



**Kodak**

# Kodak ColorFlow

Activity Guide

Student

English



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Internal 753-00015B-EN

Revised 2015-08-17



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# Purpose of this activity guide

The purpose of this activity guide is to provide practical experience using Kodak ColorFlow software in Kodak Prinergy Workflow software and Prinergy Evo Workflow software environments.

Both new and existing customers can use this set of training activities to practice using ColorFlow software for the most common use cases in everyday workflow.

ColorFlow software introduces a new way of managing color and tonal calibration within the digital prepress world. While some of the activities are designed to help customers use ColorFlow software in conjunction with their current tools (for example, existing Kodak Harmony curves or ICC profiles), other activities demonstrate how to achieve the same or better color reproduction results using ColorFlow software features.

These activities assume that the customer can use Prinergy Workflow software to perform these tasks:

- Create jobs
- Create process templates
- Refine and output pages

These activities also assume that the customer is familiar with the ColorFlow software user interface and understands the concept of a color setup. If not, use the *ColorFlow User Guide* as a reference document.

**Note:** In ColorFlow 2.x and later, a **Current State** snapshot option is available. This feature enables you to test curves, profiles, and adjustments without capturing a snapshot, and it supports the Prinergy DotShop software. In Prinergy Workshop, the live colorstore database is referred to as **Current State**. You can use this option, located in the **Snapshot** setting in the **ColorFlow** section of the process template dialog box, to configure Prinergy process templates to use the live colorstore database without capturing a snapshot. In this activity guide, you have the choice of capturing a snapshot or using the system live colorstore database. For more details, see the *ColorFlow User Guide*.



# Use ColorFlow to define an industry specification for use in Refine

## Background



### Why you should complete this activity

The **ColorMatch** settings in the Prinergy Workflow software point to an ICC profile that represents the color response of an industry standard or a color response of a print condition you have created yourself using software such as Kodak Spotless Solution for extended gamut printing.

**Note:** This profile can also be thought of as a refine destination or separation profile.

In the current Prinergy Workflow software refine process template, the default setting in the **Primary Color Output (PCO)** box is `US Web Coated SWOP`. If you want ColorFlow software to use the default profile specified in the Prinergy Workflow software, you must create a color setup that points to the same industry specification.

In this activity you will set up the ColorFlow software and Prinergy Workflow software to print to an industry specification that exactly replicates the default settings in the refine process template in the Prinergy Workflow software. The color setup that you create in ColorFlow software can be used as a starting point for building relationships to output device conditions.



### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Set up a CMYK Reference device as the PCO
- Define an industry specification as its device condition
- Refine a page in Prinergy Connect Workflow software using a color setup



## Tasks

### Goal

To set up ColorFlow software and Prinergy Workflow software to print to an industry specification, exactly replicating Prinergy's default settings in the refine process template:

- In Prinergy Connect Workflow software the default setting is **Color Convert**.
- In Kodak Prinergy Evo Workflow software the default setting is **Match Colors**.

### Task 1: Set up a CMYK Reference device as the PCO

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button to create a new color setup. The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or double-clicking the **color setup viewer**.
2. From the Devices dialog box, select the default **CMYK Reference** device and drag it to the center of the **Color Setups viewer** pane. This defines the PCO as a CMYK Reference.
3. Close the **Device** dialog box.
4. In the **Color Setups** list on the left, double-click the name of the color setup you just added and then enter `US Web Coated SWOP` as the name of this color setup.
5. In the CMYK Reference device condition, click the **Properties** icon .
6. In the **Name** list of the device condition's Device Condition Properties dialog box, you could select one of the SWOP references from the **Name** drop-down, but for this exercise you type a customized name for your new target: `US Web Coated SWOP`.
7. In the **Separate Same As** list, select a device type that best represents the black-generation strategy of the reference device condition. For the **US Web Coated SWOP** reference, select **Offset Press - Heatset Web**.
8. Click **OK**.

**Next:**

In ColorFlow software, when a new device condition is created, the **Measurements** icon  turns orange at the end of this step. Normally, we would use measured data to define the color response, but in this case we want to define the color response using an ICC profile rather than measurement data.

**Task 2: Define an industry specification as its device condition**

1. To define the profile of the device condition, click the **Device Condition Profile**  icon.
2. Click the **Imported** radio button.
3. Import the `USWebCoatedSWOP.icc` profile.  
This profile can be found in your `Program Files (x86)\Kodak\ColorFlow\SampleData\Profiles\Adobe ICC Profiles\CMYK` folder.
4. Leave all the other settings as default and click **OK**.
5. Capture and approve a snapshot:
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Select the new snapshot.
  - d. Click **Approve**.

**Task 3: Refine a page in Prinergy Connect Workflow software using a color setup**

In Kodak Prinergy Connect Workflow software, you will use the **US Web Coated SWOP** color setup to refine a page.

