

# **Color Tools**

in Founder ElecRoc Workflow Solution

# **User Guide**

August 2014

**Beijing Founder Electronics Co., Ltd.** 



The software described in this manual is furnished under a license agreement and may be used only in accordance with the terms of the agreement.

#### Copyright Notice

Copyright © 2001-2014 Beijing Founder Electronics Co., Ltd. All Rights Reserved.

Any technical documentation that is made available by the Beijing Founder Electronics Co., Ltd. is the copyrighted work of the Beijing Founder Electronics Co., Ltd. and is owned by the Beijing Founder Electronics Co., Ltd.

NO WARRANTY. The technical documentation is being delivered to you AS-IS and the Beijing Founder Electronics Co., Ltd. makes no warranty as to its accuracy or use. Any use of the technical documentation or the information contained therein is at the risk of the user. Documentation may include technical or other inaccuracies or typographical errors. Founder reserves the right to make changes without prior notice. No part of this publication may be copied without the express written permission of the Beijing Founder Electronics Co., Ltd., No.9, The Fifth Street, Shangdi Information Industry Base, Haidian District, Beijing 100085, People's Republic of China.

#### Trademarks

Founder and Founder logo are registered trademarks of Founder Group Corporation. ElecRoc is a registered trademark of the Beijing Founder Electronics Co., Ltd.

Microsoft, Windows, Windows Server 2003, Windows Server 2008, Windows XP and Windows 7 are trademarks or registered trademarks of Microsoft Corporation.

Adobe, Adobe Photoshop, Adobe Acrobat and PostScript are registered trademarks of Adobe Systems Incorporated and PostScript 3 is a trademark of Adobe Systems Incorporated.

Pentium is a registered trademark of Intel Corporation.

Other products, fonts and company names and logos in this Manual are trademarks or registered trademarks of their respective holders and are hereby acknowledged.

This manual provides a complete introduction to all the functions and features of Founder ElecRoc Workflow Management System. However, some of them are available upon additional payment, the user interface and functions may vary accordingly. For more information, contact Founder's sales personnel.

Printed in the People's Republic of China

# Contents

Chapter 1 About Color Tools	1
1.1 Scope of Application	1
Chapter 2 Installation and Un-installation	2
2.1 Install the Software	2
2.2 Uninstall the Software	
Chapter 3 For Digital Proof	9
3.1 Start up Color Tools	9
3.2 Produce Proof CMF	
Step 1: MultiColor	
Step 2: Linearization	17
Step 3: Total Ink Amount	
Step 4: Device Calibration	24
Step 5: Device Characterization	
Step 6: Source Characterization	
Step 7: Color Data Packaging	2/
2 2 Apply CME File	
3.3 Apply CMF File	
Chapter 4 For Digital Print	32
Chapter 4 For Digital Print4.1 Start up Color Tools	<b>32</b>
Chapter 4 For Digital Print 4.1 Start up Color Tools 4.2 Produce Proof CMF	<b>32</b> 32 34
Chapter 4 For Digital Print 4.1 Start up Color Tools 4.2 Produce Proof CMF Step 1: Linearization	<b>32</b> 32 34 38
Chapter 4 For Digital Print 4.1 Start up Color Tools 4.2 Produce Proof CMF Step 1: Linearization Step 2: Total Ink Amount	<b>32</b> 32 34 38 44
Chapter 4 For Digital Print	<b>32</b> 32 34 38 44 46
Chapter 4 For Digital Print 4.1 Start up Color Tools 4.2 Produce Proof CMF Step 1: Linearization Step 2: Total Ink Amount Step 3: Device Calibration Step 4: Device Characterization	<b>32</b> 32 34 38 44 46 46
Chapter 4 For Digital Print	<b>32</b> 32 34 38 44 46 46 48
Chapter 4 For Digital Print	<b>32</b> 32 34 38 44 46 46 46 48 49
Chapter 4 For Digital Print	<b>32</b> 32 34 38 44 46 46 46 48 49 51
Chapter 4 For Digital Print. 4.1 Start up Color Tools. 4.2 Produce Proof CMF Step 1: Linearization Step 2: Total Ink Amount Step 3: Device Calibration Step 4: Device Characterization Step 5: Source Characterization Step 5: Source Characterization Step 6: Color Data Packaging Step 7: Circular Calibration 4.3 Apply CMF File	<b>32</b> 32 34 38 44 46 46 46 48 49 51 52
Chapter 4 For Digital Print 4.1 Start up Color Tools 4.2 Produce Proof CMF Step 1: Linearization Step 2: Total Ink Amount Step 3: Device Calibration Step 4: Device Characterization Step 5: Source Characterization Step 6: Color Data Packaging Step 7: Circular Calibration 4.3 Apply CMF File	<b>32</b> 32 34 38 44 46 46 46 46 46 45 51 52 <b>52</b>
Chapter 4 For Digital Print	<b>32</b> 32 34 38 44 46 46 46 48 49 51 52 <b>52</b> <b>54</b>
Chapter 4 For Digital Print	
<ul> <li>Chapter 4 For Digital Print</li></ul>	
Chapter 4 For Digital Print	
<ul> <li>Chapter 4 For Digital Print</li></ul>	
Chapter 4 For Digital Print	

5.2 Re-calibration	58
5.2.1 Calculate dE Before Calibration	59
5.2.2 Quick Calibration	60
5.2.3 Entire Calibration	60
5.2.4 Calculate dE After Calibration	61
5.3 Spot Color Tool	62
5.3.1 Basic Setting	62
5.3.2 Add Spot Color	64
5.3.3 Spot Color Refinement	64
5.3.4 Spot Color Tune	68
5.4 QA Tool	69
5.4.1 Basic Setting	69
5.4.2 Data View	72
5.5 Tune Curve	72
5.6 Data Transform	73

# **Chapter 1 About Color Tools**

#### 1.1 Scope of Application

The Color Tools in Founder ElecRoc 6 workflow is applied in two directions: digital proof and digital print.



Figure 1

# Chapter 2 Installation and Un-installation

#### 2.1 Install the Software

The Color Tools is always installed on your ElecRoc client machine, irrespective of whether your ElecRoc Client is running on ElecRoc server or on a separate computer. It doesn't have to be installed with the proof device or the digital printer either, i.e. the Tools and the device are allowed to run on different computers.

The steps for installing the Color Tools are as follows:

1. Double-click the file **setup.exe** under ElecRoc's install DVD directory Options\Color Tools\, or choose **Install Color Tools** if you have entered in ElecRoc's autorun window.



Figure 2

2. The install program starts up, displaying first the welcome window.



Figure 3

#### 3. Click **Next** to enter in the customer information window.

ColorTools - InstallShield Wizard	<b>—</b> ×
Customer Information Please enter your information.	24
Please enter your name and the name of the company for which you work.	
founder	
InstallShield <u>Back</u> <u>N</u> ext >	Cancel

Figure 4

4. Input your information and then click **Next**, to enter in the setup type window.

ColorTools - InstallShield Wizard				
Setup Type Select the set	up type to install.			
Please select	a setup type.			
© <u>C</u> omplete	All program features will be installed. (Requires the most disk space.)			
	Select which program features you want installed. Recommended for advanced users.			
InstallShield	< <u>B</u> ack Next > Cancel			

Figure 5

5. Choose **Custom** and click **Next**, and then you can see the following window, designed for you to choose the destination folder. If needed, you can click **Browse** to customize the destination folder.

ColorTools - InstallShield Wizard	<b>×</b>
Choose Destination Location Select folder where setup will install files.	A CAL
Setup will install ColorTools in the following folder.	
To install to this folder, click Next. To install to a different folder, click Brow another folder.	ise and select
Destination Folder D:\Program Files\ColorTools InstallShield	B <u>r</u> owse
< <u>B</u> ack Next>	Cancel

Figure 6

6. And after that, click **Next** to open the dialog box below. Check **Color** and click **Next**.

ColorTools - InstallShield Wizard	×
Select Features Select the features setup will install.	
Select the features you want to install, and des	elect the features you do not want to install.
	Description
898.67 MB of space required on the D drive 144452.45 MB of space available on the D driv InstallShield	e
	< <u>B</u> ack Next > Cancel

Figure 7

7. In the pop-up window, click **Install**.

ColorTools - InstallShield Wizard
Ready to Install the Program The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
< <u>B</u> ack Install Cancel

Figure 8

8. It then pops up the status window, showing the progress of the installation.

ColorTools - InstallShield Wizard	<b>—</b>
Setup Status	
The InstallShield Wizard is installing ColorTools	
D:\\Resource\PrintCharts\TestCharts\TestChart_WhiteP.tif	
InstallShield	Cancel

Figure 9

9. When the progress bar reaches 100%, the install program hints that the installation has been completed. Click **Finish** to exit.

ColorTools - InstallShield Wizard				
	InstallShield Wizard Complete The application installation complete,please click finish to exit the wizard			
	< <u>B</u> ack <b>Finish</b> Cancel			

#### Figure 10

**Note**: Due to that the Color Tools is designed to be started up from ElecRoc's Client, thus the startup icon for it is NOT available on your desktop or in your Start menu, where you can only see its uninstall icon.

#### 2.2 Uninstall the Software

1. Choose **Start > All Programs > Color Tools > Uninstall Color Tools** to open the following dialog box. This dialog box can also be opened by choosing **Start > Control Panel > Uninstall a program > Color Tools > Uninstall**.



Figure 11

2. Choose **Remove** and then click **Next**. And then in the pop-up dialog box, choose **Yes** to confirm the removal.



Figure 12

3. Click **Next** to begin the removal. The bar shows the progress.

ColorTools - InstallShield Wizard	<b>—</b>
Setup Status	124
The InstallShield Wizard is removing ColorTools	
Unregister class servers	
InstallShield	
	Cancel

Figure 13

#### 4. When the bar reaches 100%, click **Finish** to exit.



Figure 14

# **Chapter 3 For Digital Proof**

#### 3.1 Start up Color Tools

The Color Tools can NOT be started up independently. Instead, you need to start it from ElecRoc's Client. The steps are as follows:

1. Run your ElecRoc workflow system. On the ElecRoc server, double-click the short-cut icon en on the desktop, to start up ElecRoc Server.

D	Name	Туре	Host	Status		•
	PDE Generator	PDE Generator	YONGLT1	Online	547	
	Ganging	Ganging	YONGLI1	Online		
	Imposer	Imposer	YONGLI1	Online		
	PUP Merger	PUE Merger	YONGLIT	Online		
	Double Burn	Double Runn	VOWG11	Online		
	PDF Tools	PDF Tools	YONG 11	Online		
	Trap	Trap	YONGLT1	Online		
	Preflight	Preflight	YONGLI1	Online		
6	EcoInk	EcoInk	YONGLI1	Online		
2	Margin Adjustment	Margin Adjustment	YONGLI1	Online		
3	POF CMS	POF CMS	YONGLI1	Online		
•	LowResolutionPDF	DropResolution	YONGLI1	Online		
5	PDF Export	PDF Export	YONGLI1	Online		
	8 Bit TIFF Export	8 Bit TIFF Export	YONGL11	Online		
	POF to EPS	PDF To EPS	YONGLI	Onine		
-	Ink Control Export	Ink Control Export	YONGLII	Online		
	1 Bt TIFF Export	1 Bt TIFE Export	YONG IT	Online		
2	POF Rasterizer	PDF Basterizer	YONGLI	Online		
	Epson Stylus Pro 4800	Pre-RIP Proof	YONGLI1	Online		
	Epson Stylus Pro 9800	Post-RIP Proof	YONGLI1	Online		
5	K6250	OCE VP 6250	YONGL11	Offine		
7	P5200	EagleJet P Series	YONGLEE	Online		
1	C7600	HP Indigo	YONGLI1	Offine		
)	FZC6000	Founder C7000 Series	YONGL11	Offine		
0	K135	Oce VP 110/120/135	YONGLI1	Offine		
	10110	Cica 10, 2110	V000011	Offina		

Figure 15

2. Start your proof processor you want to proof, making it online.

3. Start up ElecRoc Client and login the Server. Double-click the short-cut icon 🥌 on the desktop, to start up ElecRoc Client.

FOUNd		ElecRoc 6 Integrated JDF/PDF Pre-press Workflow Solution
Client Login	Server:	172.19.43.114
	User Name:	administrator 👻
	Password:	
		Remember Password 🗌 Auto Login
	E	OK Cancel Check
Copyright(c) 200	1-2014 Beijing F	ounder Electronics Co., Ltd. All Rights Reserved.

Figure 16

4. Input correctly the server name or its IP address, and then click **OK** to enter in the Client's user interface.

🐖 Founder ElecRoc 6 Cl	lient[administrator @ 172.19.43	114]				- 🗆 🗙
					🖳 System	۶ Tools 🔥 Alert 🕢 Help
	ElecRoc 6	Jobs 🦉 S	iatus 🔯	Resources	Administrator	Statistics
	Q Time From 2014-03-01	▼ To 2014-05-09 ▼	<b>0</b>	New Open	Edit Delete	Refresh Authorize
Job ID	Job Name	Customer	Creator	Time Created 🖛	Bill No.	Description

Figure 17

5. Choose the administrative module **Administrator** > **Processor Management**, find out and choose the proof processor, here we take Epson 7910 pre-RIP as example.

