When you look at ONYX Quality Test, remember your profiling purpose and review those areas of most interest.

A few things to look for include:

- Overall Image Quality
- B&W neutrality
- Contrast and detail
- Reflective surfaces
- Single color saturation
- Two color combinations
- Smooth color wheel
- Spot color matching
- 3C and 4C black
- Crisp lines and text

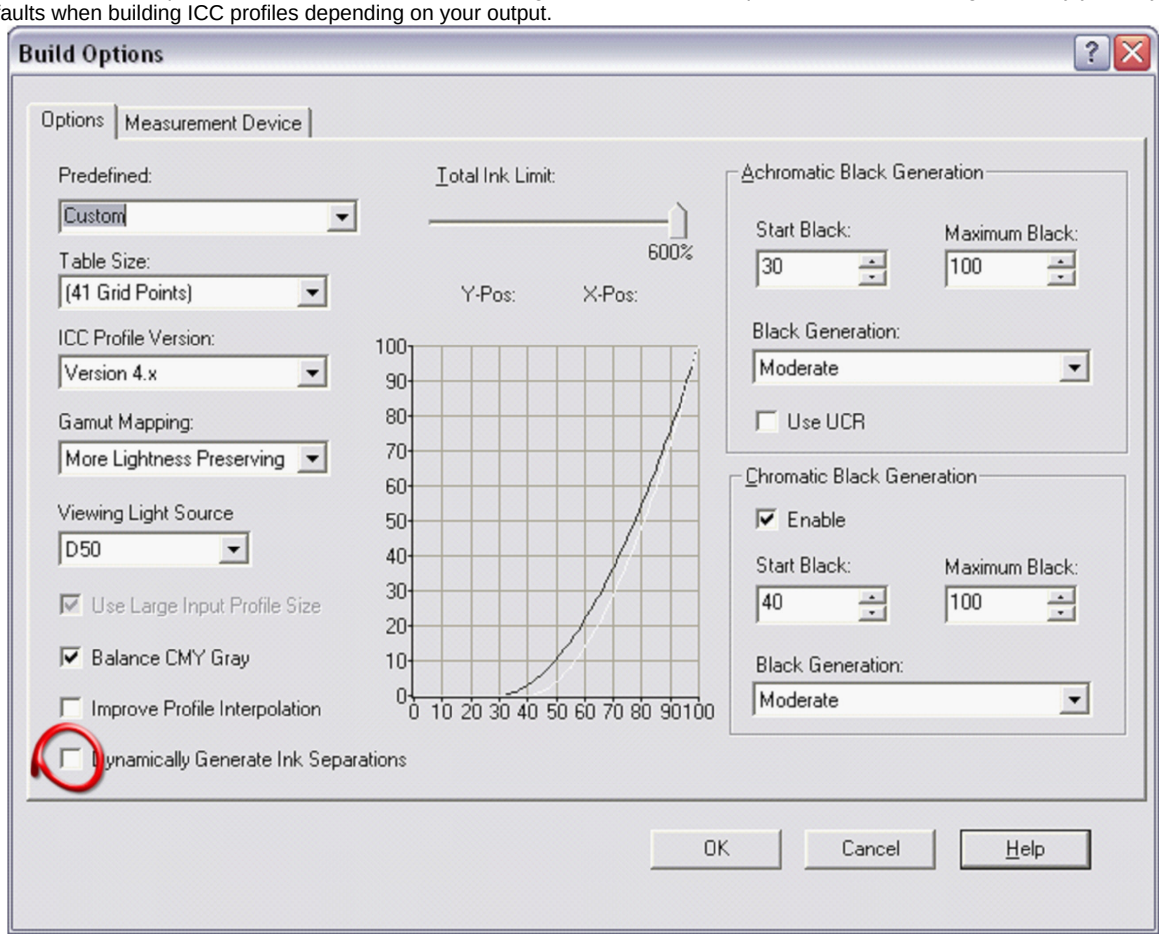
See Understanding Print Quality.

ICC Build Options

ONYX Profiling Engine - ICC Build Options

Overview Description

This document outlines the options within the ONYX ICC Build dialog. These definitions explain the different settings and why you may choose to edit the defaults when building ICC profiles depending on your output.



Predefined

- **Custom** - Use "Custom" to change the default settings. If you do not choose a predefined setting, the dialog automatically defaults to **Custom**.

Note: *Based on some initial testing, following are some additional predefined settings for the black generation and total ink limiting.*

- **Inks with Light Black (k)** - This tells Media Manager that the printer has an ink set with light black and allows us to start adding black earlier. Hence, the Start Black is set to 0.
- **Inks with Light Cyan (c) and Light Magenta (m)**- This setting tells Media Manager that the printer has an ink set that contains both c (light cyan) and m (light magenta) and sets some limitations on starting black earlier.
- **No Light Inks** - This setting allows you to set the Start Black lower which begins adding Black to CMY a little earlier.

Note: *Remember that these settings were created based upon color theory and you might need to change them as you test on different printer and media combinations. We may also introduce additional predefined settings as we learn the best configurations for specific modes.*

Table Size

- **41-Point Grid** - When output accuracy is of prime importance, users should opt for the 41-Point Grid setting. This is the default setting. ***Note:*** *This option determines the size of the output table in the printer profile. The accuracy of the profile, and the size, increases with the number of grid points (steps in the table). It also takes longer to build a larger table.*
- **33-Point Grid** - The 33-Point Grid setting is acceptable in the majority of cases.

ICC Profile Version

- **Version 4.x** - The ICC introduced this new profile specification in 2001 and this is the default option. As the latest specification, it has numerous improvements over earlier version in terms of flexibility and interoperability with other vendor profiles. Profiles built with ONYX comply with all of the 4.x specifications, but not all application support 4.x profiles so you may not be able to use them with third party applications.
- **Version 2.x** - This ICC specification is older and uses a different encoding which was less defined. This means that the same ICC profile could be interpreted differently depending on the CMM used. Most application support 2.x for viewing and implementation as an input profile. If your third party application does not support 4.x than you must build the ICC using 2.x.