1. In Prinergy Connect Workflow software, create a new job, and name it `Refine to SWOP`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the Edit Job Attributes dialog box:
  - a. From the **Default Snapshot** list, select **Approved**.
  - b. From the **Job Color Setup** list, select the **US Web Coated SWOP** color setup.
  - c. Click **OK**.
3. Create a new refine process template, and name it `ColorFlow Refine - SWOP`:
  - a. Select the **Color Convert** pane. In the **Match Colors** area, select **Enable ColorFlow**.
  - b. In the **Snapshot** list, select **Approved**.

- c. In the **Color Setup** list, select the **US Web Coated SWOP** color setup.  
In the **Convert to Destination** area, in the **Primary Color Output** list, **US Web Coated SWOP** is automatically selected.
  - d. Ensure that the check boxes for all other settings under **Enable ColorFlow** are cleared.
  - e. Save the process template with the name `ColorFlow Refine - SWOP`.
4. Refine a test file with the new process template.

## Outcome

You have created a color setup that can be used as a starting point for building relationships to output device conditions. In this example, the starting point (or source space) is the **US Web Coated SWOP** profile.

## Using ColorFlow to print like you did using existing profiles and Harmony curves

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### Background



#### Why you should complete this activity

It is a best practice to characterize a device condition in ColorFlow software by printing and measuring a chart (see activities 3, 4, and 5). You can, however, delay this step by importing a transfer calibration curve that you created in Harmony software and that is producing the desired tonal response on a device. ColorFlow software uses the transfer calibration curve as a device curve. Until you have an opportunity to print and measure a chart, this allows you to continue to output jobs with ColorFlow software and Prinergy Workflow integration without characterizing the device condition.

In this activity you will create a print transfer curve that allows you to generate output that is identical to the output you generated using Harmony curves.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Export a transfer curve from Harmony software
- In ColorFlow software, configure the transfer curve
- Use your new Color Setup to refine and output a page in Prinergy Connect Workflow software



## Tasks

### Goal

To print just like you are printing today, with minimal configuration and setup in ColorFlow. No plate linearization curve will be used in this example.

### Task 1: Export a transfer curve from Harmony software

This is optional. If you upgrade to Prinergy 7.5, your Harmony curves should be automatically imported to ColorFlow.

The first step is to export the required transfer calibration curve from Harmony. This may require converting a derived calibration curve to a transfer curve.

**Note:** You can skip Task 1 by importing the .hmy database file from your `Program Files\Kodak\ColorFlow\SampleData\Harmony` folder.

1. In Harmony software, make a copy of the existing **Derived Calibration curve** that you would like to use in ColorFlow software.
2. Double-click the copied calibration curve to open it.
3. Select **Edit > Convert to Transfer Curve**.
4. Select **File > Export Curves**.
5. Select the transfer curve and exported file name.
6. Click **Export**.
7. Keep this exported .hmy database file.  
You will import it into ColorFlow software later.

### Task 2: In ColorFlow software, configure the transfer curve

1. In ColorFlow software, click the **Print Curves** tab.
2. In the **Harmony Curves** section, click **Import**.
3. Select the harmony curve file and the desired transfer curve.
4. Click **Copy to Transfer Curve**.  
The **Transfer Curve Properties** dialog box appears.
5. In the Name box, enter `Harmony transfer curve`.
6. Leave all the device condition properties as default and click **OK**.
7. In the **Transfer Curves** table, find the transfer you just created and select the **Show in Prinergy** check box

### Task 3: Use your new Color Setup to refine and output a page in Prinergy Connect Workflow software

1. Set up a new job and name it `Activity 2`:
  - a. Select **Edit > Job Attributes**.
  - b. For the **Default Snapshot**, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 2.
  - c. For the **Default Job Color Setup**, select the **Harmony Migration** color setup.
  - d. Add a test input file.
2. Create a new refine process template, and name it `ColorFlow Refine - Harmony Migration`. Use the following settings:
  - a. Select the **Color Convert** pane. In the **Match Colors** area, select **Enable ColorFlow**.
  - b. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in ColorFlow in Task 2.
  - c. In the **Color Setup list**, select **Harmony Migration**.
  - d. Clear the check boxes for **Untagged Content**, **RGB Graphics**, and **RGB Images**.
  - e. Save the process template.
3. Refine the test input file with the process template.
4. Create a new loose page output process template, and name it `VPS - Harmony Migration`:
  - a. In the **Output To** list, select **Virtual Proof**.
  - b. For the **Halftone Output Mode**, select **Print Production**.
  - c. In the **Curve Source** section, select **ColorFlow Current State**.
  - d. In the **Print Curve** list, select `Harmony transfer curve`.
5. Select the refined test file, and process it with the output process template **VPS - Harmony Migration**.