			Refresh	Open Authorize	Load Balancing Pro	of Start Stop
	ID +	Name	Time	Server	Status	Blance
User Management	1 PD	F Generator	PDF Generator	EASIPRINT TEST?	Offline	and the
	7 65	naina	Ganging	EAGIPPINT TEGT?	Offline	
	2 Va 3 Imi	nging	Imposer	EASIPRINT TEST2	Offline	
	4 PD	F Merner	PDF Merger	EASIPRINT TEST2	Offline	
Processor Management	5 3rd	Party Preflight	3rd Party Preflight	EASIPRINT TEST2	Offline	
Con I	6 Do	uble Burn	Double Burn	EASIPRINT TEST2	Offline	
	7 PD	F Tools	PDF Tools	EASIPRINT TEST2	Offline	
Archive Management	0 Tra	0	Trap	EASIPRINT TEST2	Offline	
_	9 Pre	flight	Preflight	EASIPRINT TEST2	Offline	
1000	10 Ec	olnk	Ecolnk	EASIPRINT TEST2	Offline	
24	11 Ma	rain Adiustment	Margin Adjustment	EASIPRINT TEST2	Offline	
Client Management	12 PD	FCMS	PDF CMS	EASIPRINT TEST2	Offline	
	13 PD	F Export	PDF Export	EASIPRINT TEST2	Offline	
	14 8 B	it TIFF Export	8 Bit TIFF Export	EASIPRINT_TEST2	Offline	
	15 lnk	Control Export	Ink Control Export	EASIPRINT_TEST2	Offline	
	16 1 8	It TIFF Export	1 Bit TIFF Export	EASIPRINT_TEST2	Offline	
	17 PD	FRasterizer	PDF Rasterizer	EASIPRINT_TEST2	Offline	
	18 P5	200	Founder EagleJet P5200	EASIPRINT_TEST2	Offline	
	19 lnk	Save Report	Ink Save	EASIPRINT_TEST2	Offline	
1	20 Ba	rCode	Bar Code Processor	EASIPRINT_TEST2	Offline	
	21 2P	DF Rasterizer	PDF Rasterizer	EASIPRINT_TEST2	Offline	
	20 Ep	son Stylus Pro 7910	Pre-RIP Proof	EASIPRINT_TEST2	Offline	

Figure 18

6. Click the **Proof** button, and then you can see that ElecRoc automatically creates a job, named as Proof\_Epson Stylus Pro7910, dedicated for your proof operation.

Founder ElecRoc 6 Client-[adm	ninistrator @ 172.19.43.11	14]				- 🗆 ×
	ecRoc6	🤍 Jobs 🦉 Stat	us Resources	Administrator	Statistics	Alert O Help
Processor List Resource Share	Receive Data	rt_Epson Stylus > () () () Epson Stylus Pro 7910				×
Ganging     Composer     Imposer     PDF Merger     PDF Export						

Figure 19

**Note**: By default, this job contains only two processors, one is hot folder, used for receiving data, and the other is the proof processor, i.e. Epson 7910.

7. Configure Epson 7910's processor parameters. As shown in the figure below, double-click the Epson 7910 node in the job, to open its parameter setup window.

	Colo	)r	Device	Mark	Comment	Advanced		
olor Mode Color:	CMYK	-		Color Solution CMF File:	Create CMF File		-	View
	C M			Spot Color Spot color table:	Default			-
) Ou	K tput spot co	lor		Color Tune Color Tune:	None			-
() Sp	ot color to p	ress colo	r	Screen Mode				
Sepera	ation Mode:	4 –		Screen Mode:	FM1			-
hers Pro Ove Pro	oof Line erride overp oof on Printi	rint in job ng Paper	Overprint Coat	t in RIP: Black Only ted paper-General				

Figure 20

8. Properly configure the device-related parameters as you need, and then click the **Proof** button at the bottom of the setup window, to start up the Color Tools.

😵 Color Tools		- 🗆 🗵
File Function Windows Help		
New Open Recalibration	East Color Tool Curve Quality Certification Convert	
*	Color Calibration Environment	
CMF File save path: E:\Color\CMF Backup file path: E:\Color\CMF Print Path: E:\Color\pakfolder Print Path: E:\Color\printfolder Measure device: Eye-one ISIS Recalibration threshold: 2.000000 Print width(mm): 360		<u> </u>

Figure 21

9. For use in digital proof, choose **Digital Proof**, and then click **OK**.

#### 3.2 Create Proof CMF

In this section, we will introduce you the digital proof process. This process will produce a .cmf proof file.

The proof process for digital proof is composed of 8 steps:





The main interface for the Color Tools is shown as follows.



Figure 23

Click the toolbar icon<sup> $\Box$ </sup>, or choose the main menu **File** > **New CMF**, to start up the proof wizard. The program first pops up a parameter setup window.

tal Proof						
ew Parameter						
Properties Se	etup 🔰					
ColorWizard Proced	ure Setting					
New	CMF File Name					
O Open	Load CMF File					
- ColorWizard Proce	dure					
→ Za Device Multicolor Linearization	→ III → III n Total Ink Devic	e Device tion Characterizat	→ <mark>₩</mark> - Destination ion Characterizatio	→ <sup>2</sup> Color Data n Packaging	Circular Calibration	
<b>V V</b>	<b>v</b>	V	•			
Ink Setting						
🗹 Cyan	🔽 LCyan					
🔽 Magenta	🔽 LMagenta					
Vellow	🔽 LBlack					
🔽 Black	🔽 LLBlack					
Custom Info		_				
	ОК	Ca	ncel			

Figure 24

**New / CMF File Name**: The name of the new CMF file that you are going to create.

**Open** / **Load CMF File**: You can open a CMF file that has been interrupted or unfinished during its creation. A finished CMF file can NOT be opened here.

**Color Wizard Procedure**: Please tick the steps or procedures your proof contains. A complete proof wizard contains 8 steps.

**Custom Info**: Here you can input some text for identification, if needed.

Click the button **Properties Setup** at the top of the window, to define the following parameters.

Property Set		×
CMF Path	ecroc\Resources\Proof2\ColorCorrection\34	
Backup Path	C:\Program Files\Color\bakfolder Set	
Print Path	\\EASIPRINT_TEST2\Upload\Proof\34 Set	
Measure Device	Eye-one ISIS	
Print width(mm)	360	
Recalibration thre	shold 2.00	
	OK Cancel	

Figure 25

**CMF Path**: This path is designed for storing the generated .cmf files. We recommend you to use the directory \\172.19.xx.xx\Elecroc\Resources\Proof2\ColorCorrection\34, 172.19.xx.xx referring to the IP address or computer name of your ElecRoc server, 34 referring to the ID of the proof processor in your ElecRoc system. This directory is also the default path to store the .cmf files that are ready for use by your proof processor. Only finished CMF files can be generated under this path.

**Backup Path**: This path is used for storing the data resulted in case of any interruption or incompletion in the CMF file creation.

**Print Path**: This path is used for storing the files that are to be printed during the CMF file creation. The default path is \\172.19.xx.xx\Upload\Proof\34, 172.19.xx.xx referring to the IP address or computer name of your ElecRoc server, 34 referring to the ID of the

proof processor in your ElecRoc system. This path is also the path where the hot folder in your proof job detects for printing chart files.

**Measure Device**: Please choose the measuring device you are actually using. Color Tools supports you to use Eye-one ISIS, Eye-one, or Eye-one IO. In this manual, we take the Isis as example, the color charts will thus be based on this device.

**CMYK Black Reserve**: If checked, the system will directly use black ink to print the pure black process color (only the K in CMYK is NOT equal to 0 in this case). It's NOT suggested for digital proof.

**Print Width**: This refers to the width of the media that you are loading on your proof device. Please input the value as per that of the actual media.

**Recalibration Threshold**: It refers to the dE threshold for recalibration.

#### **Step 1: Multicolor**

This step is applied to some ink printers from Epson and HP. Its purpose is to generate a profile based on specific paper and printer, ensuring that CMYK colors can be properly output by multi-color inks of the printers.



Figure 26

You can load an existing multicolor file, or choose to use the default one, or you can create a new file by way of printing & measuring.

If you choose to create a new file, we suggest you to click the button **Auto Pick Node** after the measurement. This clicking enables the wizard to automatically pick the nodes for you, a convenience for you in generating the multicolor file.

#### **Step 2: Linearization**

The second step is to create the linearization file.

🔯 Color Wizard_Device Linearization_liyon	g20140731				×
		$\rightarrow$ $\rightarrow$ $\rightarrow$			
C Load Linearization File	ଙି Crea	ate Linearization File			
		Somethin Regel 1 of 1,562 3 1 of 1 day, regels geld word 13	• • • • • • • • • • • • • • • • • • •		
Setting	Print	Measure Result	Loop Counter:		I
		Max Error: (Density) Avg Error: (Density)	Cyan	Magenta Yellow	Black
Prev				Edit.curv	Abort

Figure 27

The linearization file can be loaded, or can be created by printing & measuring.

Click the button **Setting** to open the **Parameter Setting** window.

Parameter Setting						×
Paper Type:	coate	d paper		•		
Density Setting	<u> </u>			<b>D</b> I 1		
	Cyan	Magenta	Yellow	Black	_	
Max Density	1.9	1.8	1.1	1.8		
Yule-Nielson	1	1	1	1		
Density Status		C E-Density	/	T-Der	nsity	
	DotGain	Mode		C Densi	ty Mode	
⊢DotGain Curve S	etting					
Default DG_Line Default DG_8 Default DG_15	9					Add
Default DG_17 Default DG_20 Default DG_25						View
						Delete
	ОК			Can	cel	

Figure 28

First, please choose the paper type according to the media type you are using.

Then, choose a mode for creating the linearization file: DotGain Mode or Density Mode.

**Suggestion**: Choose **Density Mode** if you are using dedicated proof paper; **DotGain Mode** is applied for proofing on printing paper.

When you have done the setting, click **OK** to return to the main window.

Click the **Print** button (the button **Measure** is then activated) to generate the corresponding linearization chart under the **Print Path** specified in the **Property Setup** window (opened by clicking **Property Setup** when you created the new CMF).

**Note**: The generated chart file under the print path will then be scanned and submitted to the printing device by way of hot folder.

Click **Measure** to enter in the measuring window.

Measure				×
	- Select Device	C EYEONEIO Measure	• EYEONE ISIS	Information Total Blocks:120 Lines:4 Columns:30 Current Line:
			Prev Line	Abort

Figure 29

Measure the printed chart, and when you finish the measurement you will see the hint "Measured successfully! Press here to continue".

Measure	×
Select Device     EYEONE     EYEONE     EYEONE     EYEONE     EYEONE	Information Total Blocks:120 Lines:4 Columns:30
Measured successfully! Press here to continue	Current Line:
Prev Line	Abort

Figure 30

Click this hint to back to the main window.



Figure 31

Now you can see that the **Print** button turning to **Loop Print**, and an option **Create Linearization Target** appearing (checked by default) on the interface.

**Create Linearization Target**: You need to create a target data in case that you want to perform a quick re-calibration operation in the future. When your device has been used for a period of time or its state has been changed, you can make use of the **Re-calibration** > **Quick Calibration** to restore your device to the state it had when you made the color calibration solution.

**Note**: 1) The **Next** button is grayed when this option is being checked, but becomes activated when you print and measure once again. 2) In case that you choose to load a linearization file and the file contains target data, the target data will be loaded with the file together. And if the loaded file does NOT contain this data, if needed, you can print and measure to create it.

Click the button **Loop Print**, and then repeat the measurement when the chart has been printed out, till that the color difference shown at the lower-right corner meets your requirement.



Figure 32

Files involved in the calibration wizard are saved automatically. At the **Result** column shows in turn the generated linearization files, Linearization\_1 ... Linearization\_n. And meanwhile the maximum and average differences for each loop printing and measuring are shown on the interface as well.

After the generation of the linearization file, click **Next** to enter into the interface for total ink amount.

If you are NOT satisfied with the generated linearization file, you can edit it, although the editing operation is NOT suggested for most users, for that it is an advanced adjustment.