Note: *Both 4.x and 2.x use 16-bit tables. ICC profiles built using the ONYX ICC Profile Generator can be used outside of the program or as an input profile in a proofing workflow. This complies with the current end-user agreement license.*

Viewing Light Source

This option is only available if you use a Spectrophotometer to read swatches. This allows building an ICC profile for target lighting other than D50. The following is a list of standard Illuminants specified by the CIE (Commission Internationale de l'Éclairage) - International Commission Illumination:

- **Lighting A** - This represents an incandescent light source like a tungsten filament.
- **Lighting C** - Represents average daylight.
- **Lighting D50, D65, D93**- The D-series illuminants represent different times of the day in an outdoor setting. D50 is a standard for Graphic Arts Industry. As the number increases from 50-93 the light gets more bluish (i.e. more bluish component is present).
- **Lighting: F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12** - These are the fluorescent light simulators.
    - **F2, F7, or F11 Illuminants** - These illuminants simulate most indoor lighting.
    - **F2** - Represents a typically cool white fluorescent source.
    - **F7** - Represents a broad band daylight fluorescent source. Examples of F7 are GE and Philips daylight fluorescent sources.

Note: *D50 is the default setting for the Graphic Arts Industry.*

Generally, if you know the type of lighting and the brand of the bulb you use to view the print, you can obtain the information from the manufacturer about the CIE standard illuminant they are simulating (http://www.cie.co.at/cie/). Then you can use that illuminant to build the profile. If the print will be viewed outdoors, then using either D50 or D65 is appropriate.

Gamut Mapping (Affects Perceptual Rendering Intent Only)

- **Classic Gamut Mapping** - Classic gamut mapping is the standard strategy for most users as it produces a maximum output gamut. This is the default setting.
- **More Lightness Preserving**- This gamut mapping strategy is best used when printer, ink, and media combinations produce a smaller gamut. This may be the case if Ink Restriction settings were set lower than typical. This strategy corrects for light colors, specifically yellow and lighter areas of the output gamut, where the color may appear dirty.

Use Large Input Profile Size

- This option is similar to the Table Size option except it allows users to build a bigger input table. The input table is used only when the profile is used as an input profile within ONYX for CMYK based images or in proofing workflows.

Note: *This setting is enabled by default. If the profile is intended to be used for proofing, using a large input table is recommended. It increases the accuracy of the transform.*

Balance CMY Gray

- Checking this option makes sure that a neutral gray is obtained using the optimal levels of CMY inks.

Note: *This setting is enabled by default.*

Improve Profile Interpolation

- Interpolation improves the accuracy of the boundary points within the gamut.
- It will helps expand the gamut by pushing out the boundaries and makes the edge points smooth.
- This is not based on any pre-defined model, our color scientist have developed this new modeling for more accurate mapping.

Note: *This setting is disabled by default because the processing takes longer to build.*

Dynamically Generate Ink Separations

- Innovative Dynamic Ink Separation technology improves the utilization of special printer inks.
- ICC profiles can now be generated for CMYK + Spot(s) configurations.
- This options is not used when profiling white ink because white is not a Chromatic color. See Chroma.
- Ink Separations are used to specify how to use Hifi inks or chromatic spots.
    - e.g. DUPONT Artistry w/ CMYK + V.
    - Chromatic Spots as seen in textile, packaging, and specialty printing.
    - See new ICC Build Option when working with unknown spot channels.
- When enabled this feature uses measurement data to determine *maximum chroma* ink separation.
    - This feature will always be available for profiling with spot colors.
    - This feature is not available if a Hifi color mode is not being profiled.

Note: *This option is only displayed when profiling a CMYK+ ink configuration. In all other cases, users will not see this options.*

This option is intended for users who are profiling a print mode that uses an ink sets with uncommon spot channels, i.e. CMYKXYZ (where XYZ is not OG or RGB). When this option is enabled, the software figures out what the color is and how to separate the channel dynamically to get the

maximum chroma. For example you could have a CMYKSS print mode and use Red and Purple in the spot channel and the software will allow you to generate an accurate profile based on patch readings by mixing the spot channels into CMYK. The nice thing about this feature is you don't need to create a custom ink configuration, you can choose CMYKSS and profile as normal.

Dynamically generated ink separations *can be used for profiling as an option* instead of our predefined *static* ink separations (for Hifi ink configs). In most cases you will see little gain in gamut if you use this option with CMYKRGB and CMYKOG. If you choose to use this option the results should at best be the same as our pre-defined static separations that are used with the option disabled. Generally the static separation give CMYKRGB and CMYKOG the best smoothness utilizing the pre-defined modeling.

It is not recommended to use this option with low gamut media. You can tell if you have a low gamut media during the Ink Restrictions step if your settings are very low because you're not putting enough ink on the paper to get a large gamut. This can happen if you have ink/media compatibility issues.

Total Ink Limit

- This slider allows you to adjust the total ink limit within the ICC profile. Usually done after the initial build - see note below.
- The default setting for a 4-6 color printer (CMYK, CMYKcm) is 400%.
- The default setting for a CMYKRGB printer is 700%.

Note: *The number displayed as the total ink percentage changes depending on the number of ink channels being profiled. If the ICC profile displays saturation issues on the test print, you can lower this value 5-10% to reduce the ink load. You must to rebuild the profile to accept the newer settings.*

Black Generation - GCR (Gray Component Replacement)

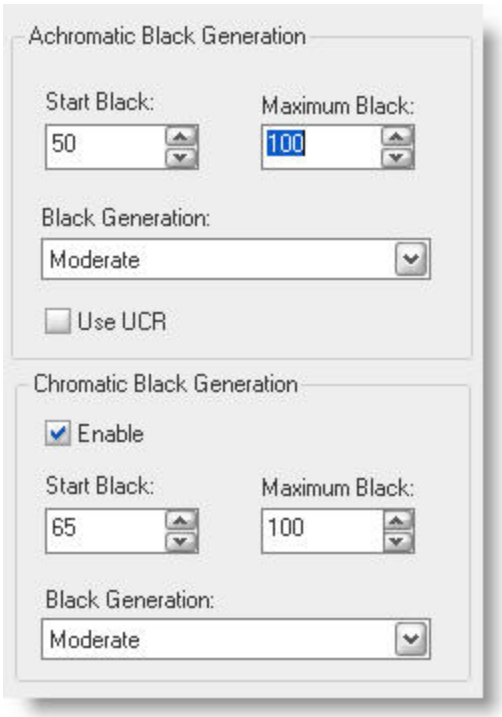
GCR - Gray Component Replacement. We are controlling how much black ink to add used based upon a grayscale CMY ink image. The start point is the point relative to CMY ink where black ink is added. If there is any removal of CMY it is due to an adjustment of Total Ink.

There are two (2) separate GCR controls for the output gamut. They are separated into *Achromatic* and *Chromatic* regions. The two controls do not compete with each other, but work in combination for overall GCR control.