## Outcome

You have created a print transfer curve that you can use to generate similar output as you did before using an existing Harmony curve.



## Use ColorFlow to aim a press to an industry specification

### Background



#### Why you should complete this activity

You can establish the color response of the PCO by using one of these methods:

- Selecting a simulation target
- Importing an ICC device profile

The PCO may have a colorimetric response or a tonal response, depending on the color response type in its device condition and the way the simulation target is defined:

- If the device condition in the PCO has a color and tonal response, you can generate ICC Device and DeviceLink profiles and use the tonal-match method or the gray-balance method to generate curves.
- If the device condition in the PCO has a tonal color response, or if the simulation target contains only tonal data (for example, if the simulation target is an ISO TVI curve), you can only use the tonal-match method to generate simulation curves.

In this activity, you will create a Color Characterization chart, which you will use to establish a colorimetric response and a tonal response. This will generate all the data necessary to create gray balance curves and device ICC profiles for a color setup.

In activity 4, you will create a Tonal Characterization chart to establish a tonal response only.

In activity 5, you will create a Tint Ramp chart to manually measure tint values.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Create a new color setup for a single press device condition aimed to an industry specification
- Characterize a press via color charts (Prinergy Connect Workflow)

- Print and measure sample sheets for the color chart
- Complete the color setup
- Use your new color setup to refine and output a page in Prinergy Connect Workflow



## Tasks

### Goal

To characterize your device by printing and measuring charts to get both color and tonal data for use in curve and profile creation. Using this characterization data, Colorflow will build the necessary calibration curves and ICC profiles required to aim a press to an industry specification.

### Task 1: Create a new color setup for a single press device condition aimed to an industry specification

In ColorFlow, you will create a new color setup that contains only a primary color output, defined by a single press device condition aimed to an industry specification.

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button.  
The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or by double-clicking the **color setup viewer**.
2. From the Devices dialog box, add a new offset press device:
  - a. Click **Add Device**.
  - b. In the **Device Type** list, select **Offset Press - Sheetfed**.
  - c. Name the device `Press B`.
  - d. Drag `Press B` to the center of the **color setup viewer** pane.
3. In the **Color Setups** table, find the color setup you just created and double-click the name column, and then enter `GRACoL C1 2006` as the name.
4. Select the **Show in Prinergy** check box.
5. Click the **Properties** icon  and define new properties for the device condition.  
For example, in the **Screening** list, select **200 lpi**, and, in the **Substrate** list, select **Type 1**. If these values are not available, you will need to add them before you can select them. Click the edit  button next to the **Screening** or **Substrate** box. In the dialog box that appears, click the add  button and enter the name of the new selection.

**Note:** if you select properties that were used in a previous activity, the message `Use Existing Device Condition` appears. For this exercise, we must use unique properties.

6. To define the device curve, click the **Default Device Curves** icon 
  - a. Select **Preset**.
  - b. Select **Linear**.
  - c. Click **OK**.
7. (Optional) Capture a snapshot:
  - a. Select **View > Snapshots**.
  - b. Click **Capture**, and note the snapshot ID number.
8. Click the **Measurements** icon  to create a new **Color Characterization Chart**:
  - a. In the **Charts** tab, click the add button  to create a new chart.
  - b. From the **Chart Type** list, select **Color Characterization**.
  - c. In the **Measurement Device** list, select your measurement device.
  - d. In the **Printable Area** list, define the area of the chart to print for your press. Remember to leave enough room to adequately fit on an existing imposition.
  - e. Keep all the other default settings.
  - f. Save the chart.
  - g. Export the chart by saving as a PDF file.  
The file `CMYK_0.pdf` is created.

## Task 2: Characterize a press via color charts (Prinerger Connect Workflow)

**Note:** For the purpose of this activity, we will output to VPS, not Final Output.

1. In Prinerger Connect Workflow software, create a new job and name it `ColorFlow Characterization - Color`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the **Edit Job Attributes** dialog box:
  - a. For the **Default Snapshot**, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.
  - b. From the **Default Job Color Setup** list, select the color setup you created earlier in this activity.
  - c. Click **OK**.
3. Refine the `CMYK_0.pdf` file exported from ColorFlow:
  - a. Use the default **1stRef-Normz** refine process template.
  - b. In the refine process template, clear the **ColorConvert** check box.
4. Optional: To add any custom sheet marks for the press, include this chart within an existing imposition.

5. Output the imposed surfaces or single page to VPS, ensuring that, in the **ColorConvert** settings, the **Match Colors in Page Content** check box is cleared.

**Note:** When using a ColorFlow-enabled process template for characterization output, select these values:

- a. Select the **ColorFlow** pane check box.
- b. Set **Halftone output mode** to **Print Characterization**.
- c. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.
- d. In the **Device** list, select **Press B**.
- e. Select the **Device Condition**.

