



ICC Data Optimization for Onyx and Thrive Media Manager Software

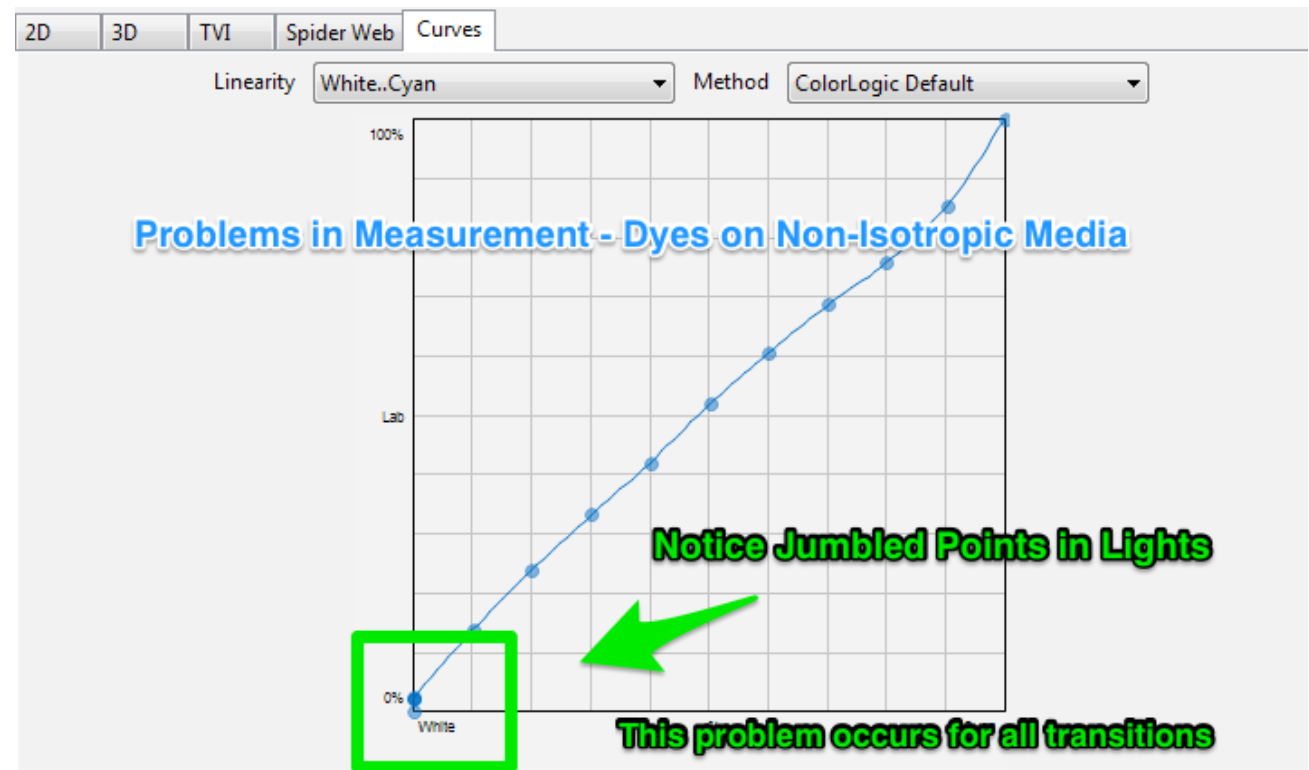
This technical note has three purposes:

- Identify and illustrate typical ICC data measurement errors when reading patch sets printed on fabric and other non-isotropic media with typical spectrophotometers.
- Describe how to use *Onyx ICC Data Converter* software to extract measurement data from Onyx and Thrive Media Manager in a format that can be used with 3rd party color measurement optimization software.
- Describe how to use *Onyx ICC Data Converter* software to import optimized color measurement data into Onyx and Thrive Media Manager.

Section I: Problem Overview

Onyx Media Manager linearizes primary colors (CMYK) based on colorimetry. This is more accurate for CMYK digital printing than density based measures. The ideal is a 45° curve. But errors in measurement can result in deviations from the ideal. These errors can be detected and the patch measurements for the ICC profile can be improved by using ICC patch optimization programs.

In this case, ColorAnt from ColorLogic has been used to analyze the swatch measurements. The graph to the right is an actual measurement of a patch set printed with dye sublimation ink on soft knit polyester fabric. It shows a small divergence from a straight 45° curve. More significantly, there are a jumble of points on in the very light shades. Other graphs in ColorAnt on the next pages show related measurement errors evidenced in the Spider Web and TVI curves.



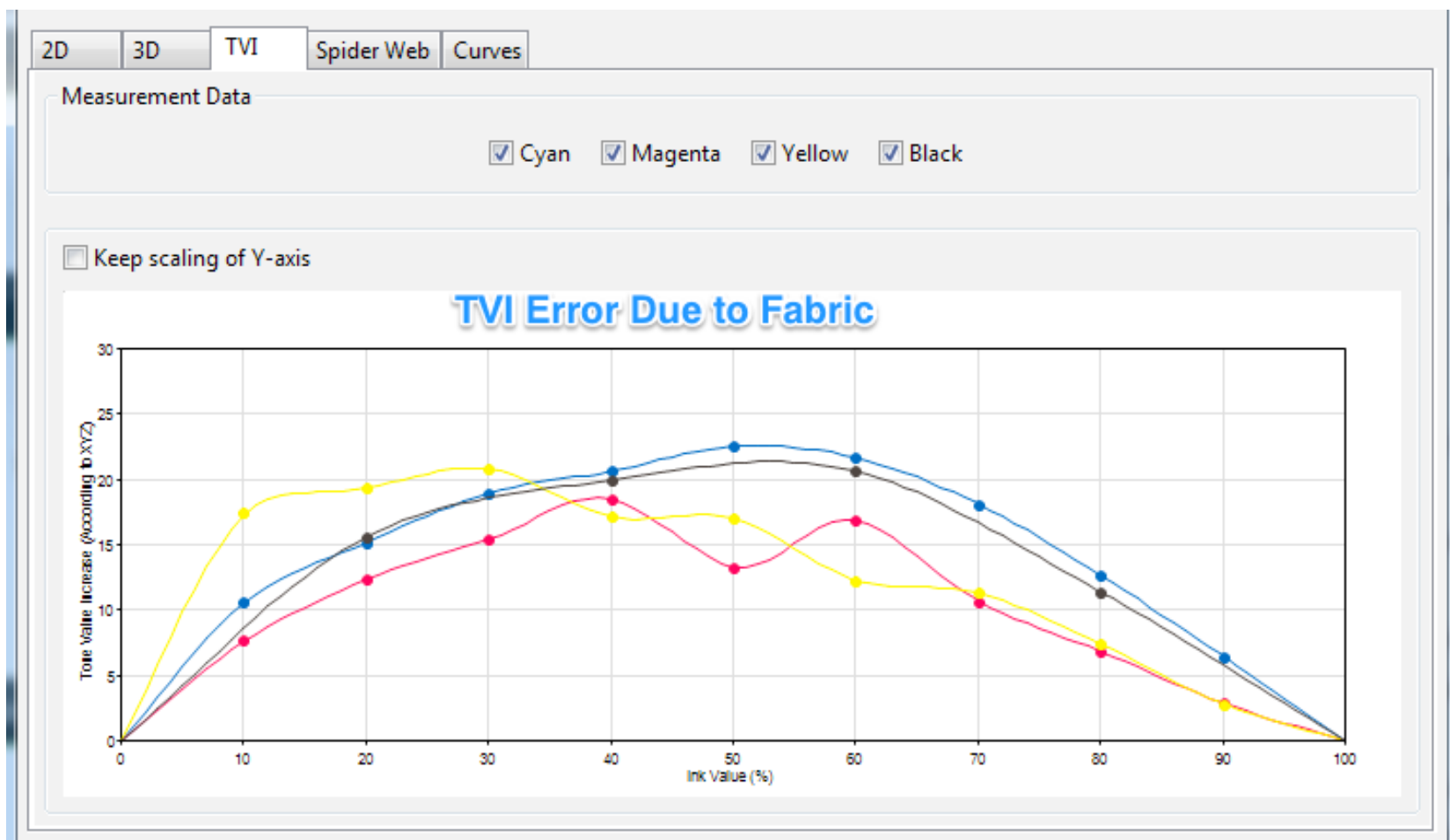
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Section I: Problem Overview (Continued)

These are the TVI (tone value increase) curves from the same soft knit data set. The curves are relatively smooth, but there is probably measurement error in the magenta curve. As a check on this, the measurement was repeated several times and averaged. The “roller coaster” in the data went away, confirming that the initial measurement was not optimal.