- **Achromatic** - The Achromatic section controls the neutral colors (i.e. gray C=M=Y).
- **Chromatic**- The Chromatic region includes the non-gray gamut surface colors (i.e.CMY highly saturated colors, those found in the outer lower regions of L*a*b*).
  Note: *This ONYX exclusive feature gives the user total control over the gamut size achievable with Black Generation.*
- **Start Black** - Start Black is where "black" (K) is introduced into the color mix (CMY).
- **Maximum Black** - Maximum black is set to 100.
- **Black Generation** - Black Generation determines the "curve" or the rate at which black is added into a particular gamut region.
  - MaxK is the most aggressive.
  - NoK will not use any black.
  - Moderate is the default and is closest to a traditional GCR 3 setting.

Black Generation Tips

- If you want your gray colors to include more black, lower the Achromatic value and use a more aggressive curve.
- If you want the darker, more saturated colors to include more black, lower the Chromatic value and use a more aggressive curve.
- Having a lower start black for chromatic region allows us to achieve dark saturated colors increasing the gamut size. But this might not be always desirable so we can increase the Start Black only for chromatic region without compromising the neutral darks.
- The Black Generation default settings are:



- Achromatic = 50.
- Chromatic = 65.
- The default curve for both is Moderate.

Why do we use Black Generation for building ICC profiles?

In an ICC profile there are two tables that convert color between device space (printer inks) and device independent space (LAB). If we have a printer with CMYK ink, the conversion from L*a*b* to CMYK becomes a little tricky because an L*a*b* value can be generated using different combinations of CMY and K but only one combination needs to be used. The aim, usually, is to get as big a gamut as possible. But having a really big gamut is not always desirable because this might introduce peppering into the lighter areas. Black Generation gives you the additional control to prevent these issues.

By selecting a particular Black Generation setting, we are pre-selecting a specific "recipe" to move from L*a*b* to CMYK as well as selecting a specific Gamut Mapping strategy, too.

The Start Black value determines when to start adding black ink into the CMY combination. For example, let's say that the Start Black selected is 50. This ensures that there is no black ink present when the minimum value of CMY is below 50. So, CMY patch values like (49, 49, 49), (49, 58, 75), (40, 100, 90), (0, 100, 100) will have 0 black, because the lowest of these values is below 50.

In the ICC Build Options graph, the x-axis is this minimum CMY value and the y-axis is the black ink that we will get for that minimum CMY with the corresponding settings of black generation.

Black Generation - UCR (Under Color Removal)

UCR - Under Color Removal. We are controlling how much CMY ink to add based upon a grayscale Black ink image. The start point is the point relative to black ink where CMY ink is added. (Not adding CMY ink is equivalent to removing it.)

This method of black generation that uses black only in the neutral and gray areas, which is why the selection is only available under Achromatic. When you enable this check box the opposite rules apply. With GCR you start with CMY values and introduce black and a certain percentage. With UCR you start with only black and introduce CMY and a certain percentage. The curves also work in reverse as seen on the graph.

Using UCR helps to improve gray balance and Metamerism and is mostly used when creating black and white output. Depending on the printer technology, it may produce more course output in the lighter areas and overall you're going to use a little less ink. From a distance you get better neutrality and contract.

Prints will look more grainy because you're taking away what GCR gives you in smoothness. GCR removes that black ink in the lighter areas and replaces it with CMY and because the contrast between the black ink and the colored inks is less it becomes less noticeable. A black dot on white paper has more contrast regardless of the size of the dot.

When to use GCR and UCR simultaneously?

The best reason to use both is when you intend to print black and white images (photo) or if your printer uses a light black ink. You want your light gray areas to be stable and not color shift while also keeping your 3 color light areas in an image uncontaminated with black dots which will result in "peppering".

- When the UCR option is checked - it is ONLY being applied to the Achromatic Black Generation. (This method is not used for Chromatic Black Generation in any scenario).
- When the GCR option is checked - it is being applied to the Chromatic values within the profile and is the traditional method for Black Generation.
- Using both allows you to control Neutral gray and Saturated colors separately.
- When ONLY the GCR option is checked, it will apply the method (CMY, then add K) to both Achromatic and Chromatic values.

16-bit Color

Benefits vs. Cost of 16-Bit Color Rendering

The primary benefit of true 16-bit color rendering is improved smoothness in gradients. However, to achieve this result, the RIP process must deal with twice as much data per pixel, which has a impact on RIP speed and memory/storage usage. ONYX 16-Bit Color Support

All of the ONYX Version 7 products include support for 8-bit and 16-bit image files. This means you can open any 16-bit image type supported by ONYXV7 and process and print it. ONYX 16-Bit Color Pipeline

All of the critical components of the color pipeline in Version 7 are also 16-bit, namely: * 16-bit Linearization (a.k.a Calibration)

- 16-bit Color Management
  - Generates 16-bit ICC Profiles
  - Applies ICC profiles in 16-bit color
  - Automatic 16-bit PANTONE® Spot Color Matching
- 16-bit halftone screening Additionally, the Postscript/PDF engine in ONYXuses a advanced dithering techniques for smooth color blends in both 8-bit and 16-bit files.

Achromatic

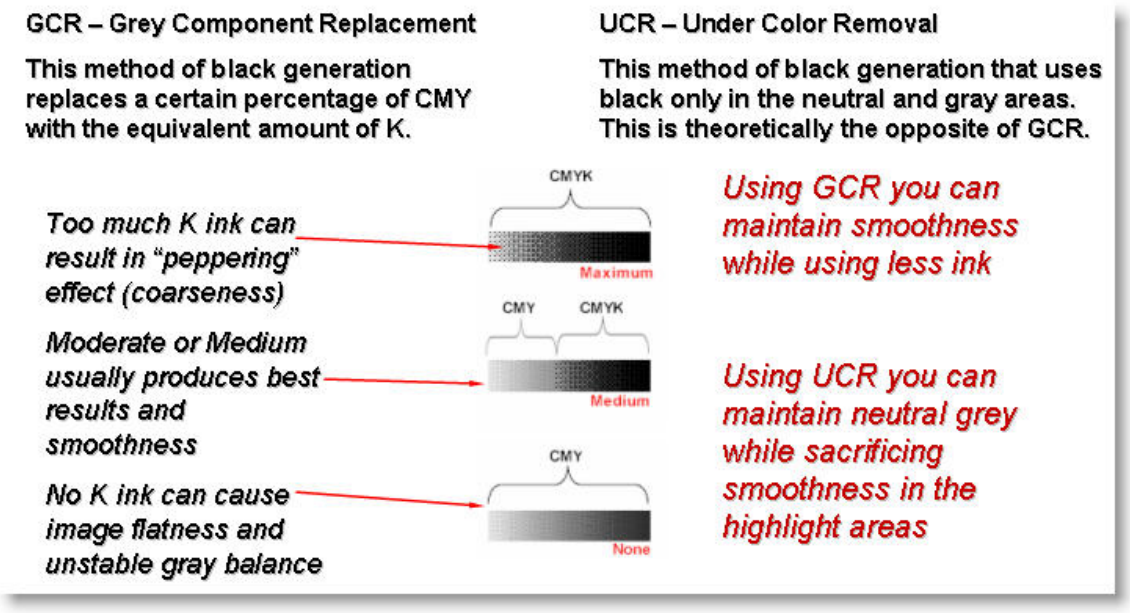
Refers to the neutral colors (i.e. gray C=M=Y) that are mapped within a profile.