### Task 3: Print and measure sample sheets for the color chart

You can print the chart on your press and select sample sheets for measurement. You can then measure the color on a printed chart using a supported measurement device. Or, for the purposes of completing this activity without performing a press run, you can skip this task by importing `ColorFlowSheetfed2001piType1Linear.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder.

1. Output the job to plate.
2. Complete a press run with the press at standard densities, printing at least 500 sheets.  
Use the same substrate, screening, and ink that you specified in the ColorFlow device condition.
3. Select 5 to 10 sample sheets from a point in the press run where you confirmed densities to be accurate and stable.
4. From a ColorFlow device condition, click the **Measurements** icon .
5. In the **Charts** list, select the `CMYK_0` chart.
6. In the Charts dialog box, click **Measure**.  
The measurement wizard appears.
7. Follow the instructions in the Chart Measurement wizard.

### Task 4: Complete the color setup

Now that you have completed the measurement wizard steps:

1. Click the **Device condition profile** icon  to generate an ICC profile for the device condition.  
ColorFlow software will use the color response obtained by the measurement data to build the device condition profile with the black generation parameters that you specify.

**Note:** Default black generation values are populated based on the device type.

2. Click the **Simulation** icon  and create these settings in the Simulation dialog box:
  - a. From the **Target** list, select **GRACoL 2006 Coated 1**.
  - b. From the **Curves** list, select **Gray Balance**.
  - c. From the **DeviceLink** list, select **None**.

These should be the default settings.
3. To generate a PCO ICC profile, click the **PCO profile** icon . This profile is used for CIELAB spot color conversion and is needed by Prinergy. ColorFlow will build the PCO ICC profile based on the color response of the device condition and the simulation target that you select.
4. (Optional) Capture a snapshot:
  - a. Select **View > Snapshots**.
  - b. Click **Capture**, and note the snapshot ID number.
  - c. In the **Notes** box of the Snapshots dialog box, type `Characterized Press B and created GRACoL curves`.
  - d. After you have run a verification press run, you can approve the snapshot by clicking the **Approve** button in the Snapshots dialog box.

### Task 5: Use your new color setup to refine and output a page in Prinergy Connect Workflow

1. In Prinergy Connect Workflow software, create a new job, and name it `Activity 3`:
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the Edit Job Attributes dialog box:
  - a. For the **Default Snapshot**, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.
  - b. From the **Default Job Color Setup** list, select the **GRACoL C1 2006** color setup.
  - c. Add a test input file.
3. Create a new refine process template, and name it `ColorFlow Refine - GRACoL`:
  - a. Select the **ColorConvert** pane.
  - b. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.
  - c. In the **Color Setup** list, select **GRACoL C1 2006**.
  - d. Clear the check boxes for **Assign Input Device Condition**, **RGB Graphics**, and **RGB Images**.
  - e. Save the process template.

4. Refine the input file that you used in a previous step with the process template.
5. Create a new Loose Page Output Process Template, and name it VPS - GRACoL:
  - a. In the **Output To** list, select **Virtual Proof**.
  - b. Select the **ColorFlow** check box.
  - c. For **Halftone Output Mode**, select **Print Production**.
  - d. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.
  - e. In the **Color Setup** list, select **GRACoL C1 2006**.
  - f. In the **Device** list, select **Press B**.
  - g. Select the **Device Condition**.
  - h. In the **ColorConvert** settings, leave the **Match Colors In Page Content** check box cleared. Color matching will not be applied on output.
  - i. Save the process template.
6. Select the test refined file, and process it with the process template **VPS - GRACoL**.

## Outcome

At the end of this activity, you will have all the data necessary to create gray balance curves and device ICC profiles for a color setup that includes a single device condition aimed at the GRACoL specification.

**Note:** In this activity, no color conversion actually takes place during the refine stage, as there is no Color Input defined to convert input builds of CMYK to the PCO CMYK color space. The main purpose of this activity is to specify (or tag files with) a color setup, so that can this color setup can be referenced at the time of output.

In this case, only calibration curves were used to apply for virtual proof output. There was no need to create a DeviceLink for final output.



## Use ColorFlow tonal curves to align a press to an industry standard

---

### Background



#### Why you should complete this activity

ColorFlow software can generate charts that are suited to your device inkset, the size of your printing device, and your measuring instrument.

In this activity, you will use a tonal characterization chart that will allow you to measure a chart for tonal response only.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Create a color setup with a PCO defined by a press aligned with an industry standard
- Characterize a press via tonal charts (Prinerger Connect Workflow)
- Print and measure sample sheets for the tonal chart
- Import profile data and define the simulation
- Refine and output a file in Prinerger Connect Workflow software



## Tasks

### Goal

To characterize your device with chart measurement and tonal data only for use in curve creation. Using this characterization data, ColorFlow will build the necessary tonal calibration curves to align a press to an industry standard such as ISO 12647.