Click the **Edit Curve** button at the bottom of the window to open the editing window, in which you can view and edit the generated linearization curve file.

t Curve								E
EditNod	es(%) ——			1				7
	Use Ink Amount	Reference Density	Measured Density		Use Ink Amount	Reference Density	Measured Density	Cyan
□ 0%	0.00	0.07	0.07	<b>□</b> 36%	7.84	0.33	0.34	
□ 1%	0.16	0.08	0.08	□ 40%	9.14	0.37	0.38	
□ 2%	0.35	0.08	0.08	□ 44%	10.51	0.42	0.41	
□ 3%	0.46	0.09	0.08	□ 48%	12.10	0.46	0.45	
□ 4%	0.68	0.09	0.09	□ 52%	13.97	0.51	0.51	
□ 6%	1.04	0.11	0.10	□ 56%	15.87	0.56	0.56	
□ 8%	1.38	0.12	0.12	E 61%	18.32	0.63	0.62	
□ 10%	1.70	0.13	0.13	□ 65%	20.75	0.70	0.68	
□ 12%	2.06	0.14	0.14	□ 70%	24.26	0.78	0.78	
□ 15%	2.65	0.17	0.16	□ 75%	28.11	0.88	0.89	
<b>□</b> 17%	2.98	0.18	0.18	□ 80%	32.22	1.00	0.97	Edit Parameter
□ 20%	3.54	0.20	0.20	□ 85%	37.29	1.14	1.12	Edit Max Density
□ 24%	4.41	0.23	0.23	□ 90%	44.93	1.32	1.28	Edit Yule-Nielson
□ 28%	5.40	0.26	0.26	<b>□</b> 95%	58.79	1.55	1.52	
□ 32%	6.56	0.30	0.30	□ 100%	80.25	1.90	1.92	Print Cancel OK

Figure 33

**Note**: Aiming at re-defining specific ink percentage values, the editing becomes available only when you have checked the boxes in front of the percentages. Please note the monotonicity of the curve during the editing.

If you have edited the curve, you can click **Print**, to apply the edited curve to print out a test chart, so as to check the actual linearization effect. Look over the printed chart with your eyes, a good linearization effect has the following characteristics: well-proportioned monochromatic color gradation, no mergence, composite colors of three equivalent color components at the bottom of the chart, no remarkable variance, and consistent hue. If you are NOT satisfied with the print result, you can continue to edit it. If satisfied, click **OK** to return.

**Note**: If you have edited the curve and clicked **OK**, you will be hinted then that the target data created previously is no longer matching with the current device state, and that it's best for you to print and measure again. In this case, please print and measure again to get new linearization target data.

#### Step 3: Total Ink Amount

This step is used for determining the total ink amount. The main window displays the chart used for deciding the total ink amount.

🕼 Color Wizard_Total Ink Amount_liyong20140805	×
$\textcircled{2} \rightarrow \fbox{2} \rightarrow \textcircled{1} \rightarrow \textcircled{2} \rightarrow \textcircled{2} \rightarrow \textcircled{2} \rightarrow \textcircled{2} \rightarrow \textcircled{2} \rightarrow \textcircled{2}$	
Print Measure Recommend Ink value:	
Max Ink: CK:  400 % MK:  400 % YK:  400 %	
Prev	Next Abort

Figure 34

The chart consists of two halves, the upper half is used for auto measuring, and the lower half is used for you to make decision with your eyes. Please refer to the method below to choose a right color block, and then combine the value corresponding to the color block and the measured value to decide a suitable total ink amount.



Figure 35

Click the **Print** button to print out this chart, and then measure the upper half of the chart. The measuring result is shown aside **Recommend Ink value**. And meanwhile, choose the right color block with your eyes from the lower half of the chart. Based on the recommend value and the value in front your chosen color block, input proper values into the **CK**, **MK**, and **YK** edit boxes.

Method to choose the color block: it is best to observe the chart just after it has been printed out. ①The color block without any flowing or heaping ink, and exactly in front of the semi-dry one. ②The thin white lines on the blocks are designed for inspecting the ink penetration. Heavy penetration usually causes the white lines to fragment or disappear. In case that the paper is of high quality, you'd better choose the one on which the white lines are clearly visible. ③In case that the paper is of coarse quality, you should inspect the ink penetration from the back side of the paper. The total ink amount is considered high if the ink penetration is so heavy that the paper has been obviously distorted. You can choose a block with neutral penetration.

**Note**: the method above is used for reference only. In actual work, please make your decision flexibly according to the paper type, the measuring result and visual inspection.

Click **Next** to enter into the main window for device calibration.

#### **Step 4: Device Calibration**

As an optional step, it is designed to create the device state file. Its main window is shown as follows.

Color Wizard_Device Calibration_liyong201408	05	×
$ \rightarrow  \rightarrow  \rightarrow  \rightarrow$	$ \Rightarrow  \Rightarrow \Box D \Rightarrow \Box D \Rightarrow D$	
C Load Device Calibration File	<ul> <li>Create Device Calibration File</li> </ul>	
Print	Measure	
Prev		Next Abort

Figure 36

Only when you have created the device state file in this step, you can then make use of the module **Re-calibration** > **Entire Calibration**. The calibration file can be loaded, or be created by way of printing and measuring.

As to creating a new one, please click the **Print** button to print out the color chart and then measure it. After the measurement, click **Next** to enter into the main window of device characterization.

#### **Step 5: Device Characterization**

This step is designed to create the color characterization profile for your current digital proofing device. It also allows two methods, being loaded or created.



Color Wizard_Device Characterization_liyong20140805	×
$\textcircled{\hspace{0.1cm}} \rightarrow \fbox{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \rightarrow $	
C Load Device ICC Profile Create Device ICC P	rofile
Print Measure Or	eate
Calculate	
Cance	Nevt Abort

Figure 37

Take the creating of a device characterization profile as example. Click the **Print** button on the main window to let the printer output the ECI2002 chart, and then click **Measure** to measure it.

After the measurement, click **Create** to start creating the characterization profile. The **Calculate** progress bar shows the progress of the file generation. The generated profile will then be displayed, like ProfileD\_0.tmp.

Click **Next** to enter into the main window for source characterization.

#### **Step 6: Source Characterization**

You can choose to load a characterization profile, or choose to create a new one by measuring the press sample of the ECI2002 color chart.



Figure 38

As shown on the interface, the Color Tools builds in several international standard source profiles for you to choose. After the loading, you can click the **Edit** button to modify the saturation of the loaded profile. The modifying operation is NOT recommended for general users.

Edit ICC			×
Saturation		]	0
Re	set	OK	Cancel

Figure 39

Click **Next** to enter into the interface for generating the data package.

#### Step 7: Color Data Packaging

This step is designed to package the proof data into a single proof file \*.cmf.

olor Wizard_Color Data Packaging_liyong20140805		
$\textcircled{\hspace{0.1cm}} \xrightarrow{\hspace{0.1cm}} \rightarrow \fbox{\hspace{0.1cm}} \xrightarrow{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \hspace{$	$\rightarrow {=} \rightarrow {\cong} \rightarrow {\cong} \rightarrow {\Rightarrow} \rightarrow \rightarrow {\rightarrow} \rightarrow $	
- CMYK-CMYK Setting		
CMYK Source: G7Coated.icc	LoadProfileD.tmp	Print Chart
Use SourceICC	c 🔽	
(Note: If you want to do Color Loop, we re	commend you to select the Absolute Renderin	g Intent)
RGB-CMYK Setting	Simulation ICC:	Device ICC:
RGB Source: sRGB.icc	G7Coated.icc	LoadProfileD.tmp Print Chart
Use Simulation ICC	Rendering Inte	ant
Gray-CMYK Setting	Simulation ICC:	Device ICC:
Gray Source: Gray.icc	G7Coated.icc	LoadProfileD.tmp Print Chart
Lise Simulation ICC	Rendering Inte	ent
	l' erception	-
Package Color Data		
Prev		Next Abort

Figure 40

**Note**: If you haven't set the source ICC in previous step, you can click the button aside the parameter **CMYK Source**, to specify a source ICC you will use.

**CMYK-CMYK Setting**: To affect the color output of the CMYK entities in job.

**RGB-CMYK Setting**: To affect the color output of the RGB entities in job, enabling the RGB entities to be output as per the color effect specified by the **Simulation ICC** option.

**Gray-CMYK Setting**: To affect the color output of the Gray entities in job, enabling the Gray entities to be output as per the color effect specified by the **Simulation ICC** option.

**Rendering Intent**: It's a mode of color conversion and is available for each color space. Its four options enable different conversion results. Among them, the **Relative Colorimetric** is the most commonly-used option. **Absolute Colorimetric** is used when you want to simulate the paper white of the source device.

Click the button **Package Color Data** to generate the .cmf file when you have defined the above settings. After the generation, the three **Print Chart** buttons become activated, and by clicking them, you can print out respectively the test page for the CMYK, RGB, and Gray modes, for purpose to view the color output effect of the current proof data.

Click **Next** to enter into the main window for circular calibration.

#### **Step 8: Circular Calibration**

The purpose of this step is to enable a better match between the output result of current device and the source characterization profile, so as to achieve an accurate simulation and an optimization on the color effect.

Color Wizard_Circular Calibration_liyong201408081	×
$\textcircled{\hspace{0.1cm}} \textcircled{\hspace{0.1cm}} \rightarrow \fbox{\hspace{0.1cm}} \textcircled{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow} \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \rightarrow \r{\hspace{0.1cm}} \r{\hspace{0.1cm}} \hspace{0.1cm$	
Create Status Target	
Print → Measure → Refine Loop Counter:	
Calculate Result	Print Chart
Cancel DettaE:	
Prev	Finish Abort

Figure 41

By default, the option **Create Status Target** on the main window is checked, and the button **Finish** is grayed. The purpose for creating status target is to get the device's status result data that are output with current proof file, as a basis for evaluating color output result. If you don't want to perform the circular calibration, you can uncheck **Create Status Target** to activate the **Finish** button.

**Loop Counter** counts the times you have repeated (circulated). The button **Print Chart** enables you to print out the effect of the current circular calibration each time when the calculation is completed.

Click **Print** to print out the ECI2002 color chart (at this time the chart is applied with proof data) and then measure it. Return to the main window when you finish the measurement, and you will see that the button **Calculate** becomes activated. Click it, and when the calculation is completed, you will see the average Delta E value being displayed at the **Result** column. This value at the first time is usually large. Now you can start the loop calibration, i.e. to repeat the **Print**, **Measure** and **Calculate** operations. In general, the Delta E will be reduced to a quite ideal value after two loops, and then you

can stop the circular calibration.

Please click **Finish** to exit the calibration wizard. The generated .cmf file is stored under the **CMF Path** defined in the **Properties Setup** window (opened by clicking **Properties Setup** at the beginning of the wizard). Meanwhile the status target data is recorded in the proof file.

## 3.3 Apply CMF File

1. Run your ElecRoc Client, and open or create a job. The job should contain the PDF Generator and the Proof nodes.

Founder ElecRoc 6 Client[administrato	r @ easiprint_test2]				-	
		$\sim$			🖳 System 🛛 🔭 Tools	\rm Alert 🛛 Ə Help
Elect	Roc 6 🔍 Jobs	Status	Resources	Administrator	Statistics	¬₽
Processor List Resource Share	🗭 🔓 🖿 (test					×
a inposei						
PDF Merger						
PDF Export	_					
👒 8 Bit TIFF Export	🥶 _					
1 Bit TIFF Export	BDE Conor	- Ir				
Ink Save Report	PDF Gener	Stylus Pro				
🖾 Ink Control Export		7890				
🚔 Mono Printer	▲ ▼					
Color Printer	🔊 🗋 🖹 🗎 🕨 🎽 🗋	) 🔒 💷 🔠 🍉	light 🗐 🚰			
🚔 Canon iPF 500			1 ¥			
🚔 Epson Stylus Pro 7890						
🍁 PDF Rasterizer						
🚔 Canon iPF 8410						
2K6250						
8606 P5200						
C3500						
FZC6000						
K110						
📑 K2110						
K1051						
This timer version ElecBoc 6 will be evnired.	in 2 days					

Figure 42

2. Configure the Proof node's processor parameters. At the CMF File dropdown list, choose the .cmf file you have just finished.

	Color	Device	Mark	Comment	Advanced	J
olor Mode-			Color Solution			
Color:	CMYK 🔫		CMF File:	liyong20140808.cn	nf 💌	View
	c 🖌		Spot Color			
	M V		Spot color table:	Default		-
	Y 🛛		Color Tune			
			Color Tune:	None		-
🧿 Outj	put spot color					
🔿 Spo	t color to press colo	r	Screen Mode			
Sepera	tion Mode: 4 🛛 💌		Screen Mode:	FM1		-
thers						
Pro	of Line					
🖌 Ove	rride overprint in job	Overprint	in RIP: Black Only	/ -		
🗌 Pro	of on Printing Paper	Coat	ed paper-Tone	-		
				'		

Figure 43

3. Submit pages to the Proof node when you have done the configuration. The Proof node can accept directly the output pages from PDF Generator.

# **Chapter 4 For Digital Print**

#### 4.1 Start up Color Tools

The Color Tools can NOT be started up independently. Instead, you need to start it from ElecRoc's Client. The steps are as follows:

- 1. Run your ElecRoc workflow system.
- 2. Start the digital printing processor you want to proof, making it online.
- 3. Start up ElecRoc Client and login the Server.