See ICC Build Options.

Black Generation

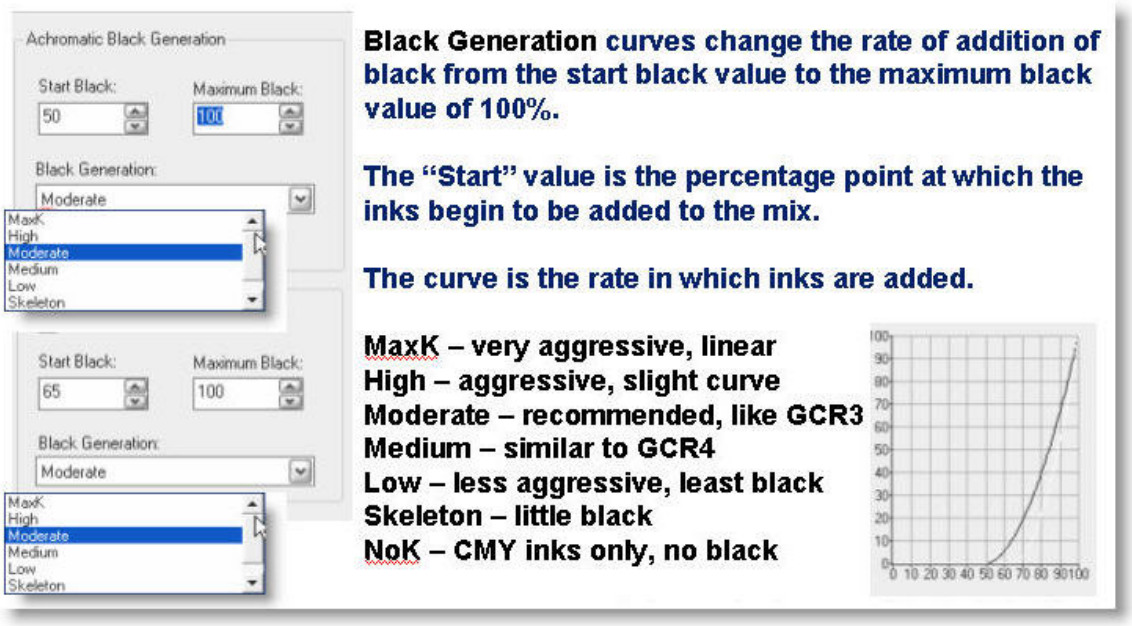
Black generation settings define the relationship between Black and CMY inks. This is the process of adding Black (K) ink to Process Colors when converting from RGB to CMYK. The addition of black ink provides the opportunity of getting the same measurable color in multiple ways. Profiles only store a single device output combination (recipe) for each measured color. Black generation rules are applied to select only a single way of combining black ink with other inks to get a single combination for each measurable value. Apply engine now uses **Tetrahedral Interpolation.**

Usually handled through UCR or GCR methodologies.



ONYX Profile Generation separates "Black Generation" into two general regions:

- Achromatic - Colors near grayscale (C = M = Y)
- Chromatic - Non gray colors (C M Y)
- Separate control allows for trade-offs to be localized.



Black Generation drop-down:

- Determines the shape of the "curve" or rate at which black is added (i.e.: NoK, MaxK, Moderate)
- Determines how abruptly the transition to black occurs

See ICC Build Options.

GCR

GCR (Gray Component Replacement)

A method of black generation that replaces a certain percentage of CMY with equivalent amount of K. Creates the optimal balance between three and four-color black.

In Four-color Process Printing, black is made up of a combination of the three primary colors. GCR determines how much black to print with black ink, and how much black to print with the remaining three colors where those three inks overlap.

Within ONYX, we are controlling how much black ink to add used based upon a grayscale CMY ink image. The start point is the point relative to CMY ink where black ink is added. If there is any removal of CMY it is due to an adjustment of Total Ink.

See ICC Build Options.

Also known as Skeleton Black Generation when used in converting RGB files to CMYK.

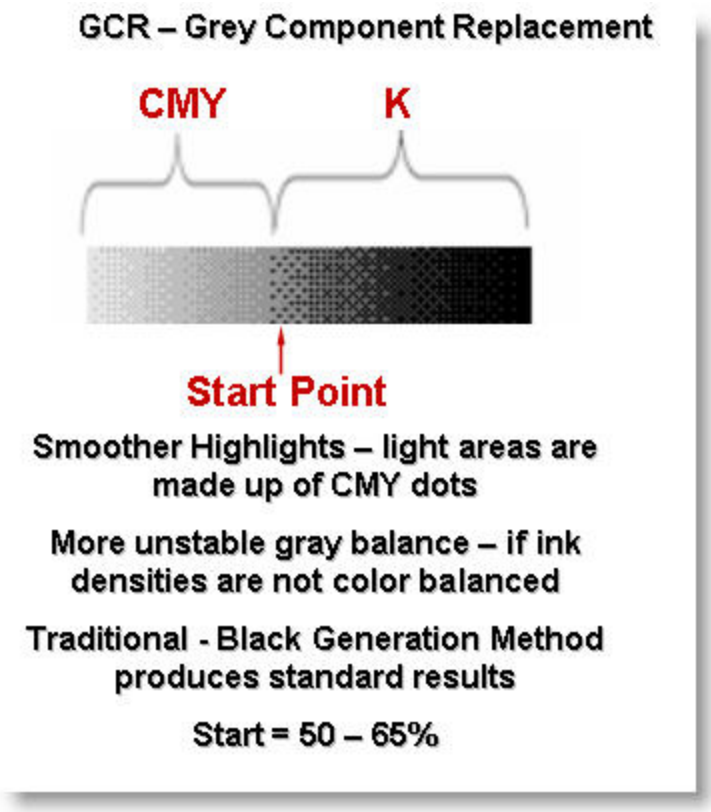
See Black Generation.