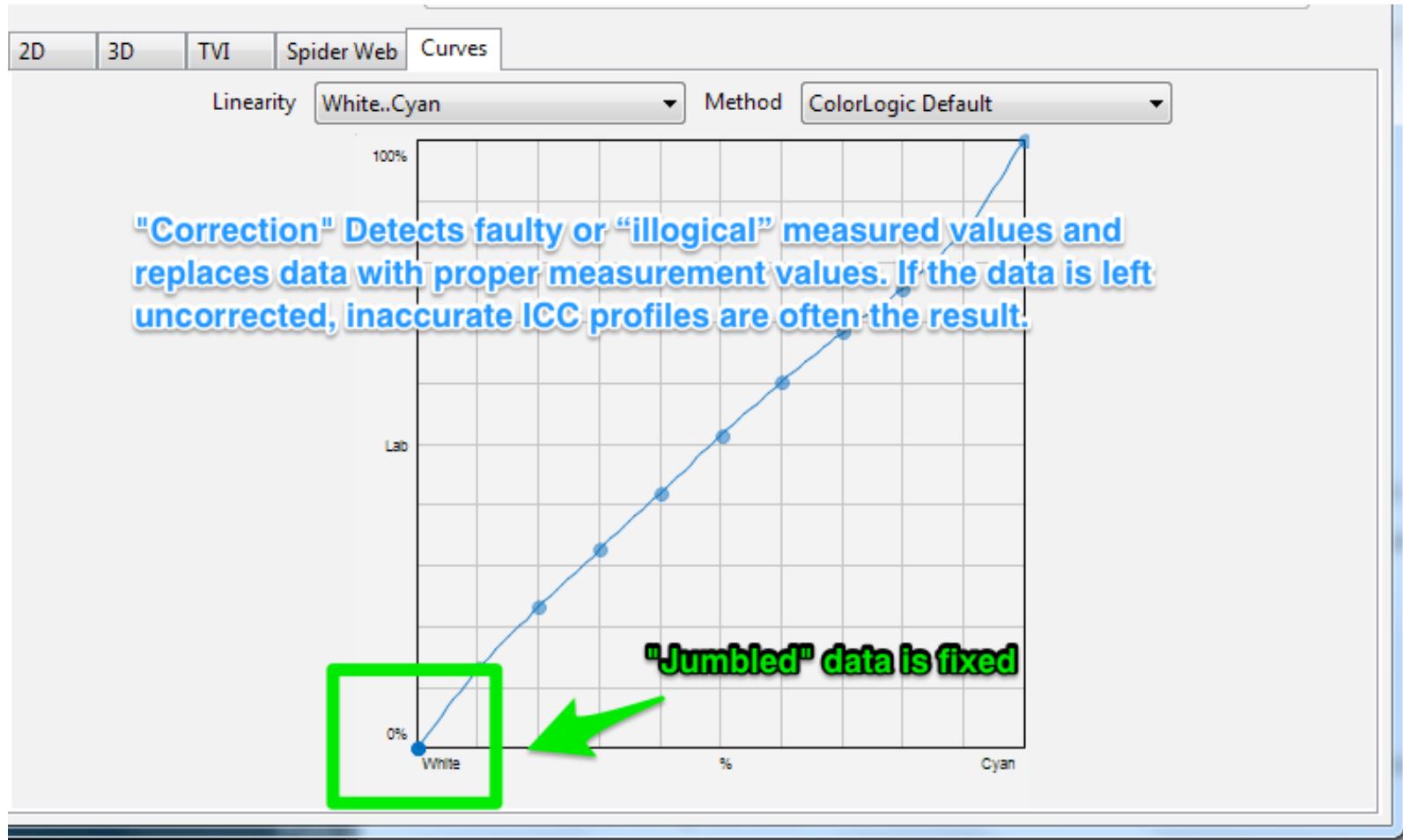




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Section 1: Problem Overview (Continued)

This is a graph of the measurement data that was optimized using ColorAnt. Notice that the “jumbled” data at the very light end of the graph is eliminated.

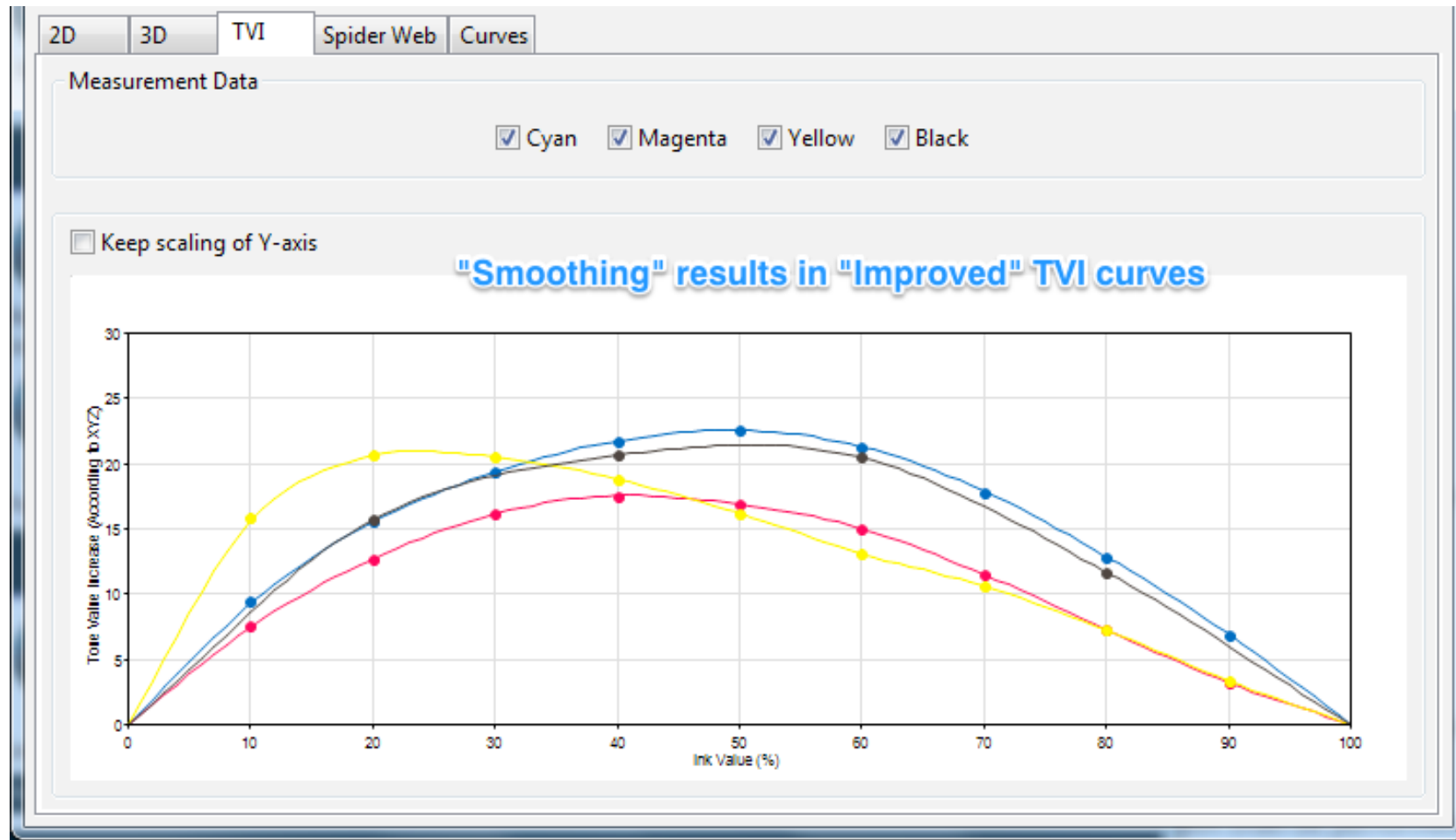




ICC Data Optimization for Onyx and Thrive Media Manager Software

Section 1: Problem Overview (Continued)

Optimization also smoothed the TVI data.



