

Océ | Arizona GT & XT Printers

Application Bulletin

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Media Model and ICC Profile Creation Guidelines

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

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Scope

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

Pre-requisites

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

Ink Configurations

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

- 1. Highlight your printer and click > Media Manager.
- 2. Click > Configure Devices > Configure Printer Capabilities and ensure that ink configurations required are enabled.

🎨 ProductionHouse Media	ı Manager	
File Go Help		Oce Arizona 550 GT-New
🔥 Home > 🍦 Configure I	Devices > 🍃 Configure Printer Capabilities	// ONYX
5 E	Ink Configurations	
Surface (CMYK Express	
Page Sizes	CMYK Production	
	CMYK Quality	
	CMYK Fine Art	
Resolutions		
0,0,0	Children Children	
2222	CMYKW Quality	
Dot Pattern	IS CMYKW Fine Art	
	CMYKW 8 level	
Ink Configurat	ions l	
Processing Onl	hinns	

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

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

Creating a Media

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

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

Basic Media Settings

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

Hide Steps >	Define the basic settings for this media	< Hide Help
New Media Basic Media Settings	In Configurations Sint Couldy Sint Couldy Decrement of the section Optime the private settings for this media Define the private settings for this media Define the private settings for this media Page Stars © Page Stars © Stars	 Unit Configuration Clok the down-row, and soletter Clok the down-row, and soletter Configuration determines how the Configuration determines and soletter agentice. Spot Calar Solution After solution agent with agent configuration determines how the Configuration determines how the Configuration determines how the Configuration determines and the Con

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

Printer Options
Device: Oce Arizona 250 GT Media: Generic-max-ink-quality [APS-Jul-07]
Print Direction: Bi-directional
Overprint Count:
☑ Layout Preview (Flatbed only)
✓ Hold for printer operator (Roll-to-roll only)
Default Layout Preview
OK Cancel <u>H</u> elp

Basic Mode Settings

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

- Select Resolution:
 - Production 446x301
 - Express 446x451
 - Quality 446x451
 - Fine Art 446x601

Select Dot Pattern: Stochastic

SICC Workflow		×
Hide Steps >	Define the basic settings for this mode $$$\show \ensuremath{Help}\xspace > $$\show \ensuremath{Help}$]
 Calif Media Basic Media Settings Add/Edit Modes Basic Mode Settings Add/Edit Modes Basic Mode Settings A mode Name A Dat Pattam Drop Size Control Ink Restrictions Transition Control Print Test Image ICC Profile Print Test Image ICC Profile Print Test Image Mode Edited 	Mode Name: Production Resolution: 446x301 Dot Pattern: Stochastic]
	<back next=""></back>	

Setting Ink Restrictions

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

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

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

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

All	All Cyan Magenta Yellow Black								
	Cyan	^	Magenta	^	Yellow	^	Black 🔥		
Inł	Restrictions		Ink Restrictions		Ink Restrictions		Ink Restrictions		
C1	80% 😂		M1 80% 😂		Y1 80% 🛟		К1 80% 😂		
C2	80% 🛟	≣	M2 80% 😂	≣	Y2 80% 😂	≣	K2 80% 😂 🗏		
СЗ	80% 🛟		M3 80% 😂		Y3 80% 😂		КЗ 80% 🗘		
C4	80% 😂		M4 80% 😂		Y4 80% 🛟		K4 80% 🗘 📕		
C5	100% 😂		M5 100% 😂		Y5 100% 😂		К5 100% 😂		
Tra	Transitions Transitions Transitions								
	Reset All Use Darkest Level Only Set Lighter Levels Set All to 100%								

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

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

SICC Workflow Hide Steps >	Evaluate the Ink Restrictions swatch		
 ✓ New Media ✓ Basic Media Settings ✓ Basic Mode Settings 	Basic Advanced Step 1: Image has been loaded.		
Drop Size Control Ink Restrictions · · · · · Choose Image · · Choose Restrictions	Use Deraut Swatch darkinkrestrictions CMWKOG.tf Other Step 2: Choose a Value for each ink.		
Calibration Target Densities Linearization Ink Limits Print Test Image ICC Profile Print Test Image Mode Created	All Cyan Magenta Vellow Black Profile ade Created All Cyan Magenta Vellow Black Cyan Ink Restrictions Ink Restrint Ink Restrictions Ink Restrictions		
	< <tr> < Back Next > Ar550_13C 255 Express</tr>		