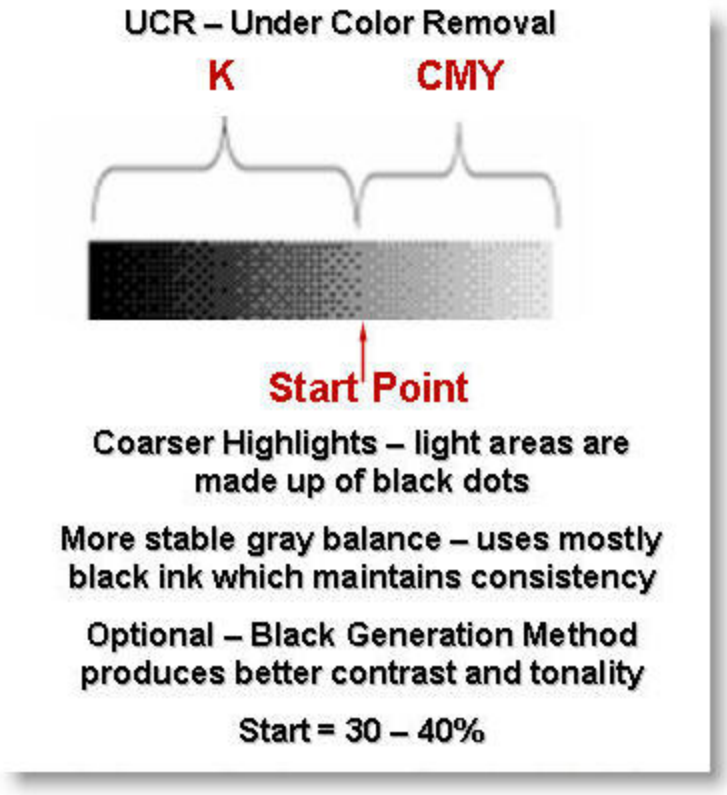
See UCR.

Tetrahedral Interpolation

2D Interpolation vs. Tetrahedral Interpolation
In 2D interpolation you consider four points around the area you want to determine to figure out the value of the color in the middle. You also need to consider the distance between those four points and the farther way the points the less accurate the final value. That is considered a normal interpolation process.

With Tetrahedral Interpolation you take the original four points and sub-divide the area into triangles, thus utilizing three points for more accuracy. When the value you want to determine falls into one of the triangles you are now only using three points in the area and ignoring the fourth point. What is exceptional about applying





Tetrahedral interpolation is that when your point lands on the diagonal, the point only references two points between the diagonal and not the third point.

The real issue with determining a a neutral grayscale is that those values always are defined by diagonal. The new apply engine significantly improves how these points are determined. A 2D interpolation between two points depending on the value of the points, means you may be neutral gray at the higher and lower ends of the gradient, but somewhere in the middle you are "less than gray". The output exhibits a "ringing" effect from cyan to magenta in your grayscale gradients. ***With the Tetrahedral Interpolation you no longer see this issue and the overall processing is faster.***

See ICC Build Options.

UCR

UCR - Under Color Removal.

A method of black generation that uses black only in the neutral and gray areas.

Within ONYX, we are controlling how much CMY ink to add based upon a grayscale Black ink image. The start point is the point relative to black ink where CMY ink is added. (Note: Not adding CMY ink is equivalent to removing it).

Creates the optimal balance between three and four-color black.

The process of reducing the smallest Halftone Dot in areas where yellow, magenta, and cyan all print, together with quantities of the other two colors, sufficient to produce a neutral gray, and replacing that color with black ink.

See ICC Build Options.

See GCR.

See Black Generation.