These examples are from ColorAnt. basIColor IMProve does the same.

When using optimization software, make sure not to let the software eliminate redundant patch measurements. This is because Onyx Media Manager requires the measurement data to match the specifications for what was printed. So eliminating patches will cause a data mismatch and an ICC processing error.

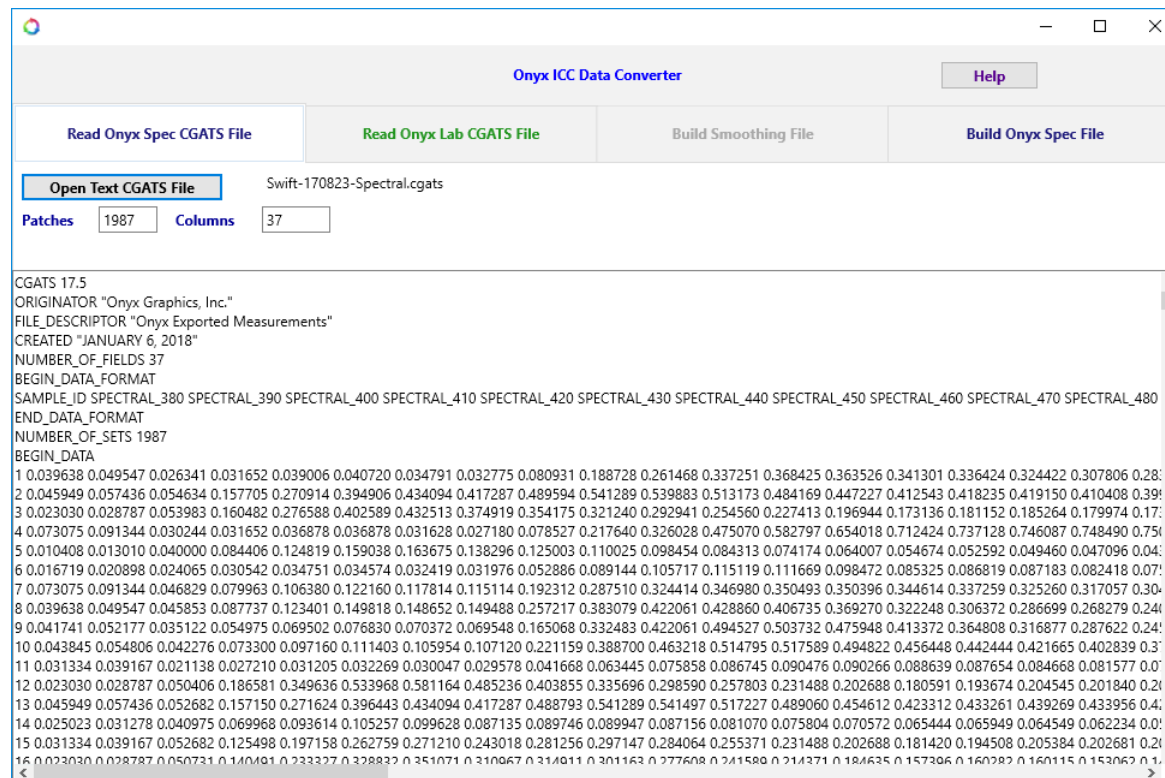


ICC Data Optimization for Onyx and Thrive Media Manager Software

Section II: Install Onyx ICC Data Converter Software

Onyx ICC Data Converter is free software from VistaLogics. It converts files produced by [Onyx and Thrive Media Manager](#) into a format that can be used by programs that analyze, correct, and smooth CGATS formatted ICC profile measurement data. The Onyx ICC Data Converter program is required because Media Manager does not create a CGATS file with the exact data format required for color data optimization by programs such as ColorAnt or IMProve. [ColorAnt is a product of ColorLogic GMBH](#) and [BasICColor IMProve is a product of basICColor GMBH](#).

INSTALLATION: Go to [ONYX ICC Data Converter Installer \(http://www.vistalogics.com/onyx-icc-data-smoothing.html\)](http://www.vistalogics.com/onyx-icc-data-smoothing.html)
or
Click here to [Install Onyx ICC Data Converter](#).





ICC Data Optimization for Onyx and Thrive Media Manager Software

Section III: Exporting ICC Data Measurement Files from Media Manager

Onyx ICC Data Converter is free software from VistaLogics. It converts files produced by [Onyx and Thrive Media Manager](#) into a format that can be used by programs that analyze, correct, and smooth CGATS formatted ICC profile measurement data. The *Onyx ICC Data Converter* program is required because Media Manager does not create a CGATS file with the exact data format required for color data optimization by programs such as ColorAnt or IMProve. [ColorAnt is a product of ColorLogic GMBH](#) and [BasICColor IMProve is a product of basICColor GMBH](#).

- STEP I:**
- Go to Onyx or Thrive Media Manager.
 - Print and Read the ICC Profile Patch Set using the Media Manager Tools.

Read Swatch - ICC Profile

Patch	Expected	Measured	L*	a*	b*
A1					
A2					
A3					
A4					
A5					
A6					
A7					
A8					
A9					
A10					

Mode:
☒ Patch
☐ Strip

Strip:

Patch:

Instructions/Status:

OK Cancel Help

Read Swatch - ICC Profile

Patch	Expected	Measured	L*	a*	b*
A1					
A2					
A3					
A4					
A5					
A6					
A7					
A8					
A9					
A10					

Mode:
☒ Patch
☐ Strip

Strip:

Patch:

Instructions/Status:

OK Cancel Help



ICC Data Optimization for Onyx and Thrive Media Manager Software

Section III: Exporting ICC Data Measurement Files from Media Manager (Continued)

STEP 2: Click to View the ICC patch Set Readings.

ICC Profile

The screenshot displays the 'ICC Profile' window with a vertical sequence of five steps, each in a rounded rectangular box. Step 1: 'Select an existing ICC profile or create a new one' with a green checkmark icon. It includes a dropdown menu set to 'ICC Profile Table' and an 'Import ICC...' button. Step 2: 'The ICC swatch has been printed.' with a green checkmark icon. It includes a 'Print Swatch' button and a dropdown arrow. Step 3: 'The ICC swatch has been successfully read' with a green checkmark icon. It includes a 'Read Swatch' button and a dropdown menu that is open, showing 'Import Readings' and 'View Readings' (which is highlighted by a blue arrow). Step 4: 'Modify and manage advanced ICC build settings' with a diamond icon. It includes a dropdown menu set to 'No Light Inks' and an 'Edit...' button. Step 5: 'Build an ICC profile using the selected ICC build options' with a diamond icon. It includes a 'Build ICC Profile' button. In the top right corner, there is a yellow triangle icon and a grey circle with a question mark.



ICC Data Optimization for Onyx and Thrive Media Manager Software

Section III: Exporting ICC Data Measurement Files from Media Manager (Continued)

STEP 3: Click to Export the ICC Measurements.

View Readings - ICC Profile

Patch	Expected	Measured	L*	a*	b*
A1			60.8089	-26.1107	39.6636
A2			74.4885	3.5861	0.0384
A3			55.3615	23.1626	-19.4411
A4			87.0227	-10.5057	76.7641
A5			12.1786	10.4443	-38.3364
A6			28.8420	-6.7866	24.5800
A7			61.8799	-5.0579	17.3266
A8			57.1013	-25.1511	-3.9830
A9			54.6286	-45.2498	5.2102
A10			69.0259	-24.7906	19.9333
A11			28.7936	3.0169	30.5827
A12			64.9737	43.3192	-10.0643
A13			77.4727	9.6587	5.6380
A14			25.8969	12.5058	-6.6050
B1			64.8507	38.4505	9.6041
B2			47.3028	9.1215	-25.1683
B3			37.3826	-21.7291	-35.5857
B4			29.9273	15.1048	5.9108
B5			54.1126	2.0147	-38.4255
B6			2.9257	5.1860	27.246
B7			76.0140	33.1474	-6.0402

C: 50.2 %
M: 20.0 %
Y: 90.2 %
K: 0.0 %

☐ Plot Readings

Paper: L*: 89.6976, a*: 1.1006, b*: -3.1396

Export



ICC Data Optimization for Onyx and Thrive Media Manager Software

Section III: Exporting ICC Data Measurement Files from Media Manager (Continued)

STEP 4: Save the Spectral and Lab CGATS files.