For details about the above three steps, please refer to Section 3.1.

4. Choose the administrative module **Administrator** > **Processor Management**, find out and choose the proof processor, here we take C6000 as example.

Jer Lietkot o thentjaurininst	racor @ casiprin				8	ystem 🔊 Tools 🔺 Alert 🄇
	cRoc 6	Jobs V	Status 🧕	Resources	Administrator	Statistics
			Refresh	Open Authorize	Load Balancing	Proof Start Stop
	ID	Name	Type	Server	Status	Blance
User Management		T D1 10010	T 01 10013	CAOIDDINE TEOT2	Office -	
	8	Trap Droflight	Trap	EAGIPRINI_TEST2	Offline	
	9	Freiligni	Freingnu	EASIPRINT_TEST2	Offline	
Processor Management	11	Morain Adjustment	Margin Adjustment	EAGIPRINT_TEGT2	Offline	
Toooboot Management	12			EAGIPRINT_TEGT2	Offline	
	12	PDF Evnort	PDF Evnort	EASIPRINT_TEST2	Offline	
	14	9 Dit TIEE Export	9 Bit TIEE Evport	EAGIDDINIT TEGT2	Offline	
Archive Management	14	Ink Control Export	Ink Control Export	EAGIPRINT TEST2	Offline	
_	16	1 Bit TIEE Export	1 Bit TIEF Evnort	EASIPRINT TEST?	Offline	
	17	PDE Rasterizer	PDF Rasterizer	EASIPRINT_TEST2	Online	
Client Monogramont	18	Canon iPE 500	Pre-RIP Proof	EASIPRINT TEST2	Online	
Chent Management	19	Canon iPF 8410	Post-RIP Proof	EASIPRINT TEST2	Online	
	22	2K6250	Oce VP 6250	EASIPRINT TEST2	Offline	
	23	P5200	Founder EagleJet P5200	EASIPRINT TEST2	Offline	
	24	C3500	HP Indigo	EASIPRINT_TEST2	Offline	
	25	FZC6000	Founder C7000 series	EASIPRINT_TEST2	Offline	
	26	K110	Oce VP110/120/135	EASIPRINT_TEST2	Offline	
	27	K2110	Oce VP 2110	EASIPRINT_TEST2	Offline	
	28	K1051	BizHub Series	EASIPRINT_TEST2	Offline	
	29	Ink Save Report	Ink Save	EASIPRINT_TEST2	Offline	
	31	Color Printer	Color Printer	EASIPRINT_TEST2	Offline	
	32	Mono Printer	Mono Printer	EASIPRINT_TEST2	Offline	
	33	BarCode	Bar Code Processor	EASIPRINT_TEST2	Offline	
	24	Encon Stylue Pro 7990	Pre-PIP Proof	EASIPRINT TEST?	Online	

Figure 44

5. Click the **Proof** button, and then you can see that ElecRoc automatically creates a job, named as Proof\_FZC6000, dedicated for your proof operation. Meanwhile, the Color Tools will be started up, please choose **Digital Print**.
| 📮 Founder ElecRoc 6 Client[administrator @ easiprint_test2]  |                                       |
|--|---------------------------------------|
|  | 💻 System 🏾 🎘 Tools 🛛 🗛 Alert 🛛 😨 Help |
| ElecRoc 6 Status Resources 🗛 Administr   | ator 💽 Statistics                     |
|  |                                       |
| Processor List Resource Share  | ×                                     |
|  |                                       |
| PDF Export   |                                       |
| Receive Data PDF Gener FZC6000   |                                       |
| 1 Bit TIFF Export  |                                       |
| Ink Save Report  |                                       |
| 🕰 Ink Control Export   |                                       |
| Mono Printer   |                                       |
| Color Printer  |                                       |
| 🛱 Canon IPF 500  |                                       |
| 🚔 Epson Stylus Pro 7890  |                                       |
| PDF Rasterizer   |                                       |
| Canon IPF 8410   |                                       |
| 2K6250   |                                       |
| P5200  |                                       |
| C3500  |                                       |
| FZC6000  |                                       |
| <b>X</b> (10   |                                       |
| K2110  |                                       |
| 🖬 K1051  |                                       |
| This timer version ElecRoc 6 will be expired in 2 days.  |                                       |
|  |                                       |
| 20(Enterlands<br>File() Fundan() Web(s)  |                                       |
|  |                                       |
| New Open Recallentory Sort Calor. Tool Convert, Quality Certification, Data Transform  |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
| Color Californition Environment  |                                       |
| Environment  |                                       |
| 17 Digita Piet   |                                       |
|  |                                       |
|  |                                       |
| C Traditional print  |                                       |
|  |                                       |
| OK Cancel  |                                       |
|  |                                       |
|  |                                       |
|  |                                       |
| × mmm2014.8.12 18:22:33*****   |                                       |
| CMF File save path: C:\Program Files\Color\CMF   | -                                     |
| Backup file path: CAProgram Files/Colorbaldolder   |                                       |
| Backup file path: C3Program Files(Colorbaidolder<br>Prinr Path: C3Program Files(Colorbaidolder<br>Measure device: Eyer one ISIS<br>Benetilikaritis Interschold : 200000  |                                       |
| Backup file path: C3Program Tiles(Colorb)at/older<br>Prinr Path: C3Program Tiles(Colorb)at/older<br>Measure device: Eye one ISIS<br>Recatilitation threshold: 200000<br>Prinr widthform: 350<br>© current Program / Sociarion trid | 1                                     |

Figure 45

6. Configure FZC6000's processor parameters. The **Output** parameters are to be configured as per your actual needs, while the **Use CMF file** dropdown list under the **Color Calibration** tab needs to be set to **None**.

		Color Calibration	Inset	Numbering	Equipment
lor Solution	one	-			
1er					
Spot Color Replace	None		•		
Curve	None		•		
Black Reserve	None		- Rete	ntion Range 1	-100

Figure 46

7. Now we can start the proof work.

## 4.2 Create Proof CMF

In this section, we will introduce you the proof process for digital print. This process will produce a CMF proof file.

The proof process for digital print is composed of 7 steps. Due to that most digital printers are 4-color devices, thus the multicolor step included in digital proof is not needed.



Figure 47

On the main interface of the Color Tools, click the toolbar icon<sup> $\Box$ </sup>, or choose the main menu **File** > **New CMF**, to start up the proof wizard. The program first pops up a parameter setup window.

lew Parameter		
Property Setting	J	
ColorWizard Procedure	Setting	
● New Cł	4F File Name	liyong1
C Open	Load CMF File	
- ColorWizard Procedu	re	
Muticolor Linearization	→ Ink Total Ink Amount Calibration	$\rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ & & \\ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \begin{array}{c} & & \\ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \end{array}} \rightarrow \underbrace{ \end{array} $
	V V	V V V
Ink Setting		
🔽 Cyan	🗖 LCyan	🔲 Orange
🔽 Magenta	🔲 LMagenta	Purple
Vellow	🗖 LBlack	
🔽 Black	🗖 LLBlack	
Custom Info		
		1

Figure 48

New / CMF File Name: The name of the new CMF file that you are going to create.

**Open** / **Load CMF File**: You can open a CMF file that has been interrupted or unfinished during its creation. A finished CMF file can NOT be opened here.

**Color Wizard Procedure**: Please tick the steps or procedures your proof contains. A complete proof wizard contains 8 steps. But for digital printers, the Multicolor is usually not needed.

**Custom Info**: Here you can input some text for identification, if needed.

roperty Set	×
CMF Path	\easiprint_test2\Elecroc\Resources\CMF\2\$
Backup Path	C:\Program Files\Color\bakfolder Set
Print Path	\\easiprint_test2\Upload\Proof\25
Measure Device	Eye-one ISIS
Print width(mm)	360
Recalibration thres	shold 2.00
	OK Cancel

Click the button **Properties Setup** at the top of the window, to define the following parameters.

Figure 49

**CMF Path**: This path is designed for storing the generated .cmf files, we recommend you to use the directory \\172.19.xx.xx\Elecroc\Resources\CMF\25, 172.19.xx.xx referring to the IP address or computer name of your ElecRoc server, 25 referring to the ID of the digital printer processor in your ElecRoc system. This directory is also the default path to store the .cmf files that are ready for use by the digital printer processor. Only finished CMF files can be generated under this path.

**Backup Path**: This path is used for storing the data resulted in case of any interruption or incompletion in the CMF file creation.

**Print Path**: This path is used for storing the files that are to be printed during the CMF file creation.

**Measure Device**: Please choose the measuring device you are actually using. Color Tools supports you to use Eye-one ISIS, Eye-one, or Eye-one IO. In this section, we take the Isis as example, the color charts will thus be based on this device.

**CMYK Black Reserve**: If checked, the system will directly use black ink to print the pure black process color (only the K in CMYK is NOT equal to 0 in this case). It's suggested for digital print.

**Print Width**: This refers to the width of the media that you are loading on your proof device. Please input the value as per that of the actual media.

Recalibration Threshold: It refers to the dE threshold for recalibration.

Click **OK** after you have done the above settings. The following dialog box appears. Please make sure that your digital printer has already been adjusted before the proof.

ColorWiz	ard 🗙
1	Please adjust the hardware of print device before the color calibration.
	<u>OK</u>

#### Figure 50

Click **OK** to enter into the wizard.

#### **Step 1: Linearization**

The first step is to create the linearization file. The method is same as that for digital proof. The details are as follows.

😸 Color Wizard_Device Linearization_liyong1						×
		$\rightarrow $				
C Load Linearization File	Create Linearization	in File				
			Loop Counter:			
Setting - Print -	⇒ Measure ⇒ Print	Result				_
	<b>^</b>					~
Loop Type: C Gray DeltaE First	€ DotGain First	Max Error: (%) Avg Error: (%)	Cyan	Magenta	Yellow	Black
₩ Max Gamut		Grav dE:				
		Gray dE.	1		Editor	
					Ealtourve	
Prev					Next	Abort

Figure 51

The linearization file can be loaded, or can be created by printing & measuring.

As shown on the interface, there are two loop types: Gray Delta E First and DotGain

**First**. Choose **DotGain First** if you want to make a complete proof file. **Gray Delta E First** is recommended in case that you want only to create Linearization curve. And if checked, you see that an option **Max Gamut** becomes activated. A checking on it is suggested.

Parameter Setting			×
Paper Type: Coate	d Paper	×	
Cyan	Magenta Yellow	Black	
Max Density 1.6	1.6	1.75	
Source Profile	ISOCoated	Y	
Max Density Set	Custom	C Caculate	
DotGain Curve Setting			
Default DG_8 Default DG_15 Default DG_17		- 1	Add
Default DG_20 Default DG_25			View
			Delete
ОК		Cancel	

Click the button **Setting** to open the **Parameter Setting** window.

Figure 52

First, please choose the paper type according to the media type you are using.

Then, set **Max Density** values, you can set the parameter **Max Density Set** to **Calculate**, and then specify a proper **Source Profile** to calculate automatically the **Max Density** values.

As to the **DotGain** curve, the default setting is recommended.

When you have done the setting, click **OK** to return to the main window.

Click the **Print** button (the button **Measure** is then activated) to generate the corresponding linearization chart under the **Print Path** specified in the **Property Setup** window (opened by clicking **Property Setup** when you created the new CMF).

**Note**: The generated chart file under the print path is a .tif file. Please use device's printer server to print, note that you need to disable the color control of the output software when you print the chart file.



Click **Measure** to enter in the measuring window.

Measure				X
	- Select Device	C EYEONEIO	EYEONE ISIS	Information Total Blocks:30 Lines:1 Columns:30 Current Line:
			Prev Line	Abort

Figure 53

Measure the printed chart, and when you finish the measurement you will see the hint "Measured successfully! Press here to continue".

Measure		×
	- Select Device	Information Total Blocks:150 Lines:5 Columns:30
	Measured successfully! Press here to continue	Current Line:
	Prev Line	Abort

Figure 54

Click this hint to back to the main window. Now continue to print, as indicated by the arrows on the window, the printed chart at this time is shown as follows.

🗑 Color Wizard_Device Linearization_C6000-157g		X
$\textcircled{\hspace{0.1cm}} \begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & \rightarrow \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & \rightarrow \end{array} \begin{array}{c} & & \\ & & \\ & & \\ \end{array} \begin{array}{c} & \rightarrow \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & \rightarrow \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & \rightarrow \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & \rightarrow \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & & \\ \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & & \\ \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \begin{array}{c} & & \\ & & \\ \end{array} \end{array}$	$\blacksquare \rightarrow \blacksquare \rightarrow \blacksquare$	Help
C Load Linearization File    C Create Linearization	n File	
	1,2,1] ■ gal(h Mourt 2 <sup>7</sup>	Max. Device Density Cyan: 1.48 Magenta: 1.71 Yellow: 1.10 Black: 1.70
Setting $\longrightarrow$ Print $\longrightarrow$ Measure $\longrightarrow$ Print	Result	V
Loop Type: C Gray Delta E First 📀 DotGain First	Cyan Magenta Max. D-value	Yellow Black
🔽 Max. Gamut	Avg. D-value (%) (%) Gray Delta E	Edit curve
Prev	N	ext Abort

Figure 55

After the printing, continue to click **Measure**, to enter in the measuring window again. And return to the main window after the measurement. 