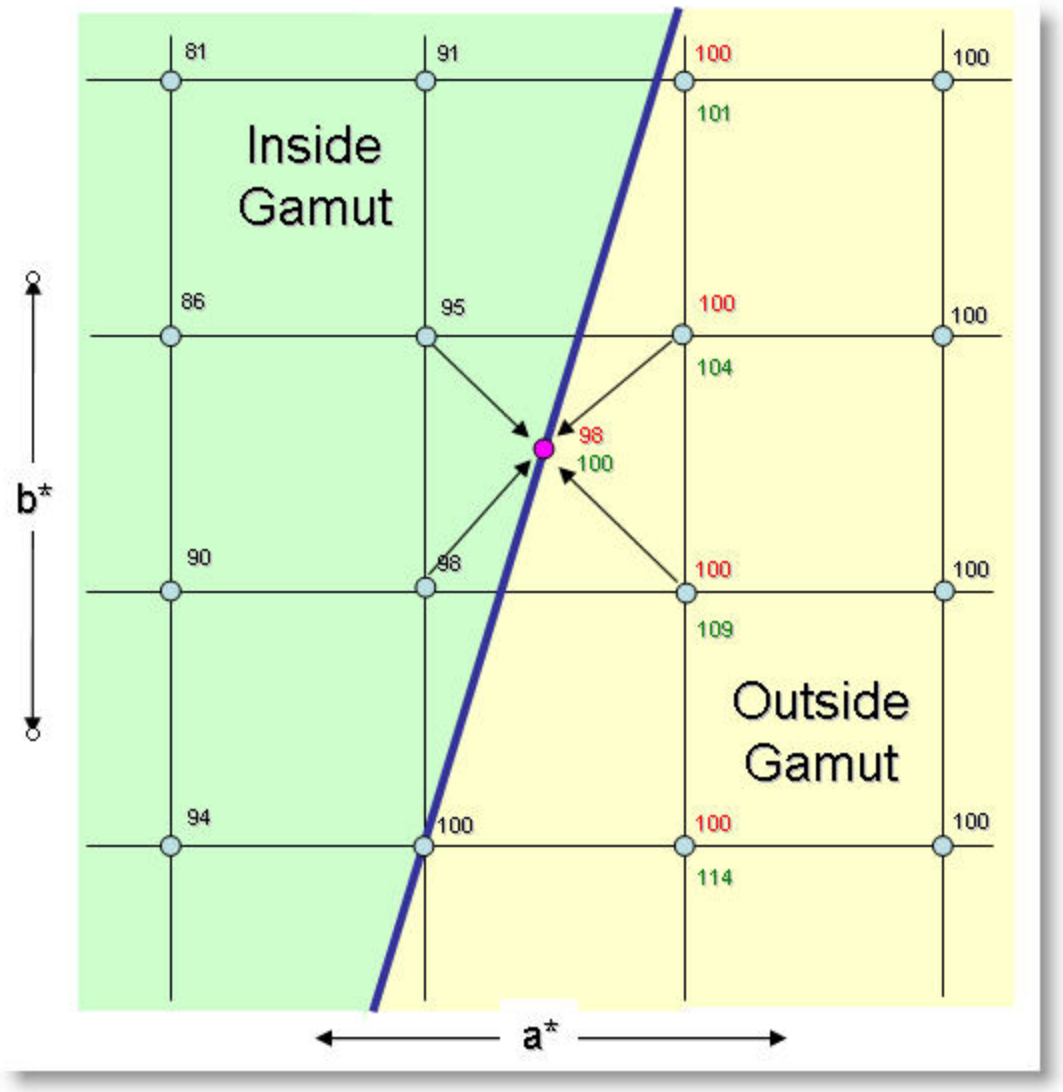
Chromatic

When building a profile, the Chromatic region includes the non-gray gamut surface colors (i.e.CMY highly saturated colors, those found in the outer lower regions of L*a*b*).

Note: *This ONYX exclusive feature gives the user total control over the gamut size achievable with Black Generation.*

See ICC Build Options.

Improve Profile Interpolation

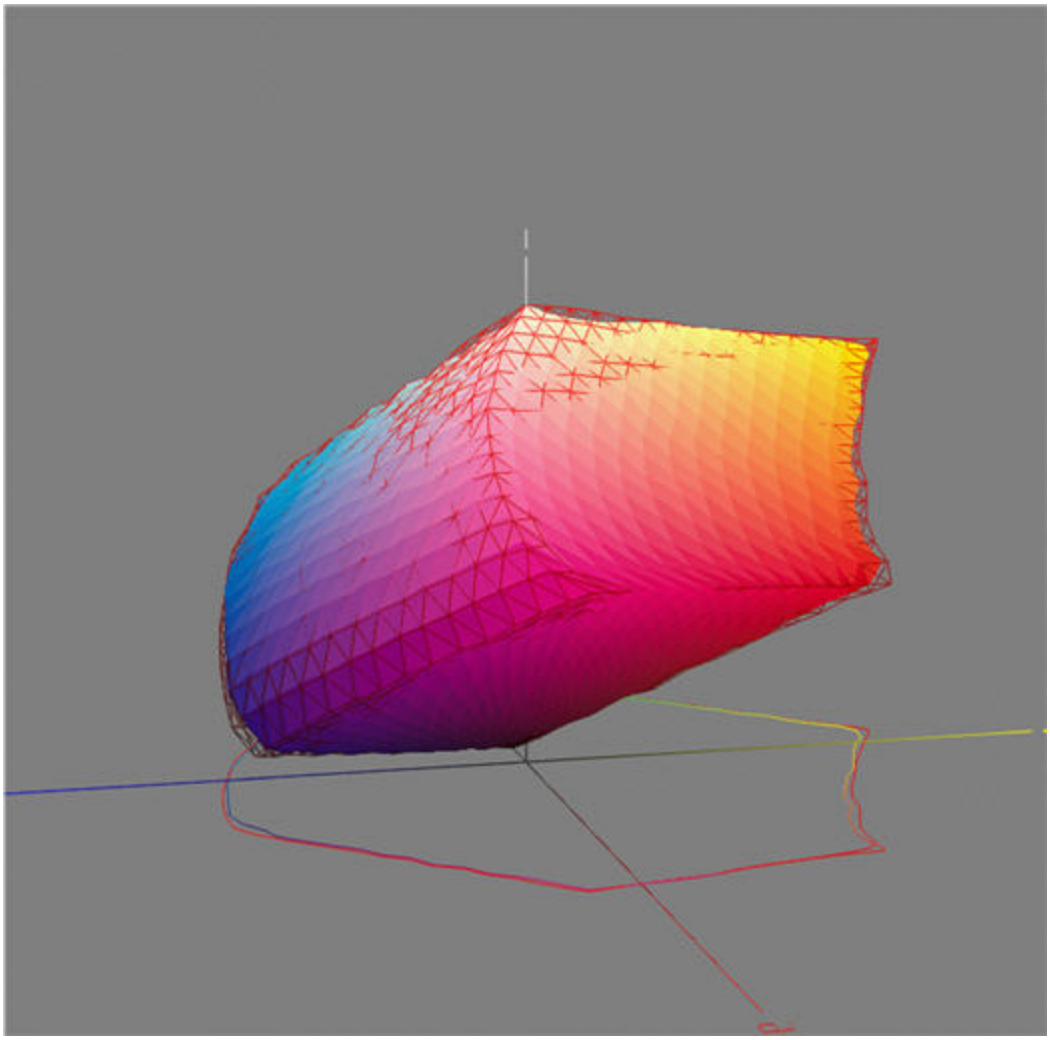


- Interpolation accuracy may be improved by adjusting points outside but near the boundary of the gamut
- It tries to expand the printable gamut by making the edge points smoother
- Uses custom ONYX extrapolation techniques
- More beneficial with fewer grid points

Note: *This setting is disabled by default because it takes much longer to build the profile.*

Sample Comparison

- Solid - Improved Interpolation turned OFF
- Wireframe - Improved Interpolation turned ON