### Task 1: Create a color setup with a PCO defined by a press aligned with an industry standard

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button.  
The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or double-clicking the **color setup viewer**.
2. From the Devices dialog box, add a new offset press device:
  - a. Click **Add Device**.
  - b. In the **Device Type** list, select **Offset Press - Sheetfed**.
  - c. In **Device Name**, type `Press C`.
  - d. Drag **Press C** to the center of the **color setup viewer** pane.
3. In the **Color Setups** list on the left, find the color setup you just created and double-click the name column, and then enter `ISO 12647 A+B` as the name.
4. Click the device condition **Properties** icon  and define new properties for the device condition.  
For example, in the **Screening** list, select **200 lpi**, and, in the **Substrate** list, select **Cover 80lb**.  
**Note:** If you select properties that have already been used, the message `Use Existing Device Condition` appears. For this exercise, we must use unique properties.
5. Click the **Default Device Curves** icon  and select **Preset Linear** curve.
6. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Make a note of the current snapshot ID.
7. Click the **Measurements** icon .
  - a. In the **Charts** tab of the Measurements dialog box, click the add button  to add a new chart.
  - b. In the **Chart Type** list, select **Tonal Characterization**.

- c. Select your measurement device.
- d. Define the area of the chart to print for your press.  
Leave enough room for the chart to fit on an existing imposition.
- e. For all the other settings, use the default value.
- f. Save the chart.
- g. Export the chart, saving it to the file system as `CMYK_1.pdf`.

## Task 2: Characterize a press via tonal charts (Prinerger Connect Workflow)

**Note:** For the purpose of this activity, we will output to VPS, not final output.

1. In Prinerger Connect Workflow software, create a new job and name it `ColorFlow Characterization - Tonal Charts`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the **Edit Job Attributes** dialog box:
  - a. For the **Default Snapshot**, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.
  - b. From the **Default Job Color Setup** list, select the **ISO 12647 A +B** color setup.
  - c. Click **OK**.
3. Refine the `CMYK_1.pdf` file exported from ColorFlow:
  - a. Use the default **1stRef-Normz** refine process template.
  - b. In the refine process template, clear the **ColorConvert** check box.
4. (Optional) To add any custom sheet marks for the press, include this chart within an existing imposition.
5. Output the imposed surfaces or single page to VPS, ensuring that, in the **ColorConvert** settings, the **Match Colors In Page Content** check box is cleared.

**Note:** When using a ColorFlow-enabled process template for characterization output, select these values:

- a. Select the **ColorFlow Color Relationship Management** pane check box.
- b. In the **Halftone Output Mode** section, select the **Print Characterization** option.
- c. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.
- d. In the **Device** list, select **Press C**.
- e. Select the **Device Condition**.

### Task 3: Print and measure sample sheets for the tonal chart

You can print the chart on your press and select sample sheets for measurement. You can then measure the color on a printed chart using a supported measurement device. Or, for the purposes of completing this activity without performing a press run, you can skip this task by importing `SheetfedPress.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder.

1. Output the job to plate.
2. Complete a press run with the press at standard densities, printing at least 500 sheets.  
Use the same substrate, screening, and ink that you specified in the ColorFlow device condition.
3. Select 5 to 10 sample sheets from a point in the press run where you confirmed densities to be accurate and stable.
4. From a ColorFlow device condition, click the **Measurements** icon .
5. In the **Charts** list, select the `CMYK_1` chart.
6. In the Charts dialog box, click **Measure**.  
The measurement wizard appears.
7. Follow the instructions in the Chart Measurement wizard.

### Task 4: Import profile data and define the simulation

1. Click the **Device condition profile** icon  to import an ICC profile for the device condition.  
Since ColorFlow does not have the colorimetric data required to generate an ICC profile, the only option is to import a profile.
2. Import the profile `sample.icc`, found on the training resources CD.  
This profile should represent the uncalibrated state of your device condition.
3. Click the **Simulation** icon  and create these settings in the Simulation dialog box:
  - a. From the **Target** list, select **ISO TVI Curves A and B**.
  - b. From the **Curves Method** list, select **Tonal Match**.
  - c. From the **DeviceLinks Method** list, select **None**.  
**Note:** This should be the default setting.
4. Import an ICC profile for the PCO.  
This profile is used for CIELAB spot color conversion, and is required by Prinergy.

- a. Click the PCO **Profile** icon .
  - b. Import the profile `sampleISO.icc`, found on the training resources CD.  
This profile should represent the calibrated color response of your press aimed at ISO curves A and B.
5. (Optional) Select **View > Snapshots** and click **Capture**.
  - a. Note the current snapshot ID.
  - b. In the **Notes** box of the Snapshots dialog box, type `Characterized Press C and created ISO curves`.
  - c. After you have run a verification press run, you can approve the snapshot by clicking the **Approve** button in the Snapshots dialog box.