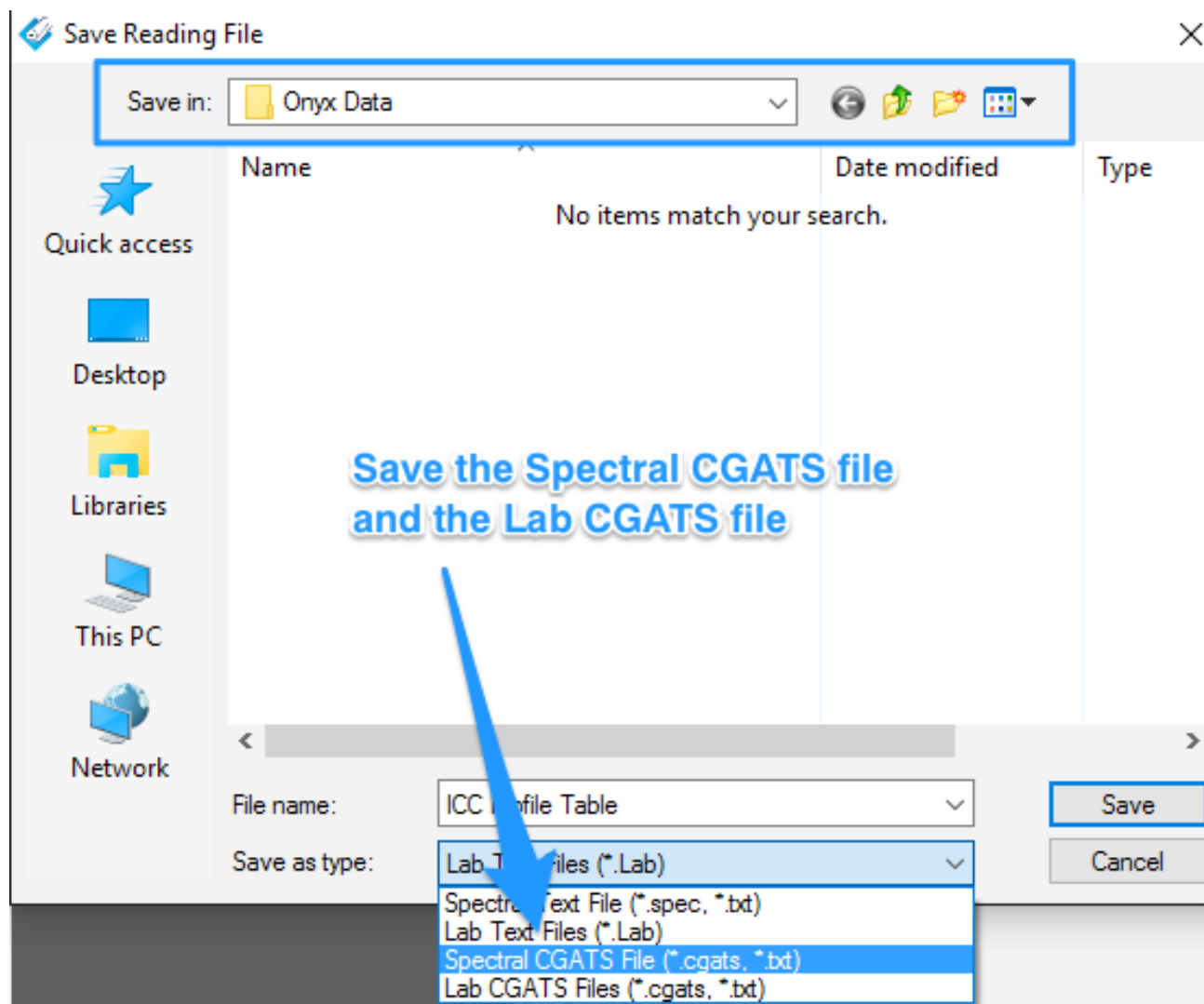
Save 2 Reading Files:

1. Spectral CGATS
2. Lab CGAT

You can use either the .CGATS or the .txt file suffix.

Make sure you save with different names so you can distinguish between the Spectral and Lab CGATS file.

Make sure you know where the files are saved.





ICC Data Optimization for Onyx and Thrive Media Manager Software

Section IV: Using Onyx ICC Data Converter Software to Produce Files to Optimize Measurement Data

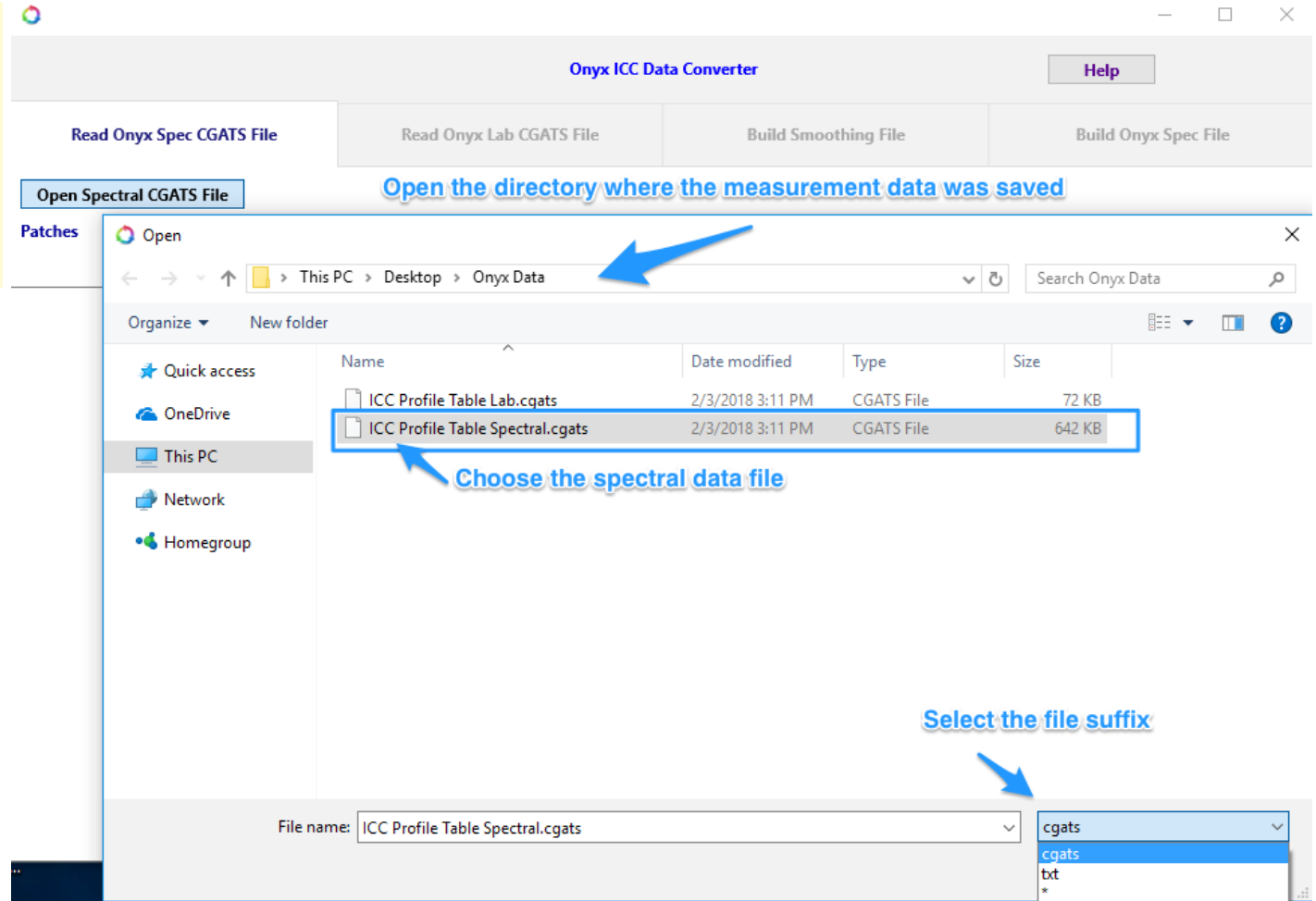
STEP I: Open the Onyx Spectral CGATS File

Open the Onyx ICC Data Converter program:



Make sure you select the directory where the Onyx measurement files were saved.