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

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

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

Optional – Setting Ink Restrictions Based on Maximum Chroma

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

Measure Color									- M	easure	ments									×
Device: Ey Measurement O Colorimetri O Densitome Press the meas	e One Type c (L*a*b*) c (L*c*h*) etric urement bu	utton to re	♥ Use M ad a single	edia Rela patch.	ive Colorin	netry		OK Cancel Help	105- 95- 84- × 74- (L 63- i											
Index	L*	C×	h*	DL×	DC*	Dh*	DE00	~	⊩ี53⁺ เ				ŧ							
Average	52.12	59.91	216.35	-4.98	6.69	-12.27	5.92		n ₄₂ .				Ŧ							
10	50.19	66.90	237.27	0.18	-0.32	-0.02	0.20		е —											
9	50.02	67.21	237.29	1.24	0.00	-1.13	1.43		s s 32-											
8	48.77	67.21	238.42	0.86	0.45	-0.94	1.09) J											
7	47.91	66.76	239.36	1.21	0.06	-1.03	1.36													
6	46.70	66.71	240.39	0.85	0.25	-0.85	0.96		21-											
5	45.86	66.45	241.23	0.96	0.23	-1.06	1.25													
4	44.89	66.22	242.29	1.08	0.22	-0.93	1.11		11-											
3	43.81	66.00	243.22	0.78	0.34	-0.76	0.86													
Clear) <u> </u>	xport				[Plot mea	asurements	04) 1	8 3	65	4 7	2 9 C* (C	90 1 hroma)	108 1	26 1	44	162	180

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

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



Calibration

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



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

C Workflow		<u> </u>
Hide Steps >	Print and read the Torget Densities swatch	< Hide Help
✓ Select Node ✓ Bake Mode Settings Cheng Sure Cannol Prick Test Kinage Inde Sure Cannol Prick Test Kinage Did Restrictions Prick Test Kinage / - Choor Farget Dendles. → - Choor Far	Basic Density Course: Advanced Grayscule! Image: Status & Calibration, and select or consta a new Target Densities. Calibration: Calibration: Image: Constitue! Image: Constitue! Image: Constitue!	

Optional – Adjusting N Factors

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



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

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

Setting Advanced Ink Limits

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

Edit Ink Limit -			? 🛛				
Use Basic Use Ac	lvanced						
Examine the ink lim the best output for appropriate boxes t	it swatch and cho each numbered gr pelow.	ose the lowest value oup. Enter these va	that produces lues in the				
1) <u>C</u> yan Limit:	3	4) <u>R</u> ed Limit:	2.7				
2) <u>M</u> agenta Limit:	3	5) <u>G</u> reen Limit:	2.8				
3) <u>Y</u> ellow Limit:	3 🛟	6) <u>B</u> lue Limit:	2.8 🛟				
	7) Gray <u>L</u> imit	2.8					
After entering values enable the <print swatch=""> option to see the results. Increase Black Ink Compensation if lightening occurs in the R+K, G+K, B+K, or CMY+K lines.</print>							
Print Swatch Black Ink Compensation							
OK Cancel <u>H</u> elp							

Setting Black Ink Compensation

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

Creating An ICC Profile

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



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

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

Build Option Setting Tips

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

Using UCR provides better neutral greys by replacing color information with Black, but may increase "peppering" and negatively affect ³/₄ tones transition to full shadow density.

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

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

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

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

Build Options Options Measurement Device	·	2
Predefined: Custom Table Size: [41 Grid Points] ICC Profile Version: Version 4.x Gamut Mapping: Classic Viewing Light Source D50 Viewing Light Source D50 Use Large Input Profile Size Balance CMY Gray Umprove Profile Interpolation	Iotal Ink Limit 400% Y.Pos: X.Pos: 100 90 90 90 90 90 90 90 90 90	Achromatic Black Generation Start Black: 50 100 Black Generation: Moderate Use UCR Chromatic Black Generation Year Black: Maximum Black: 65 100 Black Generation: Moderate Waximum Black: 65 100 Black Generation: Moderate Woderate

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

Options Measurement Device Predefined: Iotal Ink Limit: Custom 400% Table Size: 400% (41 Grid Points) Y-Pos: X-Pos: Version 4.x 90 90 Gamut Mapping: 70 100 Classic 70 100 Viewing Light Source 30 90 D50 30 30 0 10 20 10 100 100 We balance CMY Gray 10 100 Improve Profile Interpolation 100 100	Build Options	? 🛛
	Build Options Options Measurement Device Predefined: Iotal Ink Limit: Custom 400% Table Size: 400% [41 Grid Points) Y-Pos: Version 4.x 90 Gamut Mapping: 100 Classic 70 Viewing Light Source 50 D50 V W Use Large Input Profile Size 20 W Balance CMY Gray 0 Improve Profile Interpolation 0	Achromatic Black Generation Start Black: Maximum Black: 50 Black Generation: Low Chromatic Black Generation Flaable Start Black: Maximum Black: 70 100 Black Generation: Low V

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

Creating Media Models For White Ink Print Jobs

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