### Task 5: Refine and output a file in Prinergy Connect Workflow software

1. In Prinergy Connect Workflow software, create a new job, and name it `Activity 4`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the Edit Job Attributes dialog box:
  - a. In the **Default Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.
  - b. From the **Default Job Color Setup** list, select the **ISO Curve A+B** color setup.
  - c. Add a test input file.
3. Create a new refine to PDF process template and name it `ColorFlow Refine - ISO Tonal Match`:
  - a. Select the **ColorConvert** check box.
  - b. Select the **ColorConvert** pane. In the **Match Colors** area, select **Enable ColorFlow**.
  - c. In the **Snapshots** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.
  - d. In the **Color Setup** list, select **ISO Curve A+B**.
  - e. Clear the check boxes for **Assign Input Device Condition**, **RGB Graphics**, and **RGB Images**.
4. Save this process template.
5. Refine the test file with the process template.
6. Create a new loose page output process template, and name it `VPS - ISO Tonal Match`:
  - a. For **Output To**, select **Virtual Proof**.
  - b. Select the **ColorFlow** pane check box.
  - c. For the **Halftone Output Mode**, select **Print Production**.
  - d. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.

- e. In the **Color Setup** list, select the **ISO Curve A+B**.
  - f. In the **Device** list, select **Press C**.
  - g. Select the **Device Condition**.
  - h. In the **ColorConvert** settings, leave the **Match Colors In Page Content** check box cleared. Color matching will not be applied on output.
  - i. Save the process template.
7. Select the test file that you refined earlier in this activity, and process it with the the process template **VPS - ISO Tonal Match**.

## Outcome

You have created tonal match characterization curves using tonal data only, to use when outputting plates to align with an industry standard.

You have refined and output a file using this color setup, setting the stage for output using the curves that you have just created.

## Enter tint ramp data to characterize a press aligned with an industry standard

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### Background



#### Why you should complete this activity

You may already have a printed tint ramp chart that was not generated by ColorFlow software. In this activity, you will use the tint ramp characterization method to measure this chart with a hand-held instrument and enter values into ColorFlow software to establish the current tonal response of your print condition.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Create a color setup with a press device condition aimed at an industry standard
- Characterize a press via tint ramp charts (Prinerger Connect Workflow)
- Print and measure sample sheets for the tint ramp chart
- Import profile data, and define the simulation
- Refine and output a file in Prinerger Connect Workflow software



## Tasks

### Goal

To set up ColorFlow software and Prinergy Workflow software to print to an industry standard, based on the current TVI (tone value increase) values of your particular print condition. The device condition color response will be defined by the measurements of tonal data that are read by a hand-held plate reader device and then manually entered into ColorFlow software.

### Task 1: Create a color setup with a press device condition aimed at an industry standard

Create a new color setup containing only a PCO that is defined by a single press device condition aimed at an industry standard.

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button.  
The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or double-clicking the **color setup viewer**.
2. From the Devices dialog box, select the device **Press C** and drag it to the center of the **color setup viewer** pane.  
This defines the PCO as Press C.
3. In the **Color Setups** list on the left, find the color setup you just created and double-click the name column, and then enter `ISO 12647 C+D` as the name.
4. In the PCO device condition, click the **Properties** icon  and create a **Plate Setup**.
  - a. Create the new plate setup:
    1. Click the **Add** button  next to **Plate Setup**.
    2. In the **Device type** list, select **Offset Press - Sheetfed**.
    3. In the **Plate type** list, select **Electra Excel**.
    4. In the **Screening** list, select **175 lpi**.
  - b. Add a **Plate Line** for the newly-created plate setup.
    1. Click the **Edit** button next to **Plate Lines**.
    2. Click the **Add** button .
    3. Type a name that describes your platesetter and chemistry.  
For this plate line, use the name `fiber head, weak chemistry`.
    4. Click **OK**.

- c. Use your plate reader to measure the uncalibrated bottom row on tints of the Kodak Plate Control Strip.
  - d. With the correct plate line selected, enter the measured values of the uncalibrated patches into the **Tint Values** area, under the **Measured Tint (Uncalibrated)** heading.  
You do not have to type a measured value for every input tint value.
  - e. Click **OK**.  
ColorFlow automatically creates a compensating plate line curve. The plate line is selected in the Prinergy output process template when applied to a device condition in Colorflow.
  - f. In the Device Condition properties, select the newly-created plate setup named **Kodak Electra Excel, 175 lpi**.
  - g. Select **Type 4** substrate.
5. Click the **Default Device Curves** icon  and select a preset linear curve.
  6. (Optional) Capture a snapshot.
    - a. Select **View > Snapshots**.
    - b. Click **Capture**.
    - c. Make a note of the current snapshot ID.
  7. Create a new tint ramp characterization chart.
    - a. Click the **Measurements** icon .  
The Measurements dialog box appears.
    - b. In the **Charts** tab, click the add button  to add a new chart.
    - c. In the **Chart Type** list, select **Tint Ramp**.
    - d. For all the other settings, use the default value.
    - e. Save the chart.
    - f. Export the chart, saving it to the file system as `CMYK_2.pdf`.