Open the Onyx Spectral CGATS file





ICC Data Optimization for Onyx and Thrive Media Manager Software

Section IV: Using Onyx ICC Data Converter Software to Produce Files to Optimize Measurement Data (Continued)

STEP 2: View the Onyx Spectral CGATS File

If the Spectral CGATS file is read correctly, the data will show in the tabbed window.

The screenshot shows the 'Onyx ICC Data Converter' application window. The 'Read Onyx Lab CGATS File' tab is active. Below the tab, there is a button 'Open Spectral CGATS File' and a text field 'ICC Profile Table Spectral.cgats'. Below this, there are two input fields: 'Patches' with the value '1987' and 'Columns' with the value '37'. The main area of the window displays the contents of the CGATS file, starting with 'CGATS 17.5', 'ORIGINATOR "Onyx Graphics, Inc."', 'FILE_DESCRIPTOR "Onyx Exported Measurements"', 'CREATED "FEBRUARY 3, 2018"', 'NUMBER_OF_FIELDS 37', 'BEGIN_DATA_FORMAT', 'SAMPLE_ID SPECTRAL_380 SPECTRAL_390 SPECTRAL_400 SPECTRAL_410 SPECTRAL_420 SPECTRAL_430 SPECTRAL_440 SPECTRAL_450 SPECTRAL_460 SPECTRAL_470 SPECTRAL_480', 'END_DATA_FORMAT', 'NUMBER_OF_SETS 1987', and 'BEGIN_DATA'. The data is presented as a list of 1987 rows, each containing 37 numerical values representing spectral data for different patches.



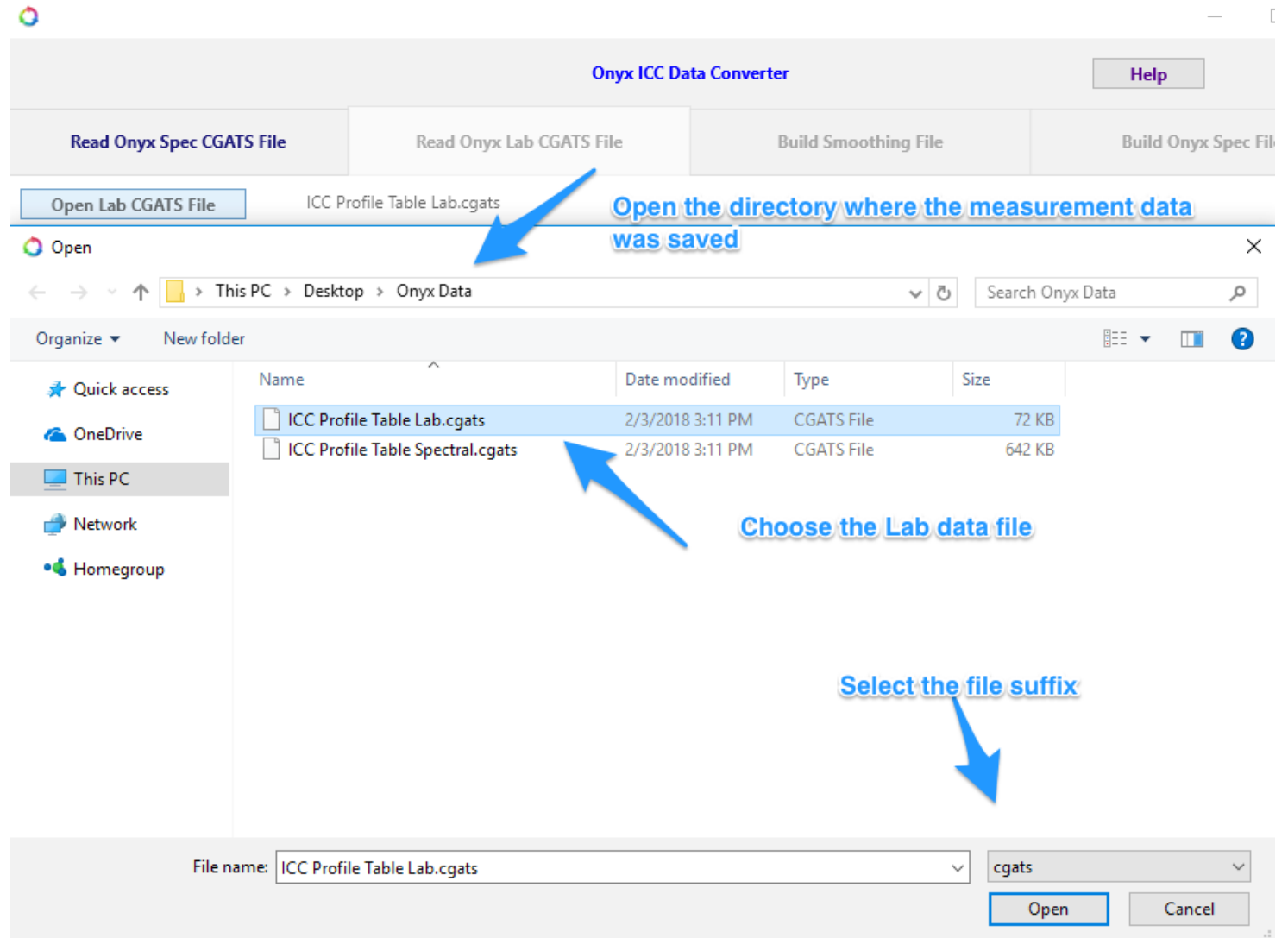
ICC Data Optimization for Onyx and Thrive Media Manager Software

Section IV: Using Onyx ICC Data Converter Software to Produce Files to Optimize Measurement Data (Continued)

STEP 3: Open the Onyx Lab CGATS File

Switch to the second tab in the program.

Open the Onyx Lab CGATS file





ICC Data Optimization for Onyx and Thrive Media Manager Software

Section IV: Using Onyx ICC Data Converter Software to Produce Files to Optimize Measurement Data (Continued)

STEP 4: View the Onyx Lab CGATS File

If the Spectral CGATS file is read correctly, the data will show in the tabbed window.

Onyx ICC Data Converter

Help

Read Onyx Spec CGATS File Read Onyx Lab CGATS File Build Smoothing File Build Onyx Spec File

Open Lab CGATS File ICC Profile Table Lab.cgats

Patches 1987 Columns 4

CGATS 17.5
ORIGINATOR "Onyx Graphics, Inc."
FILE_DESCRIPTOR "Onyx Exported Measurements"
CREATED "FEBRUARY 3, 2018"
NUMBER_OF_FIELDS 4
BEGIN_DATA_FORMAT
SAMPLE_ID LAB_L LAB_A LAB_B
END_DATA_FORMAT
NUMBER_OF_SETS 1987
BEGIN_DATA
1 60.808870 -26.110653 39.663637
2 74.488456 3.586125 0.038419
3 55.361483 23.162579 -19.441122
4 87.022713 -10.505700 76.764100
5 12.178587 10.444279 -38.336422
6 28.842035 -6.786613 24.579965
7 61.879869 -5.057934 17.326598
8 57.101341 -25.151057 -3.982961
9 54.628584 -45.249802 5.210153
10 69.025906 -24.790642 19.933305
11 28.793565 3.016860 30.582681
12 64.973656 43.319173 -10.064341
13 77.472693 9.658653 5.637966
14 25.896946 12.505783 -6.604977
15 64.850734 38.450518 9.604096
16 47.302791 9.121457 -25.168260
17 37.382580 -21.729116 -35.585693