🐮 Color Wizard_Device Linearization_C6000	l-157g			×
		$\rightarrow$		Help
C Load Linearization File	Create Linearizatio	n File		
	Somutine Test chert page 1 of 1, Stat 1922 17 1 1 de, comp	te yakit anaze 27	2A1	Max. Device Density Cyan: 1.48 Magenta: 1.71 Yellow: 1.09 Black: 1.67
✓ Create Linearization Target				
Setting $\implies$ Print $\implies$	Measure → Loop Print	Result	Linearization_1	T
Loop Type: C Gray Delta E First	OtGain First	Max. D-value	Cyan Magenta	Yellow Black
🔽 Max. Gamut		[≋] Avg. D-value (≋) Gray Delta E	No No	No No
				Edit curve
Prev				Next Abort

Figure 56

Now you can see an option **Create Linearization Target** appearing (checked by default) on the interface.

**Create Linearization Target**: You need to create a target data in case that you want to perform a quick re-calibration operation in the future. When your device has been used for a period of time or its state has been changed, you can make use of the **Re-calibration** > **Quick Calibration** to restore your device to the state it had when you made the color calibration solution.

**Note**: 1) The **Next** button is grayed when this option is being checked, but becomes activated when you print and measure once again. 2) In case that you choose to load a linearization file and the file contains target data, the target data will be loaded with the file together. And if the loaded file does NOT contain this data, if needed, you can print and measure to create it.

Click the button **Loop Print**, and then repeat the measurement when the chart has been printed out, till that the color difference shown at the lower-right corner meets your requirement.

Scolor Wizard_Device Linearization_C6000-1	57g					×
			<ul> <li>↔</li> </ul>			Help
C Load Linearization File	<ul> <li>Create Linearization</li> </ul>	File				
	Subservicing Test chard pages 1 at 1, Sair 2 > 177 de, chargente 1	alch anove 15	201 ↑		Max Der Cyz Ma Yel Bla	s. Device nsity an: 1.48 genta: 1.70 low: 1.10 ck: 1.70
۵			205			
Create Linearization Target		Lo	op Counter: 1			
Setting $\longrightarrow$ Print $\longrightarrow$	Measure → Loop Print	Result	Linearization_1			•
Loop Type: C Gray Delta E First	OtGain First	Max. D-value	Cyan 2.76	Magenta 3.63	Yellow	Black
🔽 Max. Gamut		(≪) Avg. D-value (%) Gray Delta E	3.72	1.21	0.47	0.46
					Edit curv	e
Prev					Next	Abort

Figure 57

Files involved in the calibration wizard are saved automatically. At the **Result** column shows in turn the generated linearization files, Linearization\_1 ... Linearization\_n. And meanwhile the maximum and average differences for each loop printing and measuring are shown on the interface as well.

After the generation of the linearization file, click **Next** to enter into the interface for total ink amount.

If you are NOT satisfied with the generated linearization file, you can edit it, although the editing operation is NOT suggested for most users, for that it is an advanced adjustment.

Click the **Edit Curve** button at the bottom of the window to open the editing window, in which you can view and edit the generated linearization curve file.

it Curve								×
-Edit Nod	es(%)			1				ſ
	Use Ink Amount	Reference Density	Measured Density		Use Ink Amount	Reference Density	Measured Density	Cyan
□ 0%	0.00	0.07	0.07	<b>□</b> 36%	7.84	0.33	0.34	
□ 1%	0.16	0.08	0.08	□ 40%	9.14	0.37	0.38	
□ 2%	0.35	0.08	0.08	□ 44%	10.51	0.42	0.41	
□ 3%	0.46	0.09	0.08	□ 48%	12.10	0.46	0.45	
□ 4%	0.68	0.09	0.09	□ 52%	13.97	0.51	0.51	
□ 6%	1.04	0.11	0.10	□ 56%	15.87	0.56	0.56	
□ 8%	1.38	0.12	0.12	61%	18.32	0.63	0.62	
□ 10%	1.70	0.13	0.13	□ 65%	20.75	0.70	0.68	
□ 12%	2.06	0.14	0.14	□ 70%	24.26	0.78	0.78	
□ 15%	2.65	0.17	0.16	□ 75%	28.11	0.88	0.89	
□ 17%	2.98	0.18	0.18	□ 80%	32.22	1.00	0.97	Edit Parameter
<b>□</b> 20%	3.54	0.20	0.20	□ 85%	37.29	1.14	1.12	Edit Max Density
□ 24%	4.41	0.23	0.23	□ 90%	44.93	1.32	1.28	Edit Yule-Nielson 1.70
□ 28%	5.40	0.26	0.26	<b>□</b> 95%	58.79	1.55	1.52	
□ 32%	6.56	0.30	0.30	□ 100%	80.25	1.90	1.92	Print Cancel OK

#### Figure 58

**Note**: 1) The Edit Max Density and Edit Yule-Nielson options are grayed when you are viewing or editing the curve. 2) Aiming at re-defining specific ink percentage values, the editing becomes available only when you have checked the boxes in front of the percentages. Please note the monotonicity of the curve during the editing.

If you have edited the curve, you can click **Print**, to apply the edited curve to print out a test chart, so as to check the actual linearization effect. Look over the printed chart with your eyes, a good linearization effect has the following characteristics: well-proportioned monochromatic color gradation, no mergence, composite colors of three equivalent color components at the bottom of the chart, no remarkable variance, and consistent hue. If you are NOT satisfied with the print result, you can continue to edit it. If satisfied, click **OK** to return.

**Note**: If you have edited the curve and clicked **OK**, you will be hinted then that the target data created previously is no longer matching with the current device state, and that it's best for you to print and measure again. In this case, please print and measure again to get new linearization target data.

#### **Step 2: Total Ink Amount**

This step is used for determining the total ink amount. The main window displays the chart used for deciding the total ink amount. This step is the same as that for digital proof.

🔯 Color Wizard_Total Ink Amount_liyong20140805	×
$\overbrace{\hspace{1.5cm}}^{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}}^{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{15cm}} \frown{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow } \rightarrow \overbrace{\hspace{1.5cm}}} \rightarrow \overbrace{\hspace{1.5cm}} \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \frown{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow } \rightarrow \overbrace{\hspace{1.5cm}} \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \frown{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow \overbrace{\hspace{1.5cm}} \rightarrow } \rightarrow $	
Print Measure Recommend Ink value:	
Max Ink: CK: 400 % MK: 400 % YK: 400 %	
Prev	Next Abort

Figure 59

The chart consists of two halves, the upper half is used for auto measuring, and the lower half is used for you to make decision with your eyes. Please refer to the method below to choose a right color block, and then combine the corresponding value and the measured value to decide a suitable total ink amount.

Click the **Print** button to print out this chart, and then measure the upper half of the chart. The measuring result is shown aside **Recommend Ink value**. And meanwhile, choose the right color block with your eyes from the lower half of the chart. Based on the recommend value and the value in front your chosen color block, input proper values into the **CK**, **MK**, and **YK** edit boxes.

Method to choose the color block: it is best to observe the chart just after it has been printed out. ①The color block without any flowing or heaping ink, and exactly in front of the semi-dry one. ②The thin white lines on the blocks are designed for inspecting the ink penetration. Heavy penetration usually causes the white lines to fragment or disappear. In case that the paper is of high quality, you'd better choose the one on which the white lines are clearly visible. ③In case that the paper is of coarse quality, you should inspect the ink penetration from the back side of the paper. The total ink amount is considered high if the ink penetration is so heavy that the paper has been obviously distorted. You can choose a block with neutral penetration.

**Note**: the method above is used for reference only. In actual work, please make your decision flexibly according to the paper type, the measuring result and visual inspection.

Click **Next** to enter into the main window for device calibration.

## **Step 3: Device Calibration**

As an optional step, it is designed to create the device state file. Its main window is shown as follows. This step is the same as that for digital proof.

$\qquad \qquad $		~
C Load Device Calibration File	Create Device Calibration File	
Print	Measure	
Prev		Next Abort

Figure 60

Only when you have created the device state file in this step, you can then make use of the module **Re-calibration** > **Entire Calibration**. The calibration file can be loaded, or be created by way of printing and measuring.

As to creating a new one, please click the **Print** button to print out the color chart and then measure it. After the measurement, click **Next** to enter into the main window of device characterization.

### **Step 4: Device Characterization**

This step is designed to create the color characterization profile for your current digital printer. It also allows two methods, being loaded or created. This step is a little different from that for digital proof. There is an additional item **Setting** on the interface.



Figure 61

Take the creating of a device characterization profile as example. Click the **Print** button on the main window to let the printer output the ECI2002 chart, and then click **Measure** to measure it.

Return to the main window after the measurement. The buttons **Setting** and **Create** become activated. Click **Setting** if you want to modify parameters related to the generation of the device ICC file. Among them, the value displayed below **CMYK** is the value you specified in the step of total ink amount.



Figure 62

Click **OK** to return to the main window, when you have done the settings. Now click **Create** to start creating the characterization profile. The **Calculate** progress bar shows the progress of the file generation. The generated profile will then be displayed, like ProfileD\_0.tmp.

Click **Next** to enter into the main window for source characterization.

### **Step 5: Source Characterization**

If you want your digital printer to achieve the color output effect that is represented in a specific environment, you can define the profile of that environment.

If you already have this ICC profile, select **Load Source Profile**. If you want to measure the ECI2002 color chart printed in that environment, select **Create Source Profile** to create the profile.



Figure 63

As shown on the interface, the Color Tools builds in several international standard source profiles for you to choose. After the loading, you can click the **Edit** button to modify the saturation of the loaded profile. The modifying operation is NOT recommended for general users.

Edit ICC			×
Saturation			- 0
Re	eset	ОК	Cancel

Figure 64

Click **Next** to enter into the interface for generating the data package.

### Step 6: Color Data Packaging

This step is designed to package the proof data into a single proof file \*.cmf.

$\begin{array}{c} \mbox{Color Wizard_Color Data Packaging_liyong1} \\ \hline \\ $			
CMYK-CMYK Setting CMYK Source: ISOCoated icc Ref [Ref (Note: If you want to do 0	Device ICC: LoadProfileD.tm Indering Intent: JativeColorimetric	p	Print Chart
RGB-CMYK Setting RGB Source: SRGB.icc Rel Use Simulation ICC	Simulation ICC: ISOCoated.icc ndering Intent:	Dev Los Rendering Intent RelativeColorimetric	rice ICC: adProfileD.tmp Print Chart
Gray-CMYK Setting Gray Source: Gray.icc Ref Use Simulation ICC	Simulation ICC: ISOCoated icc ndering Intent	Dev Los Rendering Intent RelativeColorimetric	rice ICC: adProfileD.tmp Print Chart
Package Color Data Integrated Fi	le		Next Abort

Figure 65

**Note**: If you haven't set the source ICC in previous step, you can click the button aside the parameter **CMYK Source**, to specify a source ICC you will use.

**CMYK-CMYK Setting**: To affect the color output of the CMYK entities in job.

**RGB-CMYK Setting**: To affect the color output of the RGB entities in job, enabling the RGB entities to be output as per the color effect specified by the **Simulation ICC** option.

**Gray-CMYK Setting**: To affect the color output of the Gray entities in job, enabling the Gray entities to be output as per the color effect specified by the **Simulation ICC** option.

**Rendering Intent**: It's a mode of color conversion and is available for each color space. Its four options enable different conversion results. Among them, the **Relative Colorimetric** is the most commonly-used option. **Absolute Colorimetric** is used when you want to simulate the paper white of the source device.

Click the button **Package Color Data** to generate the .cmf file when you have defined the above settings. After the generation, the three **Print Chart** buttons become activated, and by clicking them, you can print out respectively the test page for the CMYK, RGB, and Gray modes, for purpose to view the color output effect of the current proof data.

Click **Next** to enter into the main window for circular calibration.

### **Step 7: Circular Calibration**

The purpose of this step is to enable a better match between the output result of current device and the source characterization profile, so as to achieve an accurate simulation and an optimization on the color effect.

Figure 66

By default, the option **Create Status Target** on the main window is checked, and the button **Finish** is grayed. The purpose for creating status target is to get the device's status result data that are output with current proof file, as a basis for evaluating color output result. If you don't want to perform the circular calibration, you can uncheck **Create Status Target** to activate the **Finish** button.

**Loop Counter** counts the times you have repeated (circulated). The button **Print Chart** enables you to print out the effect of the current circular calibration each time when the calculation is completed.