## Task 2: Characterize a press via tint ramp charts (Prinerger Connect Workflow)

**Note:** For the purpose of this activity, we will output to VPS, not final output.

1. In Prinerger Connect Workflow software, create a new job, and name it `ColorFlow Characterization - Tint Ramp`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the **Edit Job Attributes** dialog box:
  - a. From the **Default Snapshot** list, select **Current State**, or, if applicable, the snapshot ID noted in Task 1.
  - b. From the **Default Job Color Setup** list, select the **ISO 12647 C +D** color setup.
  - c. Click **OK**.
3. Refine the `CMYK_2.pdf` file exported from ColorFlow.
  - a. Use the default **1st Ref-Normz** refine process template.
  - b. In the refine process template, clear the **ColorConvert** check box.
4. (Optional) To add any custom sheet marks for the press, include this chart within an existing imposition.
5. Output the imposed surfaces or single page to VPS, ensuring that, in the **ColorConvert** settings, the **Match Colors In Page Content** check box is cleared.

**Note:** When using a ColorFlow-enabled process template for characterization output, select these values:

- a. Select the **ColorFlow** pane check box.
- b. In the **Halftone Output Mode** section, select the **Print Characterization** option.
- c. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you notes in Task 1.
- d. In the **Device** list, select **Press C**.
- e. Select the **Device Condition**.

## Task 3: Print and measure sample sheets for the tint ramp chart

You can print the chart on your press and select sample sheets for measurement. You can then measure the color on a printed chart using a supported measurement device. Or, for the purposes of completing this activity without performing a press run, you can skip this task by

importing `SheetfedPress.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder.

1. Output the job to plate.
2. Complete a press run with the press at standard densities, printing at least 500 sheets.  
Use the same substrate, screening, and ink that you specified in the ColorFlow device condition.
3. Select 5 to 10 sample sheets from a point in the press run where you confirmed densities to be accurate and stable.
4. From a ColorFlow device condition, click the **Measurements** icon .
5. In the **Charts** list, select the `CMYK_2` chart.
6. In the Charts dialog box, click **Measure**.  
The measurement wizard appears.
7. Follow the instructions in the Chart Measurement wizard.

#### Task 4: Import profile data, and define the simulation

1. In the ColorFlow software, click the **Device condition Profile** icon  to import an ICC profile for the device condition.  
Since ColorFlow does not have the colorimetric data required to generate an ICC profile, the only option is to import a profile.
2. Import the profile `sample.icc`, found on the training resources CD.  
This profile should represent the uncalibrated state of your device condition.
3. Click the **Simulation** icon  and create these settings in the Simulation dialog box:
  - a. In the **Target** list, select **ISO Curve C and D**.
  - b. In the **Curves** list, select **Tonal Match**.
  - c. In the **DeviceLink** list, select **None**.  
This should be the default setting.
4. Import an ICC profile for the PCO.  
This profile is used for CIELAB spot color conversion, and is required by Prinergy.
  - a. Click the PCO **Device condition Profile** icon .
  - b. Import the profile `sampleISO.icc`, found on the training resources CD.  
This profile should represent the calibrated color response of your press aimed at ISO curves C and D.
5. (Optional) Select **View > Snapshots**, and click **Capture**.
  - a. Note the current snapshot ID.

- b. In the **Notes** box of the Snapshots dialog box, type Characterized Press C via tint ramp with plate line and created ISO curves.
- c. After you have run a verification press run, approve the snapshot by clicking the **Approve** button in the Snapshots dialog box.