ICC Data Optimization for Onyx and Thrive Media Manager Software

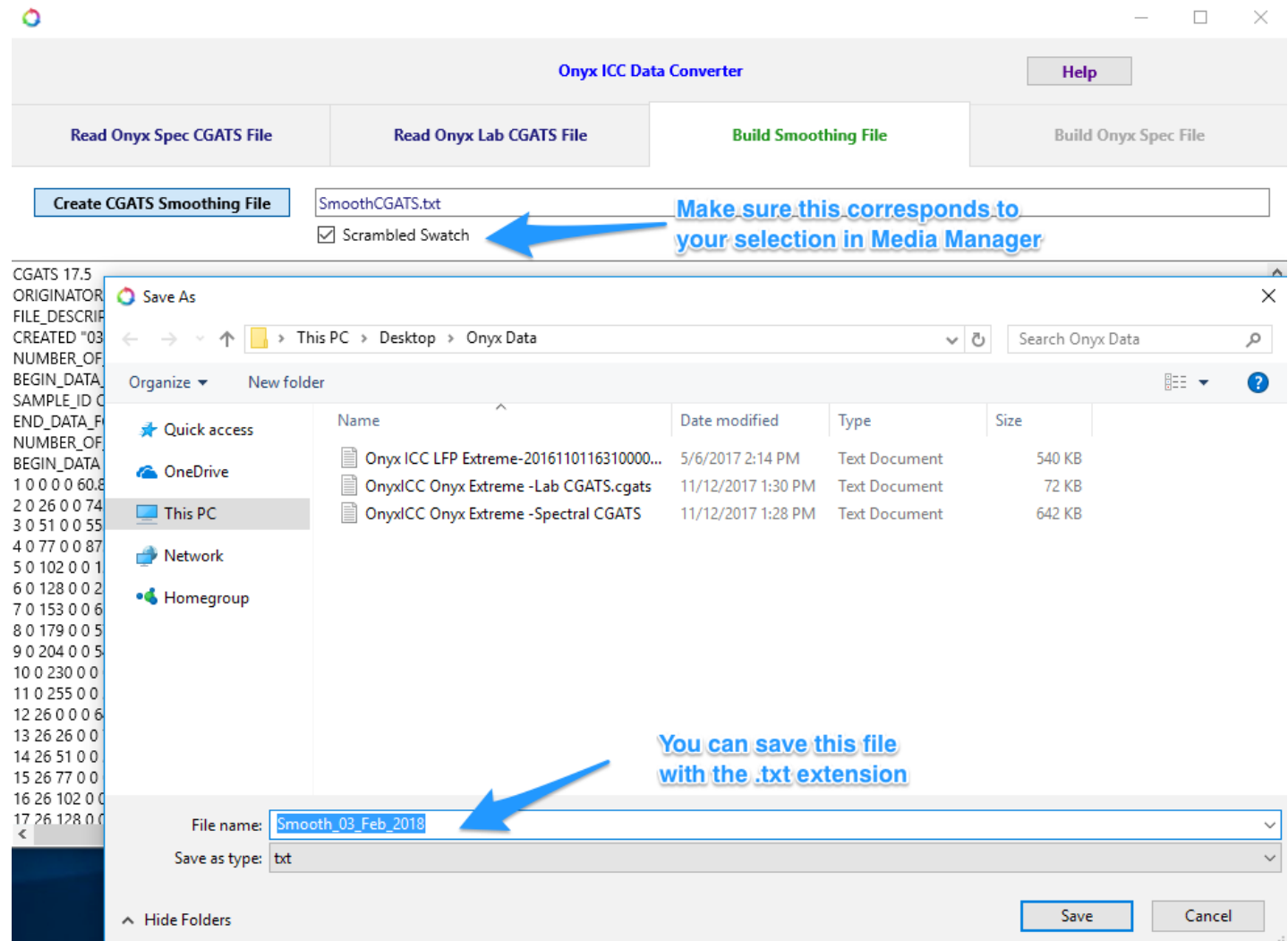
Section IV: Using Onyx ICC Data Converter Software to Produce Files to Optimize Measurement Data (Continued)

STEP 5: Create and Save the CGATS File that will be used in your Data Optimization Program

Switch to the third tab in the program.

Save the CGATS file.

The newly created CGATS file can be used in a program that will optimize the color data.





ICC Data Optimization for Onyx and Thrive Media Manager Software

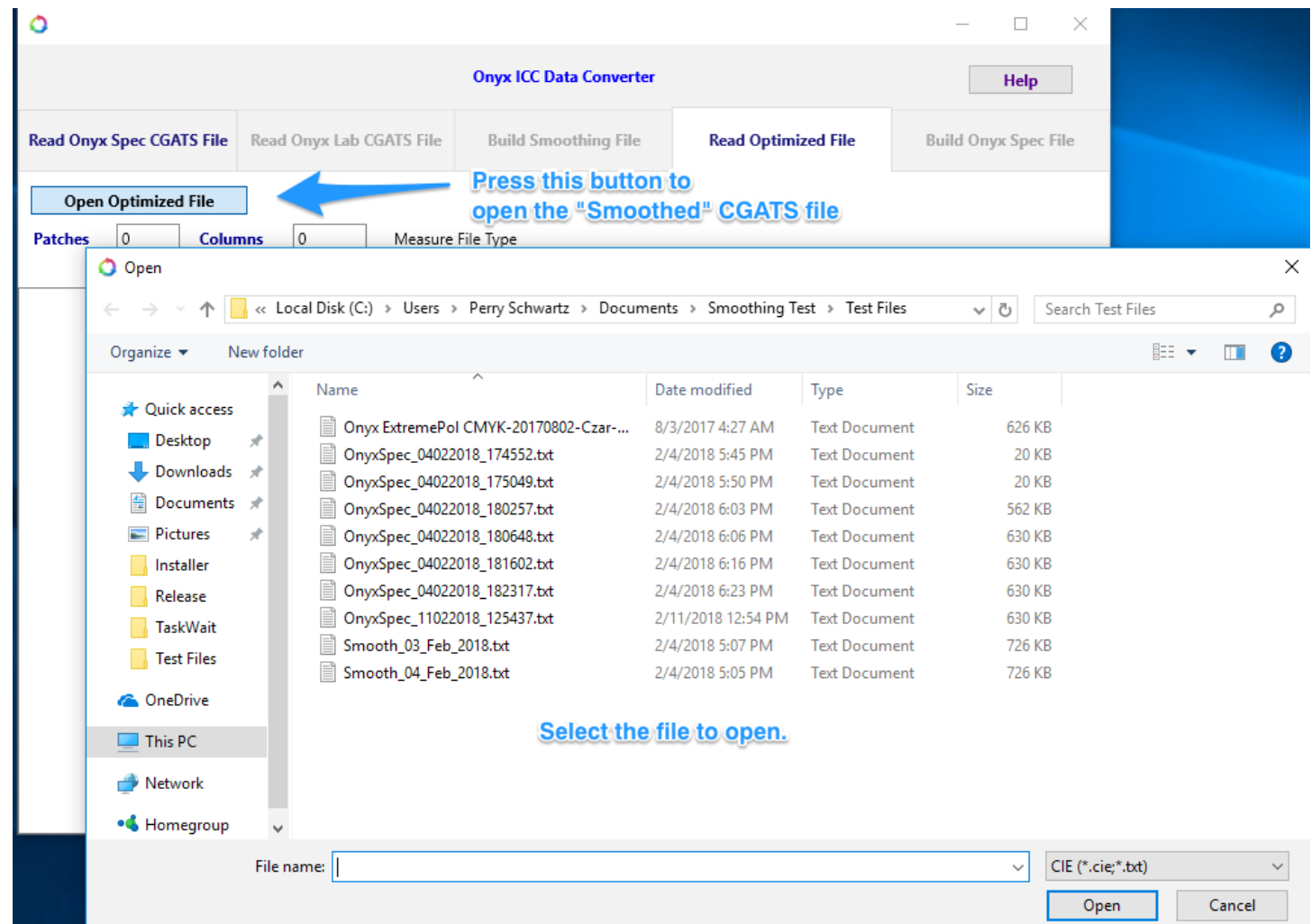
Section V: Convert the Optimized Data into an Onyx Spectral File for use with Media Manager

Once you have a CGATS file with optimized color data, you will need to convert the data into a format that can be used by Media Manager.