Click **Print** to print out the ECI2002 color chart (at this time the chart is applied with proof data) and then measure it. Return to the main window when you finish the measurement, and you will see that the button **Calculate** becomes activated. Click it, and when the calculation is completed, you will see the average Delta E value being displayed at the **Result** column. This value at the first time is usually large. Now you can start the loop calibration, i.e. to repeat the **Print**, **Measure** and **Calculate** operations. In general, the Delta E will be reduced to a quite ideal value after two loops, and then you

can stop the circular calibration.

Please click **Finish** to exit the calibration wizard. The generated .cmf file is stored under the **CMF Path** defined in the **Properties Setup** window (opened by clicking **Properties Setup** at the beginning of the wizard). Meanwhile the status target data is recorded in the proof file.

## 4.3 Apply CMF File

1. Run your ElecRoc Client, and open or create a job. The job should contain the PDF Generator and the Digital Printer nodes.

📮 Founder ElecRoc 6 Client[administrator @ easiprint_test2]		
	📃 System 🛛 🕅 Tools	🛕 Alert 🛛 😧 Help
ElecRoc 6 Q Jobs Status 🔯 Resources 🔤 Administrato	r Statistics	¬₽
Processor List Resource Share		×
S Bit TIFF Export     Image: Constraint of the system of the		
Mono Printer		
R     Canon IPF 500       R     Epson Stylus Pro 7890       V     PDF Rasterizer       R     Canon IPF 8410		
246250 P5200 C 3500		
FZC6000 K110 K2110		
This timer version ElecRoc 6 will be expired in 2 days.		

Figure 67

2. Configure the printer node's processor parameters. At the **Use CMF File** dropdown list under the **Color Calibration** tab, choose the .cmf file you have just finished.

ub Parameter settings-FZ	c6000 neter setting	5			
Output Layou		Color Calibration	Inset	Numbering	Equipment
olor Solution Vse CMF file	ong.cmf	•			'
her					
Spot Color Replace	None		-		
Curve	None		-		
Black Reserve	None		▼ Rete	ntion Range 1	-100
Load Parameters				Ap	ply Cance

Figure 68

3. Submit pages to the printer node when you have done the configuration. The printer node can accept directly the output pages from PDF Generator.

# **Chapter 5 View & Edit CMF**

In the Color Tools, by clicking the toolbar icon $\mathbf{B}$ , or choose the main menu item **File** > **Open CMF**, you can open a .cmf file for purpose of viewing or editing.

Lo	oad CMF File		×
	CMF File Path	\\easiprint_test2\Elecroc\Resources\Proc	Load
		OK Cancel	

Figure 69

Click the **Load** button to choose the .cmf file you want to open. And after the loading, click **OK** to enter in the viewing/editing window.

## 5.1 View Data

ColorTools		-0
Ver(E) Function(E) Window(Q) He	Netto Recalabilition Sect Calar Food Carrier Qualify Certification Data Transform	
G Edit Color Solution - liyong20	140003.cm	
Basic Information	Basic Information	
Linearization Curve		
3D Table	- Information	
4D Table	Device name EPSON Splus PR0 7890 Resolution 220 120	
Spot	Media Type Premium Semigloss Photo Paper Columbode 4 Int Type Promote	
Total Ink&Paper White	Black ink Type Photot Monaue devoe Epo evos BIS	
Recalibration threshold: 2 Print width[mm]: 360 ******2014.8.8 9:2:40 Message: Communicating ******2014.8.8 9:5:55 CMYK Retain black: 0	2.000000 with the Instrument	-
Current Property	nion Indo	
idy	l Nue	۹L

Figure 70

A .cmf file contains the following data, which can be expanded for view respectively by clicking the columns at the left of the window. Some data can even be edited.

## **1. Basic Information**

Here shows the device information and other custom information given at the time you created the .cmf file. Basic information is generally used as sort of identifiers or notes. The custom information can be edited (click **Modify** to save the editing). For example, each time when you revise your .cmf file, you can write here the revision time and content, for ease in future reference.

## 2. Linearization Curve

Here shows the detailed data about the linear curve.

The linear data can be edited. Double-click the value in the **Out** column to turn it into an edit box, input new value and then press Enter key. You can also drag the right curve to edit the data. If needed, you can click **Print** to print out a chart, checking the editing effect. The button **Undo** enables you to return the curve to the state at the time you opened it.

asic Information	Lineanz	ation Cur	/8										
	Index	la.	0.4	Target	Manuna		Target Valu	e 🔺					
nearization Curve	Index	In	out	Larget	measure	L	A	В	0 L D	C.		=	
	1	0.0	0.0	0.072	0.066	93.9	0.3	-1.0	Color Plane	Uyan		<u> </u>	
) Table	2	1.0	✓ 0.2	0.077	0.075	93.5	-0.2	-1.6	Curve				
	3	2.0	✓ 0.4	0.083	0.079	93.4	-0.6	-1.8	Curve				
) Table	4	3.0	✓ 0.5	0.089	0.084	93.2	-1.0	-2.3	100		 		
	5	4.0	0.7	0.095	0.092	92.7	-1.3	-2.7					
not	6	6.0	<b>1</b> .0	0.106	0.103	92.3	-2.2	-3.6		_			
101	7	8.0	✓ 1.4	0.119	0.116	91.7	-3.0	-4.5					
4-11-1-0 D 10/0-14-	8	10.0	✓ 1.7	0.131	0.125	91.4	-3.7	-5.2					
tai ink&Paper White	9	12.0	2.1	0.144	0.144	90.4	-4.7	-6.3					
	10	15.0	2.7	0.165	0.163	89.6	-5.8	-7.5					
	11	17.0	3.0	0.179	0.177	89.0	-6.5	-8.4		_	_	6	
	12	20.0	3.5	0.201	0.196	88.2	-7.7	-9.6					
	13	24.0	✓ 4.4	0.231	0.229	86.8	-9.3	-11.5					
	14	28.0	5.4	0.264	0.261	85.5	-11.0	-13.5				1	
	15	32.0	6.6	0.298	0.303	83.8	-13.1	-15.8					
	16	36.0	7.8	0.335	0.342	82.3	-14.9	-17.8			-		
	17	40.0	9.1	0.374	0.376	81.1	-16.6	-19.7			~		
	18	44.0	✓ 10.5	0.416	0.412	79.9	-18.2	-21.8			 		
	19	48.0	✓ 12.1	0.460	0.454	78.5	-20.0	-23.7		_	 _		
	20	52.0	✓ 14.0	0.508	0.509	76.8	-22.3	-26.3		-0-0-0-0-C			
	21	56.0	✓ 15.9	0.560	0.557	75.5	-24.3	-28.6	hardstory				
	22	61.0	🔽 18.3	0.632	0.619	73.8	-26.4	-31.1	0			100	
	23	65.0	20.7	0.695	0.685	71.4	-27.5	-33.7					
	24	70.0	24.3	0.783	0.782	68.0	-28.3	-37.5					
	25	75.0	28.1	0.883	0.890	64.6	-29.3	-41.2		Print	U	Indo	
	21	00.0	E7 00 0	1.001	0.075	~~~	20.2	لقريب الم			 		

Figure 71

## 3. 3D Table

Here shows the detailed data about the device calibration file. This data can only be viewed.

Basic Information	SD Ta	ble												
Linearization Curve								Data Sta Av	atistic verage DeltaE	0.0		Max De	ltaE 0.0	1
3D Table			In			Out			Target Vali	19		MeanineVal	119	Compare A
	Index	L L	м	Y	r r	M	Y	1		R R	1		B	DeltaE
4D Table	1	00	100.0	50.0	00	100.0	50.2	50.7	70.3	186	00	00	0.0	00
	2	0.0	80.0	50.0	0.0	80.0	50.2	59.7	55.7	15.7	0.0	0.0	0.0	0.0
Spot	3	0.0	65.0	50.0	0.0	65.1	50.2	66.8	41.7	17.1	0.0	0.0	0.0	0.0
	4	0.0	50.0	50.0	0.0	50.2	50.2	72.7	29.7	19.2	0.0	0.0	0.0	0.0
Total Ink&Paper White	5	0.0	40.0	50.0	0.0	40.0	50.2	76.7	22.1	21.8	0.0	0.0	0.0	0.0
	6	0.0	25.0	50.0	0.0	25.1	50.2	83.1	9.4	25.5	0.0	0.0	0.0	0.0
	7	0.0	10.0	50.0	0.0	10.2	50.2	87.8	0.0	29.4	0.0	0.0	0.0	0.0
	8	0.0	0.0	50.0	0.0	0.0	50.2	91.0	-6.1	31.7	0.0	0.0	0.0	0.0
	9	0.0	100.0	100.0	0.0	100.0	100.0	50.0	67.9	61.6	0.0	0.0	0.0	0.0
	10	0.0	80.0	100.0	0.0	80.0	100.0	57.7	54.8	63.2	0.0	0.0	0.0	0.0
	11	0.0	65.0	100.0	0.0	65.1	100.0	63.1	44.6	67.1	0.0	0.0	0.0	0.0
	12	0.0	50.0	100.0	0.0	50.2	100.0	68.0	34.3	72.6	0.0	0.0	0.0	0.0
	13	0.0	40.0	100.0	0.0	40.0	100.0	72.2	24.9	76.1	0.0	0.0	0.0	0.0
	14	0.0	25.0	100.0	0.0	25.1	100.0	79.0	10.1	81.7	0.0	0.0	0.0	0.0
	15	0.0	10.0	100.0	0.0	10.2	100.0	84.4	-0.7	87.3	0.0	0.0	0.0	0.0
	16	0.0	0.0	100.0	0.0	0.0	100.0	88.2	-8.3	92.5	0.0	0.0	0.0	0.0
	17	0.0	100.0	25.0	0.0	100.0	25.1	50.8	73.5	2.8	0.0	0.0	0.0	0.0
	18	0.0	80.0	25.0	0.0	80.0	25.1	60.2	58.5	-1.2	0.0	0.0	0.0	0.0
	19	0.0	65.0	25.0	0.0	65.1	25.1	67.5	44.3	-0.2	0.0	0.0	0.0	0.0
	20	0.0	50.0	25.0	0.0	50.2	25.1	73.4	32.7	2.4	0.0	0.0	0.0	0.0
	21	0.0	40.0	25.0	0.0	40.0	25.1	77.6	24.6	4.3	0.0	0.0	0.0	0.0
	22	0.0	25.0	25.0	0.0	25.1	25.1	84.2	11.8	7.7	0.0	0.0	0.0	0.0

Figure 72

The **In** values refer to the initial CMY values of the color blocks in the device calibration chart. The **Out** values refer to the color values that are to be used for printing the chart after the calibration. **Target** values are the LAB values measured from the printed chart, i.e. the data from the device state file created in the .cmf file. The **Measure** values are measured data after re-calibration. **Statistic** is the color difference between measured and target values after re-calibration.

### 4. 4D Table

Here shows the output and color difference for the ECI2002 color chart in your .cmf file.

Basic Information	4D T	able															
inearization Curve_	Sele	ect	=		SourceICC	file name —			Data Statis	tic		10	1		0.0		
3D Table		Cyan	I <b>⊻</b> Yallo	W	JapanCoati	ed			Current Di	eltaE	ľ		- All Delta	E	10.0		
4D Table		Magenta	🔽 Blac	k					Current M	ax DeltaE	[0	0.0	Max Del	taE In All	0.0		
Du et			In					Out			Target Va	lue		Measure V	alue	Compare	
shor	Index	C	M	Y	K	C	М	Y	K	L	A	В	L	A	В	DeltaE	
	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.0	0.3	-1.5	0.0	0.0	0.0	0.0	
otal Ink&Paper White	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.0	0.3	-1.5	0.0	0.0	0.0	0.0	
	3	3.0	3.0	3.0	3.0	5.9	4.3	5.9	0.0	87.6	0.5	-1.0	0.0	0.0	0.0	0.0	
	4	3.0	3.0	3.0	40.0	35.3	27.1	34.1	7.1	65.8	0.3	-1.2	0.0	0.0	0.0	0.0	
	5	3.0	3.0	40.0	3.0	6.7	3.1	44.7	0.0	85.4	-3.7	29.1	0.0	0.0	0.0	0.0	
	6	3.0	3.0	40.0	40.0	36.1	25.1	61.6	9.4	63.9	-3.1	21.5	0.0	0.0	0.0	0.0	
	7	3.0	40.0	3.0	3.0	9.0	43.5	7.8	0.0	71.0	23.1	-4.7	0.0	0.0	0.0	0.0	
	8	3.0	40.0	3.0	40.0	38.4	55.3	32.5	11.0	53.1	17.9	-4.2	0.0	0.0	0.0	0.0	
	9	3.0	40.0	40.0	3.0	7.5	42.4	47.8	1.6	69.3	19.7	21.5	0.0	0.0	0.0	0.0	
	10	3.0	40.0	40.0	40.0	29.8	51.8	59.6	22.4	51.8	15.0	15.7	0.0	0.0	0.0	0.0	
	11	7.0	7.0	7.0	7.0	13.3	9.8	13.3	0.0	82.4	0.9	-0.3	0.0	0.0	0.0	0.0	
	12	10.0	6.0	6.0	10.0	19.2	11.0	13.7	0.0	80.3	-0.5	-2.4	0.0	0.0	0.0	0.0	
	13	10.0	6.0	6.0	20.0	26.7	17.3	21.2	1.6	74.9	-0.5	-2.3	0.0	0.0	0.0	0.0	
	14	10.0	6.0	6.0	40.0	39.2	29.4	35.3	8.6	62.9	-0.5	-2.2	0.0	0.0	0.0	0.0	
	15	10.0	6.0	6.0	60.0	51.0	40.4	47.1	23.1	49.0	-0.2	-1.7	0.0	0.0	0.0	0.0	
	16	10.0	6.0	6.0	80.0	60.8	52.5	59.6	47.1	33.2	0.4	-0.9	0.0	0.0	0.0	0.0	
	17	10.0	6.0	6.0	100.0	68.2	70.2	70.6	83.9	15.3	2.3	0.8	0.0	0.0	0.0	0.0	
	18	10.0	10.0	10.0	20.0	26.3	20.4	26.3	3.1	73.2	1.1	0.0	0.0	0.0	0.0	0.0	
																1.2	Ě

#### Figure 73

The **In** values are the initial CMYK values of ECI2002 chart's color blocks. **Out** values are the CMYK values conversed with the 4D table. The **Target** values are the lab values for the CMYK values with source ICC. The **Measure** values are the lab values measured from the printed chart. **Statistic** is the color difference between the target and measured values.