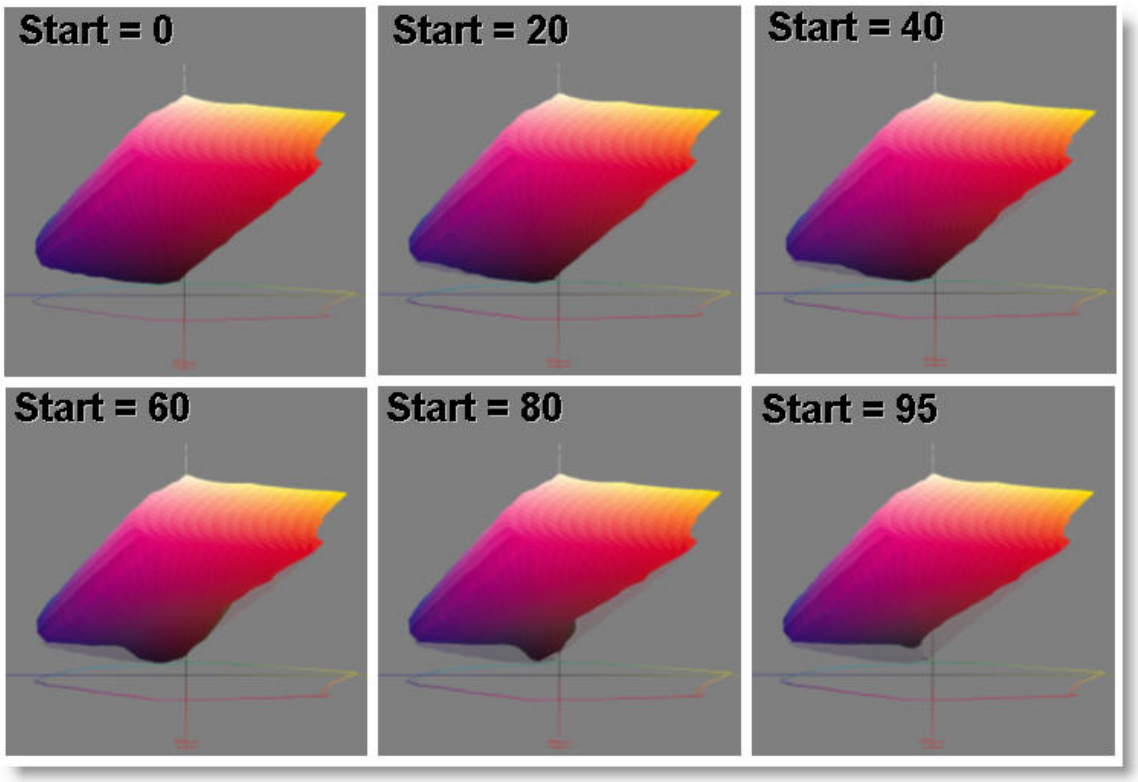
See ICC Build Options.

Start Black

Here are some examples of how your "Start Black" value can change the size and shape of your gamut.

Profile Build Settings

- Photo Glossy Media
- Aqueous Dye based Ink
- 33 Grid Points
- Total Ink Limit = 400%
- Black Generation set to Moderate
- Different views represent use of different Start Black settings
- Semi-transparent sections show comparison to Start Black set to zero



Lower Black Start observations:

- Generally results in larger gamut giving better rendering of darker more saturated colors
- Can result in more color constant grayscale for Achromatic color combinations
- Can cause profile to be less accurate since swatches have lower granularity when black is added
- Can make output appear more grainy
- This is especially true if light cyan and light magenta are used without light black

Note: *Converse observations can be made of higher Black Start.*

See ICC Build Options for more details.

Print Final Test Image

Print Final Test Image

The next step is to print a final test image using your newly created profile. You can also do this step within RIP-Queue or Preflight. This step allows you to review your final profile on a known image and specific color management options applied. By using a known image you are creating a baseline for your target which helps set expectations for future profiles.

You can create your own test file with specific types of images you print most often. A test image should contain the following elements: CMYK, RGB, and B&W images, gradients, Pantone colors, color wheels, text at various font sizes, Process K and 4 color K, and any other images or elements you find useful.

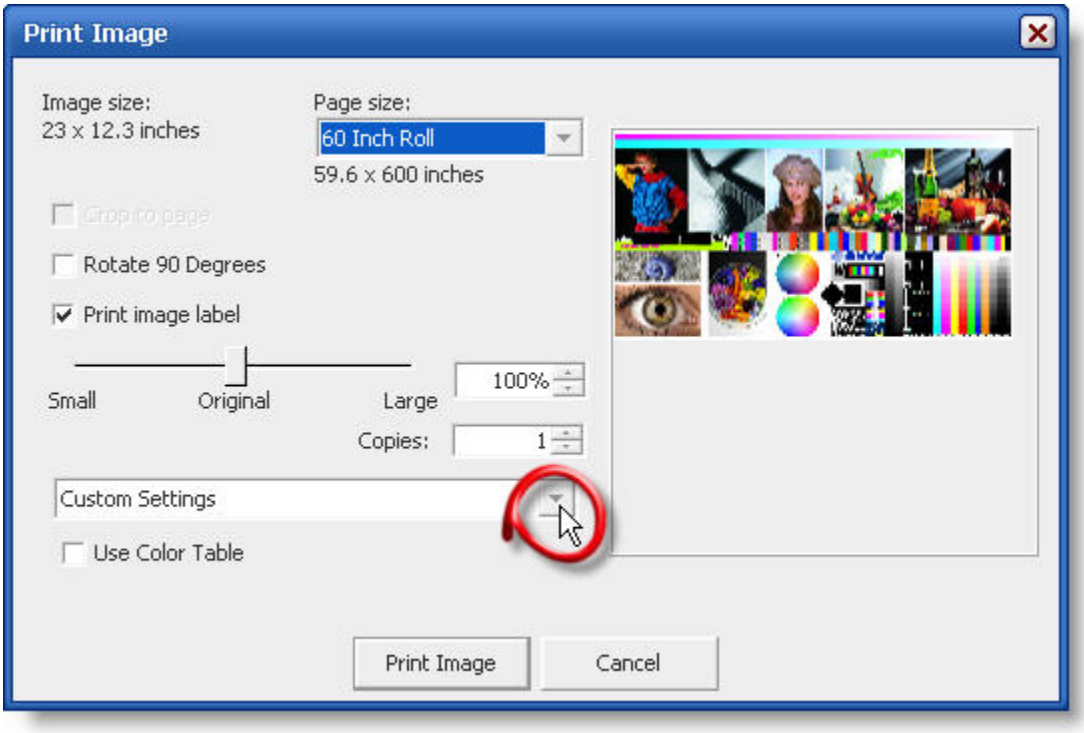
1. Use the drop down list to select from the pre-loaded files or click > other to browse and load a custom test file.
2. Click > Print Test Image to display the Print Image window.
3. Modify the Page size, orientation, label, scale original and color management options as desired
4. Enable the "Use Color Table" for referencing the Pantone library if you are evaluation spot colors.
5. Click > Print.

Tech Note: The color management default in Media Manager is set to "All ICC Profiles On" which works well for most images. This dialog controls the input profiles and rendering intents used in the color conversion along with the output profile properties. This pre-set defines the current Adobe color settings and input profile selections:

- CMYK: US Web Coated (SWOP) v2.icc
- RGB: sRGB_IEC61955_21.icm

The pre-loaded files are designed to be evaluated using the "Default" input profiles and rendering intents. "ONYX Quality Test" is a great test image because it includes all of the image types and elements listed above. "Photo Quality Test RGB" and "Wine and Cheese" are both RGB images which you can choose to evaluate with other color management options.