STEP I: Open the Optimized CGATS File

Switch to the fourth tab in the program.

Open the Optimized CGATS file.





ICC Data Optimization for Onyx and Thrive Media Manager Software

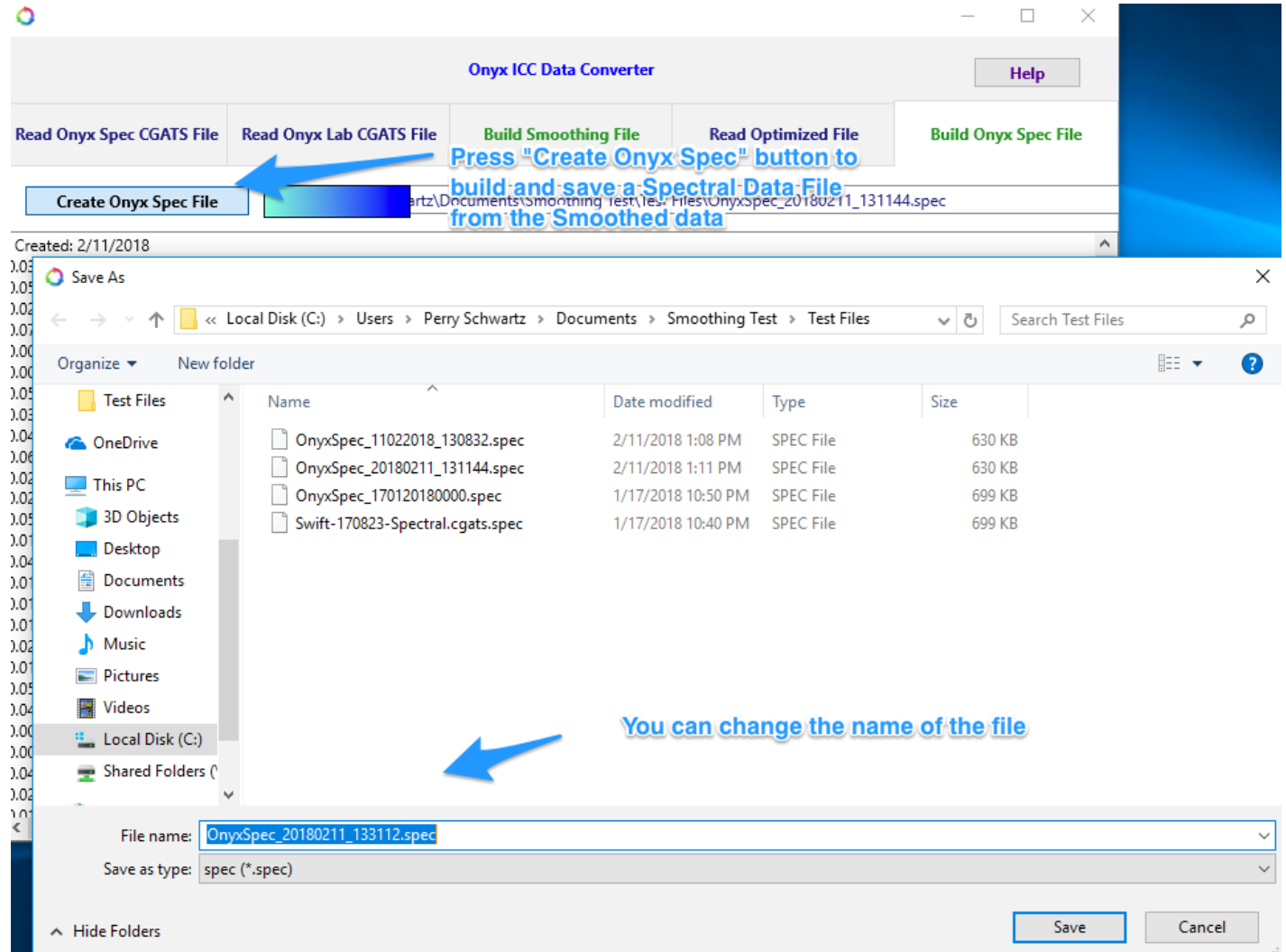
Section V: Convert the Optimized Data into an Onyx Spectral File for use with Media Manager

STEP 2: Create and Save the Spectral File for Media Manager.

Switch to the fourth tab in the program.

Save the Spectral data file.

The Spectral data file will be used by Media Manager.



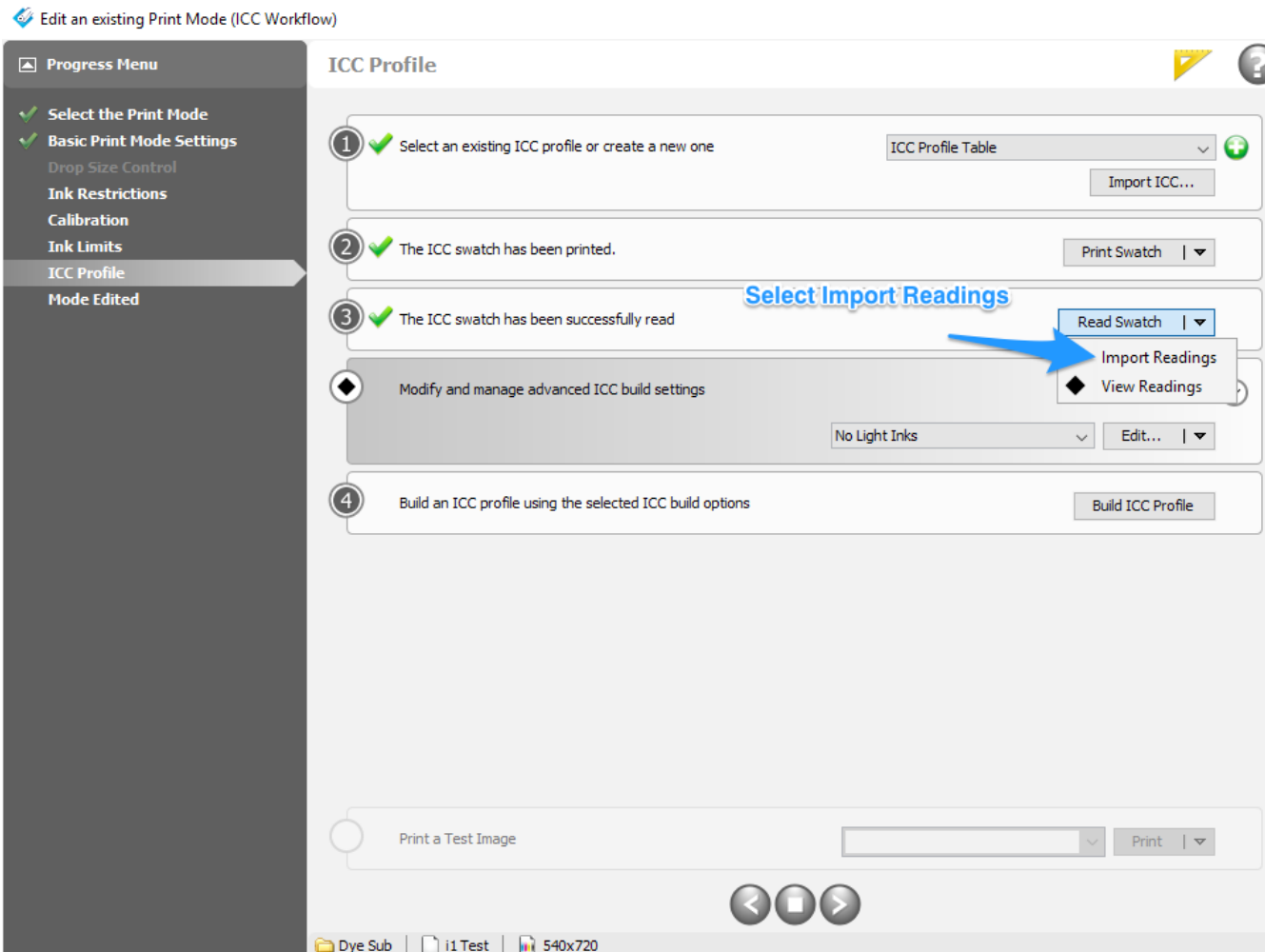


ICC Data Optimization for Onyx and Thrive Media Manager Software

Section VI: Import the Optimized Spectral Data into Media Manager (Continued)

Finally, go back to Media Manager and Import the Optimized Spectral Data for building the ICC Profile.