### 5. Spot colors

Here shows the spot color in your .cmf file, if any. Spot color information includes spot color name, color mode, color values. The color mode refers to the color mode for the color tune curve corresponding to the spot color. The curve is displayed at the right. The **Tone** slide bar and the output CMYK values below are closely correlated. By moving the slide bar, you can see corresponding CMYK output values.

Z Edit Color Solutionliyong20	)140808.cmf											
Basic Information	Spot											
Linearization Curve	Index	Spot Color	Color Mode	C/L	Color M/A	Value Y/B	K.	Col	or Plane	Cyan	•	
3D Table	1							Cur 1	ve 00	C LAB Mode	C CMYK Mode	
4D Table	4											
Spot	6 7											
Total Ink&Paper White	8											
	10											
	13											
	15 16											
	17 18 19											
	20											
	22 23							0			100	
	24 25 26						-	Ton	e(%)		0	
	•							Outp	out C	м	Y K	
		Export	Prin	t	Undo		Reset		0	0	0	

Figure 74

## 6. Total Ink & Paper White

Here you can see the total ink amount and the rendering intent used for generating the 4D table. If the intent is Absolute Colorimetric, you can then edit the paper white.

Z	Edit Color Solutionliyong.ci	mf	
	Basic Information	Total Ink&Paper White	
	Linearization Curve		
	3D Table	Lotal Ink Amount BlackReserve Info	
	4D Table	BlackReserve	
	Spot	360 350 CMYK Sold Retain	
	Total Ink&Paper White	🗖 Gray Output Use Black	
		Paper White	
		Static Relative (CMYK-CMYK Link)	

Figure 75

**CMYK Black Reserve**: If checked, the system will directly use black ink to print the pure black process color (only the K in CMYK is NOT equal to 0 in this case). This option was set in the **Properties Setup** window before you made the .cmf file, thus is displayed grayed here.

**CMYK Solid Retain**: If checked, the color of CMYK=100% will be remained unchanged. If not, such color will still be conversed by the .cmf file.

**Gray Output Use Black**: If checked, Gray graphic entity will be output with only the black ink. If not, such entity will be conversed by the .cmf file.

## 5.2 Re-calibration

When your device state or the environment where it is located has been changed, and consequently has affected the color output result, you can make use of the re-calibration to correct the output.

1. In the Color Tools, use the main menu item **File** > **Open CMF**, or the toolbar icon<sup>2</sup> to open the .cmf you want to re-calibrate.

L	oad CMF File		×
	CMF File Path	\\easiprint_test2\Elecroc\Resources\Proc	Load
		OK Cancel	

Figure 76

2. The toolbar icon **Re-calibration** becomes activated. Click it to enter in the user interface. Please ensure that your device is in normal working state before the re-calibration.

Calibration Setting		×
🔲 Use small chart to	o caculate dE	
Calculate dE Before (	Calibration(Recommend)	
🔽 Get Data	Print Measure	Load Data Save Data
dE:		
Calibration		
	Quick Calibration	Entire Calibration
- Calculate dE After Ca	libration(Recommend)	
🔽 Get Data	Print	Measure
dE:		
	Calibration OK	Calibration Cancel

Figure 77

## 5.2.1 Calculate dE Before Calibration

Before the re-calibration, we recommend you to perform a color difference calculation, so as to know how big the difference is between the current device state and the state recorded in the .cmf file.

To perform the calculation, please check the box **Get Data**. Before you click **Print** to print out the color chart, you are recommended to check the option **Use small chart to calculate dE**, which means to print out a small chart, as shown in the below. If not checked, the ECI 2002 chart will then be printed.



After the printing, click **Measure** to measure the chart. The color difference between the current device state and that in the .cmf file will be then displayed aside **dE** parameter.

Calibration Setting				×
🔽 Use small chart to	caculate dE			
Calculate dE Before C	alibration(Recommend)			
🔽 Get Data	Print	Measure	Load Data	Save Data
dE:	4.15			
Calibration				
	Quick Calibration		Entire Calibration	
Calculate dE After Cal	ibration(Recommend) —			
🔽 Get Data	Print		Measure	
dE:				
	Calibration OK		Calibration Cancel	

Figure 79

Take the above figure as example, the dE value of 4.15 is bigger than the pre-defined

threshold of 2, therefore a calibration becomes necessary.

The button **Save Data** enables you to save the measured result as a .txt file, while the button **Load Data** enables you to load such saved .txt file.

There are two modes for re-calibration: quick calibration and entire calibration. Each time when you enter in the re-calibration's user interface, you can choose only one of the two modes. Next, we will introduce them respectively.

## 5.2.2 Quick Calibration

This calibration requires that the current solution contains the linearization target data, which can be created in the *Linearization* step of the calibration wizard.

As a fast way of color calibration, it requires no repetition of printing & measuring.

Click the button **Quick Calibration** to enter in its user interface.

Nuick Calibration_\\easiprint_test2\Elecroc\Resources	IMF\25\FZC6000-Coated Paper.cmf
	Loop Counter:
Print	Measure Result-
	Çà Æ∵ »Æ ⁰Ú
	Max Error: (%)
	Ava Error: (%)
	Edit curve
	Finish

Figure 80

As indicated on the window, please click in turn the buttons **Print** and **Measure** to perform the printing and measuring operations, and after the measurement, click **Finish**.

## 5.2.3 Entire Calibration

This calibration requires that the current solution contains the device state file, which can

be created in the *Device Calibration* step of the calibration wizard.

This mode requires repetition of printing & measuring.

1. Click the button **Entire Calibration** to enter in its user interface.

Entire Calibration_\\easiprint_test2\Elecroc\Resources\EMF\25\FZE6000-Coated Paper.cmf	×
Result: Original File Cur dE: Pre dE:	
Print Measure Init Loop Print	
-Caculate	
Count	
	Finish
	11101

Figure 81

2. Click the button **Print** to print out the color chart. And then click **Measure** to enter in the measuring window, measuring the printed chart. After the measurement, click **Init Loop Print**. The Color Tools will then calculate and correct automatically in background.

3. As indicated by the arrows, continue to measure and loop print, and get the dE value. Repeat this operation till you are satisfied with the color difference.

4. Click **Finish** to complete.

### 5.2.4 Calculate dE After Calibration

After the recalibration, if needed, you can choose to perform a color difference calculation. When you have returned to the Calibration Setting window, use the buttons **Print** and **Measure** in the **Calculate dE After Calibration** area, to perform the printing and measuring operation, and then get the color difference value.

Calibration Setting				X
✓ Use small chart to	o caculate dE			
Calculate dE Before (	Calibration(Recommend)			
🔽 Get Data	Print Me	asure	Load Data	Save Data
dE:	4.15			
Calibration				
	Quick Calibration		Entire Calibration	
Calculate dE After Ca	libration(Recommend)			
🔽 Get Data	Print		Measure	
dE:	1.40			
	Calibration OK		Calibration Cancel	

Figure 82

**Note**: The color charts used before and in the re-calibration must be the same. If the color difference after the recalibration is smaller than that before the recalibration, choose **Calibration OK**; otherwise, you can choose **Calibration Cancel**.

## 5.3 Spot Color Tool

Only when the spot color is contained in the .cmf file, it will then be conversed by the color logic in the .cmf file. Otherwise, it will be processed as per the RIP settings.

In case that the spot colors are NOT output accurately under the control of .cmf file, you can use the spot color tool in Color Tools to make a color calibration.

### 5.3.1 Basic Setting

- 1. Open the .cmf file that you want to calibrate.
- 2. Click the toolbar icon Spot Color Tool to enter in its user interface.

D Spot Color List	Spot Colo	r Name: PA	NTONE		
PANTONE Spot waiting to add	🗖 Use Sc	urce ICC	ource embeded i	n Cmf file 💌	
	cc 🛛	м 0	ΥŪ	κ	Print
	@ L 23	87 A 19.12	в -48.21		1
	Curve Mo	de: O CMYK	⊙ Lab		
	Color Plar	e: L	•	P	eset
	0	X: 100.0	Y	100.0	100
					1

Figure 83

At the left of the window, the **Spot In Cmf File** list refers to the spot colors contained already in your .cmf file, while **Spot waiting to add** refers to the spot colors loaded after you have entered in the spot color tool. Choose a spot color and then you can see its detailed properties at the right.

**Find**: If there are many spot colors in your list, you can find your spot color easier by using the **Find** button.

**Add**: You can click the **Add** button to add a chosen spot color from the list **Spot waiting to add** to the list **Spot In Cmf File**. This button can also add the spot color you are inputting into the list. Clicking on the **Add** button is needed every time when you edit your spot color and want to save your modification.

Delete: Use this button when you want to delete a spot color from the list.

**Load**: This button is used to load spot colors from a .pdf file or a .spt file. The loaded spot colors will then be displayed in the list **Spot waiting to add**.

Spot Color Name: The name of the spot color.

**Use Source ICC**: This setting controls how CMYK spot colors are conversed. Options in the dropdown list are various source ICC profiles. If not checked, the printing device's color space will be used. If checked, source color space will be mapped into by way of color conversion.

**CMYK/Lab**: Here shows the detailed color values. Note that only spot colors defined in Lab mode can be refined.

**Curve Mode**: The mode of the spot color tune curves. Lab spot colors support CMYK or Lab modes, while CMYK spot colors support only CMYK mode.

**Refine**: There are two refine types, **General** and **Accurate**. The **Accurate** type is usually recommended. The refinement is applied only to Lab spot colors. For CMYK spot colors, if needed, you can choose a proper source ICC to convert into Lab mode, and then perform the refinement.

## 5.3.2 Add Spot Color

#### 1. Create a spot color

Choose the spot color list **Spot In Cmf File**, and you can see that the edit box **Spot Color Name** becomes activated. Input a name, and its color values, and other properties if needed, and then click **Add**. In this way, you can create a spot color under the **Spot In Cmf File** list.

2. Add from the list Spot waiting to add

Click the **Load** button to open a .pdf file that contains spot colors. This action can load the spot colors from the PDF file into the list **Spot waiting to add**. And then choose a loaded spot colors, click Add to add it into the list **Spot In Cmf File**.

### 5.3.3 Spot Color Refinement

CMYK spot colors can be calibrated by simply changing the CMYK values. If needed, the CMYK values can turn to Lab values by applying a source ICC. Only Lab spot colors can be refined. There are two types, **General** and **Accurate**. They have the same purpose, i.e. by way of loop calibration, making the output result closer to the target.

#### 1. General Refine

This type refines only one spot color each time, and supports only the Eye-One device.

In the main window of the spot color tool, tick the box in front of the spot color you want to refine, and choose the **General Refine** option in the **Refine** dropdown list, and then click the button **Refine**. The tool first hints that this type will use the Eye-One device. Please choose **Yes** to continue.

The spot color measuring window appears. At the right shows the target values for current spot color. This value, if needed, can be re-obtained by clicking the button **Measure Target** and then measuring.

t Refine					
Step	L	a	b	dE	
					Spot Name: PANTONE
					Target: L 23.87 a 19.12 b -48.21
					Loop Count.
					- Measure Target - Print - Measure
					<u> </u>
					OK Cancel

Figure 84

Click **Print** to print out a single color block of the current spot color. And then click **Measure** to measure the printed spot color block. After the measurement, both the measured color values and the color difference compared with the target values will be listed at the left table. Repeat the "print and measure" operation till you are satisfied with the color difference or the color difference rebounds. And then, choose the best result from the left table, and click **OK**.