To change the color management options for evaluation ONYX Quality Test, please do the following:



Use the "All ICC Profiles On" drop-down list to select "Custom Settings".

The ICC Profile Setup window opens.

On the Profiles tab, use the drop-down list to select the desired input profile, or choose <Browse...> to load. The profiles in this list are located in the ONYX root directory in the "Profiles" folder by color space. If you copy/paste other files into these folders they will display within the list for future use.

On the Rendering Intents tab verify that the settings are Image: Perceptual and Vector: Saturation.

Click > OK to accept.

Click > Print Image.
This is your target output. You may wish to try different build options after reviewing the test print.

1. Click > Back to the previous window that displays the print/read swatch buttons and the Name: ICC Profile Table.
2. Click > Read Swatch > Options to access the ICC Build options dialog.
3. Edit your selections. This will rewrite the "ICC Profile Table" with the updated build.

You can also create a new ICC file by entering in a new name for example:ICC Profile Table _ 2 before changing your opions. This will produce a separate file in the library. The last file created is set as the "Default". If you have created several R&D test files you can set the desired "Default" using the right-click options within View Media Library.

If you created a test print before the ICC step you can compare the two prints and analyze the final output.

Review the following tips for Analyzing the Final Output.

See Understanding Print Quality.

Once you have Generated your ICC Profile click > Next > Finish.

The media profile is now added to your media profile library and can be used anywhere within ONYX, i.e. RIP-Queue, Preflight, and Layout.

Back to Profiling Step By Step.

Back to Table of Contents.

Print Test Image

Print Test Image

The next step is to print a final test image using your newly created profile. You can also do this step within RIP-Queue or Preflight. This step allows you to review your final profile on a known image and specific color management options applied. By using a known image you are creating a baseline for your target which helps set expectations for future profiles.

You can create your own test file with specific types of images you print most often. A test image should contain the following elements: CMYK, RGB, and B&W images, gradients, Pantone colors, color wheels, text at various font sizes, Process K and 4 color K, and any other images or elements you find useful.

1. Use the drop down list to select from the pre-loaded files or click > other to browse and load a custom test file.
2. Click > Print Test Image to display the Print Image window.
3. Modify the Page size, orientation, label, scale original and color management options as desired
4. Enable the "Use Color Table" for referencing the Pantone library if you are evaluation spot colors.
5. Click > Print.

Tech Note: The color management default in Media Manager is set to "All ICC Profiles On" which works well for most images. This dialog controls the input profiles and rendering intents used in the color conversion along with the output profile properties. This pre-set defines the current Adobe color settings and input profile selections:

- CMYK: US Web Coated (SWOP) v2.icc
- RGB: sRGB_IEC61955_21.icm

The pre-loaded files are designed to be evaluated using the "Default" input profiles and rendering intents. "ONYX Quality Test" is a great test image because it includes all of the image types and elements listed above. "Photo Quality Test RGB" and "Wine and Cheese" are both RGB images which you can choose to evaluate with other color management options.

To change the color management options for evaluation ONYX Quality Test, please do the following:

Unable to render embedded object: File (Print_Image_CustomCM.jpg) not found.

1. Use the "All ICC Profiles On" drop-down list to select "Custom Settings".
2. The ICC Profile Setup window opens.
3. On the Profiles tab, use the drop-down list to select the desired input profile, or choose <Browse...> to load. The profiles in this list are located in the ONYX root directory in the "Profiles" folder by color space. If you copy/paste other files into these folders they will display within the list for future use.
4. On the Rendering Intents tab verify that the settings are Image: Perceptual and Vector: Saturation.
5. Click > OK to accept.
6. Click > Print

This is your target output. You may wish to try different build options after reviewing the test print.

1. Click > Back to the previous window that displays the print/read swatch buttons and the Name: ICC Profile Table.
2. Click > Read Swatch > Options to access the ICC Build options dialog.
3. Edit your selections. This will rewrite the "ICC Profile Table" with the updated build.

You can also create a new ICC file by entering in a new name for example:ICC Profile Table _ 2 before changing your oprions. This will produce a separate file in the library. The last file created is set as the "Default". If you have created several R&D test files you can set the desired "Default" using the right-click options within View Media Library.

If you created a test print before the ICC step you can compare the two prints and analyze the final output. Review the following tips for Analyzing the Final Output.

Once you have Generated your ICC Profile and you are happy with the results, click > Next > Finish. The media profile is now added to your media profile library and can be used anywhere within ONYX, i.e. RIP-Queue, Preflight, and Layout.

Using 3rd Party ICC Color Profiling Engines

Much of the profiling workflow is the same when using a 3rd party ICC color profiling engine within ONYX.

You can use Media Manager to Create a Media and follow the same basic procedure until you reach the ICC step. At this point you have two options for printing the ICC swatches that cames with your 3rd party profiling package. You can either print the swatches through Media Manger or through RIP-Queue.

To print through Media Manager:

1. Go to the Print Test Image step using the Back button and browse for the the ICC swatches that came with your 3rd party software on your computer and click > Print Swatch.

2. Read the swatches into your 3rd party package and build the profile with the desired options. Note: Every Profiling engines includes different build options.

3. Save the .icc or .icm file to a known location.

4. On the ICC step within Media Manage, click >Import and browse for the file to apply.

5. Click > Next to Print a Test Image with the ICC applied.

6. Continue with the wizard until you reach the > Finish step.

To print through RIP-Queue/Preflight:

1. Click the Pause button in Media Manger to save the Media. Click > Yes to save your changes up to this point and exit Media Manager.

2. In RIP-Queue create a QuickSet with this media/mode and make sure your color management is set to "All Profiles Off".

3. File > Open the ICC swatches that came with your 3rd party software into RIP-Queue and make sure you select the correct QuickSet.

4. Read the swatches into your 3rd part package and build the profile with the desired options.

5. Save the .icc or .icm file to a known location. Once you have the ICC file ready to import, you can resume your profile session in Media Manager.

6. From the Home window in Media Manager, click > Edit Profiles > Resume Profiling Session.

7. Select the media and click > Resume. This will take you back to the ICC step.

8. Click >Import and browse for the file to apply.

5. Click > Next to Print a Test Image with the ICC applied.

6. Continue with the wizard until you reach the > Finish step.