STEP I: Select “Import Readings.” This will overwrite the existing data.



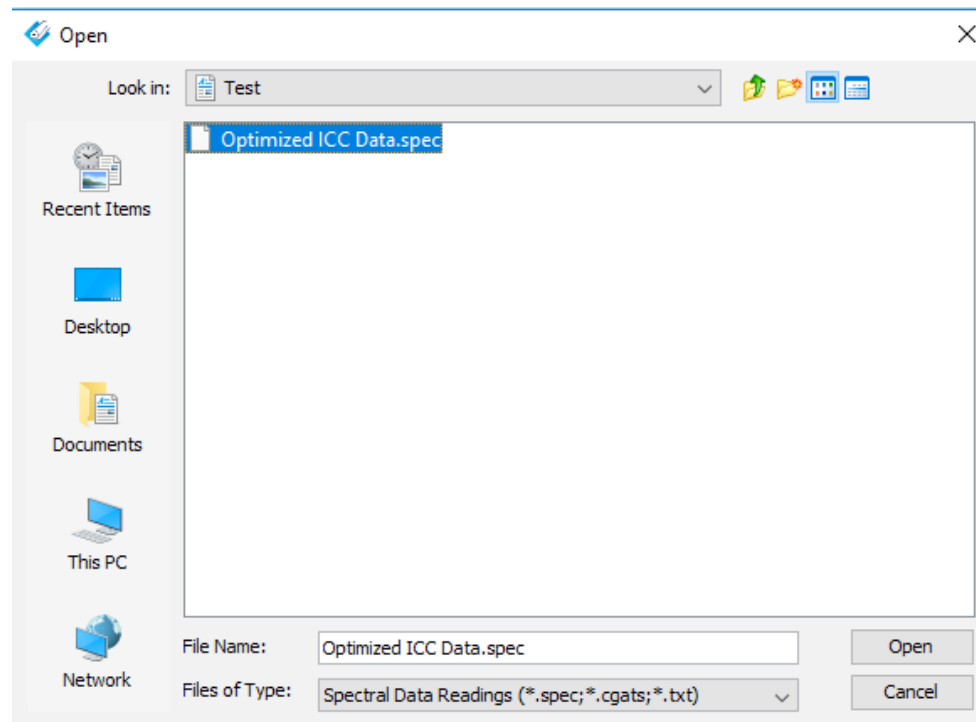


ICC Data Optimization for Onyx and Thrive Media Manager Software

Section VI: Import the Optimized Spectral Data into Media Manager (Continued)

STEP 2: Select the Optimized file.

Navigate to the directory where you saved the Optimized Spectral data file.



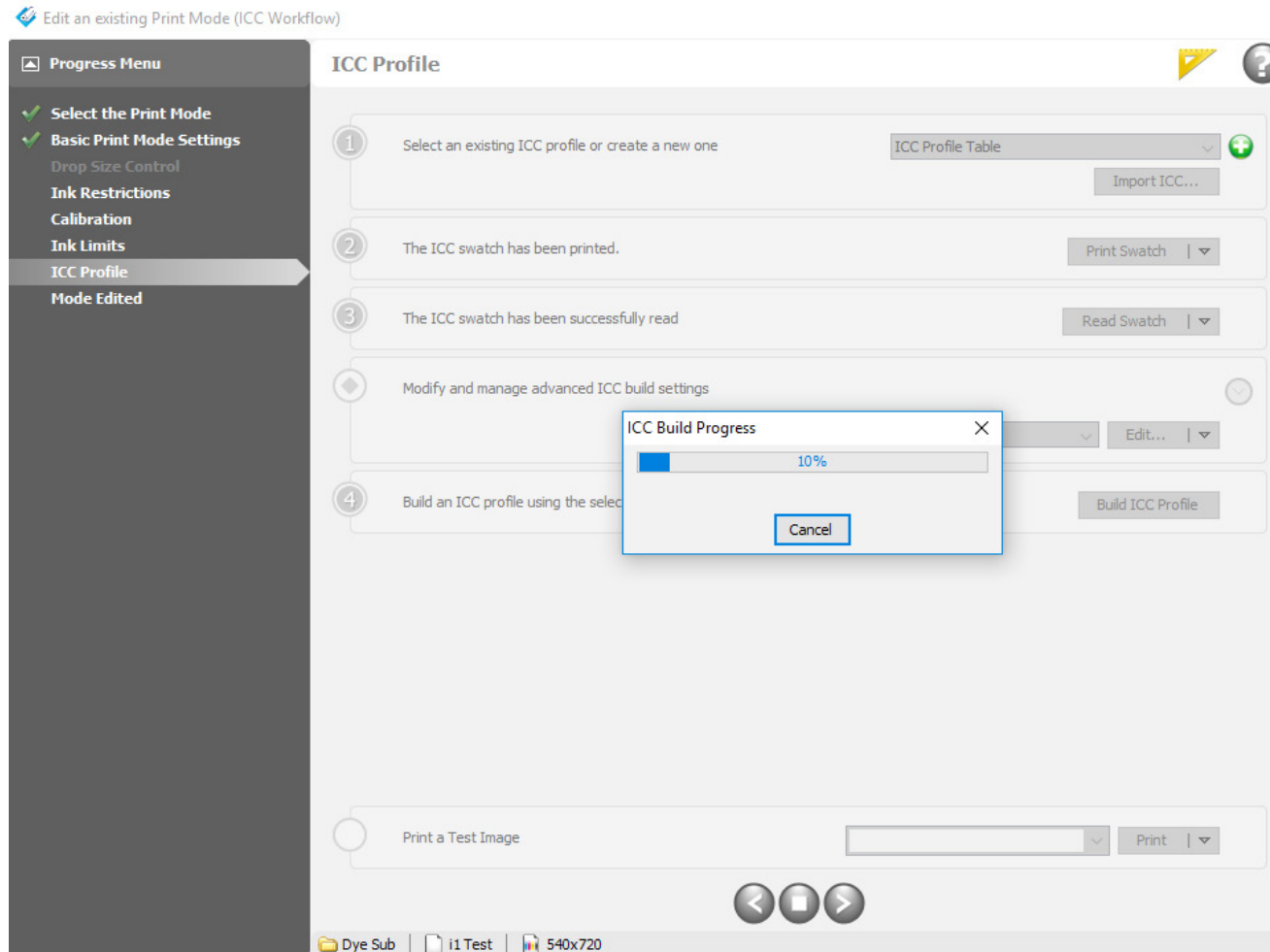


ICC Data Optimization for Onyx and Thrive Media Manager Software

Section VI: Import the Optimized Spectral Data into Media Manager (Continued)

STEP 3: Build the Profile.

Now Build the
ICC Profile as
you would nor-
mally.





ICC Data Optimization for Onyx and Thrive Media Manager Software

Notes

Onyx ICC Data Converter converts files produced by Onyx and Thrive Media Manager (<http://www.onyxgfx.com>) to a format that can be used by programs that analyze, correct, and smooth CGATS formatted ICC profile measurement data. This program is required because Media Manager does not create a CGATS file with the data required for color data optimization.

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The CGATS file produced by Onyx Data Converter is intended for use with ColorAnt4 (<https://colorlogic.de/en/colorant/>) and with basIColor IMProve3 (<https://www.basIColor.de/basiccolor-improve-en/>). These are licensed computer programs. ColorAnt is a product of ColorLogic GMBH, a German Corporation. BasIColor IMProve is a product of basIColor GMBH, a German Corporation.

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http://www.vistalogics.com/Onyx_ICC_Data_Converter.html.