Return to the main window of the spot color tool. Now the spot color values will be updated as per the result of the refinement. Click **Finish** to save and exit.

oot Color	Refine				2
Step	L	a	Ь	dE	Т
1	20.78	24.39	-45.23	6.80	
2	21.42	22.79	-45.82	5.02	Spot Name: PANTONE
3	21.11	21.53	-45.65	4.47	
					T
					Target: L 23.07 a 13.12 b -40.21
					Loop Count: 3
					·
					Measure Target → Print 🛶 Measure
					OK Canad

Figure 85

#### 2. Accurate Refine

In the main window of the spot color tool, tick the box in front of the spot color you want to refine (three spot colors at most can be ticked this time), and choose the **Accurate Refine** option in the **Refine** dropdown list, and then click the button **Refine**.

ot Refine					
ID	L	a	b	dE	
					Spot Name: PANTONE
					Target L 23.87 a 19.12 b -48.21
					Loop Count: 0
					Measure Target   -> Print   -> Measure
					<u> </u>
					OK Cancel

Figure 86

If you have chosen more than one spot color, and want to measure the target values of the spot colors first, please choose the spot color from the dropdown list, and click **Measure Target** to perform. The refinement operation can be continued after you get the target values. In case that you have already gotten the target values, you can ignore the measurement, and perform the refinement directly.

The refinement can be completed by clicking repetitiously the **Print** and **Measure** buttons, as indicated by the arrows, and performing corresponding printing and measuring operations, till you get the satisfied color difference value or the color difference value rebounds.

D	L	a	Ь	dE	▲
	22.13	22.17	-47.41	1.35	
2	22.36	22.18	-47.43	1.41	Spot Name: PANTONE
3	21.61	22.52	-47.27	1.71	
4	22.40	22.37	-47.01	1.81	
5	21.98	22.80	-47.51	1.82	
6	21.98	22.74	-47.14	1.95	Тагдет: L 21.87 а 21.12 b -48.21
7	21.55	22.67	-46.96	2.02	
8	21.44	22.53	-46.65	2.14	
9	22.35	23.06	-47.15	2.27	Loop Count: 1
10	21.82	22.78	-46.62	2.30	
11	21.91	23.03	-46.85	2.34	
12	22.44	22.89	-46.68	2.41	
13	21.62	23.17	-46.93	2.43	
14	21.58	23.32	-47.13	2.47	Measure Target - Print - Measure
15	21.83	22.35	-45.95	2.57	
16	21.85	22.52	-45.97	2.64	1
17	22.07	23.37	-46.72	2.70	
18	22.01	23.54	-46.94	2.74	
19	22.12	23.28	-46.47	2.78	
20	22.02	23.75	-47.10	2.86	
21	21.89	23.75	-47.08	2.87	
22	21.83	22.98	-46.01	2.88	
23	21.22	23.17	-46.11	3.01	
24	21.47	22.68	-45.60	3.07	
25	22.41	23.23	-46.01	3.09	
26	22.19	24.06	-46.91	3.23	

Figure 87

After the refinement operations, choose a best result from the left table, and click **OK**. Now, return to the main window of the spot color tool. The spot color values will be updated as per the result of the refinement. Click **Finish** to save and exit.

### 5.3.4 Spot Color Tune

The spot color tool supports the application of a color tune curve, which can control the spot color's middle tone.

The tune curve can be edited in the spot color tool, or in the viewing interface of the .cmf file.
c Information	Spot										
Color Value				<b></b>		-					
nearization Curve	Index	Spot Lotor	Color Mode	C/L	M/A	Y/8	ĸ	Color Plane	Cyan	-	
	1	PANTONE	Lab	23.87	19.12	-48.21		Curve	<b>C</b>	<b>C C C C C C C C C C</b>	
) Table	2							100	Dep Mode	C UMIK Mode	
	3										
) Table	4										
	5										
pot	7										
	8										
otal Ink&Paper White	9										
	10										
	11										
	12										
	13								$\lambda$		
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	22							p			
	23							U		100	
	24										
	25							Tone(%)			_
	25									1	
								Output C	м	Y K	
		Export	Pri	nt	Undo		Reset	0	2.75	2.75 0	

Figure 88

For Lab spot colors, the curve mode can be CMYK or Lab. For CMYK spot colors, the curve mode is CMYK. Edition can be made after a separation has been specified from the **Color Plane** dropdown list. The **Reset** button enables a restoring to the default curve state.

# 5.4 QA Tool

This tool is used as a color difference assessment tool, providing the data basis to assess if the color quality reaches the standard. The QA tool shows both the color difference between the actual and ideal values for each color block, and the distribution map of the ideal and actual color spaces.

### 5.4.1 Basic Setting

Click the toolbar icon in Color Tools' main window to enter in this tool's user interface.

JUK .	Ideal L	Ideal a	Ideal b	Actual L	Actual a	Actual b	DeltaE
	55.00	-37.01	-50.01	0.00	0.00	0.00	0.00
	24.00	22.03	-46.01	0.00	0.00	0.00	0.00
	23.00	-0.07	0.04	0.00	0.00	0.00	0.00
	66.85	-24.69	-37.08	0.00	0.00	0.00	0.00
	40.90	17.85	-36.52	0.00	0.00	0.00	0.00
	38.54	6.62	3.97	0.00	0.00	0.00	0.00
	79.72	-12.54	-21.69	0.00	0.00	0.00	0.00
	63.69	10.34	-23.59	0.00	0.00	0.00	0.00
	61.52	5.43	3.65	0.00	0.00	0.00	0.00
	87.68	-5.83	-11.78	0.00	0.00	0.00	0.00
	79.44	5.14	-13.60	0.00	0.00	0.00	0.00
	78.22	2.93	0.82	0.00	0.00	0.00	0.00
	91 47	-2.96	-6.93	n nn	n nn	n nn	
-Color Ran	je			Conclusion			
				Cotogon	Chooly for	Volue	Deput
	100			Calegory	Crieck für	value	Hesuit
				Ava dE	<=3.00		
	50						
				Max dE	<=6.00		
-11	00 60 0	50 100		Best90% dE	<=3.00		
				Warred 097 all	4 C 00		
				worstru% dE	<=0.00		
				Substrate dE	<=3.00		
				Primary Max dE	<=5.00		
				Primary Max dH	<=2.50		
					4.50		
				Gray dH	<=1.50		
				DeltaE Fo	ormula: CIE76	•	Parameter Setting
Ideal	Actual -	Coordinate	S		,		
	-						
Select TIF	Founder_CMYK	<u> </u>					
				0	D		
Measure	Source ICC:	ISOCoated		Open	Print	Measure	Input Report
				- Actual Lab			Output Depent
-Idoal Jeb-							The second se
- Ideal Lab -				Actual Lap			Output Hepon

Figure 89

1. Choose a pattern. Currently two patterns are supported, ECI2002 and Founder\_CMYK.

Source for ideal values: The **Source ICC** dropdown list builds in some standard source ICC files, any of them can generate the ideal lab values. The **Open** option in the dropdown list enables you to use values from .cmf file as ideal values.

Measure	Source ICC:	ISOCoated 🔹			
Ideal Lab	·	Open			
ISOCoated.i	сс	ISOCoated G7Coated			
		JapanCoated ISOUncoated JapanUncoated			

Open		? ×
Look jn: 🔁	liyong 💌 🗢 (	<b>1</b> 📸 🎫
🗟 color_samp	ble.cmf	
File <u>n</u> ame:		<u>O</u> pen
Files of <u>t</u> ype:	Target data embedded in Cmf file (*.cmf)	Cancel
	ICC Data (*.icc; *.icm)	<i>//</i>
	Target data embedded in Cmf file (*.cmf) Final status's data of the Cmf (*.cmf)	

Figure 90

Source for actual values: The actual vales can be loading data, or measured data from an already existing color pattern, or measured data from a freshly-printed pattern by applying specified .cmf file.

2. Click the **Source ICC** dropdown list, and choose either ICC data or .cmf file that contains target data or state data.

**Note**: In case that the data comes from measurement, please ensure the measured pattern is exactly the same as the selected pattern.

3. Parameter setting. Click the button **Parameter Setting** to enter in the setup window, in which you can re-define the quality standards, i.e. the **Check for** values for all the dE categories. The standard is considered as *reached* when the calculated value becomes smaller than the **Check for** value; otherwise, means that the QA is failed. The default settings are used in general.

Pā	arameter Setting			×
	Quality Standard —			
	Avg dE	3.00	Primary Max dE	5.00
	Max dE	6.00	Primary Max dH	2.50
	Substrate dE	3.00	Gray Avg dH	1.50
	Default		ОК	Cancel

#### Figure 91

### 5.4.2 Data View

The color differences are displayed in the table **Conclusion**, when you have determined the ideal and actual values. If smaller than the **Check for** values, a tick mark  $\forall$  will appear in the **Result** column.

Color blocks and their information, displayed at the top of the window, can be sorted by the lab values or color difference values.

sk	Ideal L	Ideal a	Ideal b	A	vetual L	Actual a	Actual b	DeltaE
	55.00	-37.01	-50.01	5	i5.18	-37.12	-50.02	0.21
	24.00	22.03	-46.01	2	4.23	17.21	-46.16	4.82
	23.00	-0.07	0.04	2	3.09	0.18	-0.27	0.40
	66.85	-24.69	-37.08	6	6.85	-25.14	-37.05	0.46
	40.90	17.85	-36.52	4	10.99	17.10	-35.80	1.04
	38.54	6.62	3.97	3	9.51	5.90	3.55	1.28
	79.72	-12.54	-21.69	7	8.95	-13.51	-22.74	1.63
	63.69	10.34	-23.59	E	2.22	10.81	-23.85	1.56
	61.52	5.43	3.65	6	0.94	5.02	3.22	0.83
	87.68	-5.83	-11.78	8	17.07	-6.53	-12.69	1.30
	79.44	5.14	-13.60	7	8.04	5.74	-14.14	1.62
	78.22	2.93	0.82	7	7.09	2.91	1.81	1.50
	91 47	-2.96	-6.93	ċ	11 13	-3 23	-7 48	0.70
Color Ban	10			- Concluei	on			
Color riding	10			Concidar	011			
	100			Categ	ory	Check for	Value	Result
				Avg o	ΙE	<=3.00	1.68	<u></u>
	60			Maxo	ΙE	<=6.00	4.86	<u> </u>
-10	00 -50 p	50 100		Best90%	dE	<=3.00	1.40	<b>2</b>
				Worst109	% dE	<=6.00	3.89	<b>Z</b>
				Substrate	e dE	<=3.00	0.02	<b>×</b>
				Primary N	vlax dE	<=5.00	1.05	<b>1</b>
				Primary	/ Max dH	<b>&lt;=</b> 2.50	0.34	<b>~</b>
				Gray	dH	<b>&lt;=1.50</b>	0.29	<u>≪</u>
Ideal	Actual	🔽 Coordinates			DeltaE For	mula: CIE76	•	Parameter Setting
elect TIF	Founder_CMYK	•						
Measure	Source ICC:	ISOCoated	•	Oper	n	Print	Measure	Input Report
Ideal I ab -				- Actual La				Output Benort
				i iona di Ec				Culparticpolit

Figure 92

Various dE calculation formulae are available in the **DeltaE Formula** dropdown list.

The color difference assessment result can be exported by clicking the button **Output Report**. And such exported data can be loaded for view by clicking the button **Input Report**. The button **Print Report** is used to print out the currently-displayed result.

## 5.5 Tune Curve

Tune curve is designed to adjust slightly the whole tone or color, in case that tone or color related issues occur in the job output with .cmf file.

Click the toolbar icon *He* in Color Tools' main window to enter in this tool's user

#### interface.



Figure 93

Define the curve respectively for the planes, according to actual need, and after that, click **Save to CMF**, to include the curve into the currently-opened .cmf file. Click **Save** and save the curve as a .duv file in case that the curve needs to be used in other .cmf file.

# 5.6 Data Transform

This tool is used to transform between the .cmf file generated by Color Tools and the proof package generated by earlier ElecRoc versions. It's available only for digital proof.

Click the toolbar icon in Color Tools' main window to enter in this tool's user interface.

ElecRoc 6 Color Tools User Guide

Data Transfor	'n	×
C CMF F	iile>Data Package 💿 Data Package>CMF File	
IN		Select File
Spot File		Load
OUT		Save Path
		Transform

Figure 94

There are two modes, CMF File-->Data Package, Data Package-->CMF File.

Choose the transformation mode first, then choose file (click **Select File**) and specify the save path (click **Save Path** to specify), and then click **Transform**.

In the mode **CMF File-->Data Package**, only one .cmf file can be transformed each time. While in the mode **Data Package-->CMF File**, not only one package but also all the package files under a same folder can be transformed one time. And if there is .spt file made for the package, by loading such .spt file (click **Load**), the spot colors can be included into the transformed .cmf file as well.