### Task 5: Refine and output a file in Prinergy Connect Workflow software

1. In Prinergy Connect Workflow software, create a new job, and name it `Activity 5`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the Edit Job Attributes dialog box:
  - a. From the **Default Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 5.
  - b. From the **Default Job Color Setup** list, select the **ISO 12647 C +D** color setup.
  - c. Add a test input file.
3. Using the following settings, create a new Refine to PDF process template, and name it `ColorFlow Refine - ISO Curve C+D`:
  - a. Select the **ColorConvert** check box. In the **Match Colors** area, select **Enable ColorFlow**.
  - b. In the **Snapshots** list, select **Current State**, or, if applicable, the snapshot ID noted in Task 5.
  - c. In the **Color Setup** list, select **ISO Curve C+D**.
  - d. Clear the check boxes for **Assign Input Device Condition**, **RGB Graphics**, and **RGB Images**.
4. Save the process template.
5. Refine a test file.
6. Using the following settings, create a new Output from PDF process template and name it `VPS - ISO Curve C+D`:
  - a. In the **Output To** list, select **Virtual Proof**.
  - b. Select the **ColorFlow** pane check box.
  - c. For the **Halftone Output Mode**, select **Print Production**.
  - d. In the **Snapshots** list, select **Current State**, or, if applicable, the snapshot ID noted in Task 5.
  - e. In the **Color Setup** list, select **ISO Curve C+D**.
  - f. In the **Device** list, select **Press C**.
  - g. Select the **Device Condition**.
  - h. In the **ColorConvert** settings, leave the **Match Colors In Page Content** check box cleared. Color matching will not be applied on output.
7. Save this process template.

8. Select the refined test file, and process it with the process template **VPS - ISO Curve C+D.**

## Outcome

You have created tonal match characterization curves to use when outputting plates to align with an industry standard.

You have refined and output a file using this color setup, setting the stage for output using the curves that you have just created.



## Use ColorFlow to align a proofer with a press

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### Background



#### Why you should complete this activity

In this activity, you will use ColorFlow software to add a proofer to an existing color setup. In the color setup, the PCO is a press that is aligned to an industry specification. The proofer becomes a Secondary Color Output (SCO). The SCO will be aligned to the PCO, simulating the same target to which the PCO is aimed. With this DeviceLink, the proofs will simulate the color that you print from the offset press.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Add an SCO to a color setup that already has a PCO defined



## Tasks

### Goal

To add a Secondary Color Output (SCO)—an inkjet proofer—to a color setup that already has a press defined as the PCO.

### Task 1: Add an SCO to a color setup that already has a PCO defined

**Requirements:** This procedure assumes that you have already defined the color setup **GRACoL C1 2006** as part of a previous activity. See Activity 3.

1. In ColorFlow software, from the **Color Setups list**, select the color setup named **GRACoL C1 2006**.
2. Add a new device named **Proofer A**.
  - a. Select **View > Devices** or double-click the **color setup viewer**. The Devices dialog box appears.
  - b. Click **Add Devices**.
  - c. In the **Device Type** list, select **Inkjet Proofer - Matchprint Inkjet**.
  - d. In the **Device Name** list, type `Proofer A`.
  - e. Drag the **Proofer A** icon from the Devices dialog box to the bottom of the **color setup viewer** pane, below the PCO.
3. To define the device condition, click the **Properties** icon  inside the SCO device condition and make these selections in the Device Condition Properties dialog box:
  - a. In the **Resolution** list, select **1440x720**.
  - b. In the **Substrate** list, select **SM240**.
4. Click the **Measurements** icon  to import a file in CGATS5 format, containing CIELAB or spectral data. This data would have come from the measurement of an IT8/7.4 target from another measurement application. If you do not have measurement data, you can import `MatchprintInkjet.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder for the purpose of completing this activity.
5. Define the conversion method.
  - a. Click the **Conversion Link** icon .
  - b. For the purposes of this activity, review the available options in the **DeviceLink Method** list.
  - c. Accept the default settings by selecting **OK**. The default settings are device specific. For this activity, the **DeviceLink Method** should be **Full Reseparation**.

If you do not have tonal data or spectral data, a message appears, warning that you cannot use the tonal match method. This is not relevant for DeviceLink creation. You can safely click **OK** to close the message dialog box.

- d. For **Rendering Intent**, select **Absolute Colormetric**.
6. Define the device condition ICC profile.
  - a. Click the **Device condition profile** icon .
  - b. Select **ColorFlow Generated**.
  - c. Accept the other default values.
7. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Make a note of the current snapshot ID.  
You will need the snapshot ID in the output process template in Prinergy Workflow software.

## Outcome

In this activity, you created a DeviceLink that can be used to align an inkjet device condition with a press aimed at an industry specification. Using concepts learned in previous activities, you will be able to create process templates for output on your own.



## Change the simulation target of a color setup

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### Background



#### Why you should complete this activity

In this activity, you will learn how to duplicate an existing color setup, and then change the simulation target to a different industry specification. You will see how the ColorFlow software can automatically update the DeviceLinks to reflect the new color target by generating new DeviceLink profiles and curves for all device conditions within the color setup.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Duplicate an existing color setup, and change the simulation target



## Tasks

### Goal

To duplicate an existing color setup and then change the simulation target of the new color setup to another industry specification.

### Task 1: Duplicate an existing color setup, and change the simulation target

#### Requirements:

This procedure assumes that you have already defined the color setup **GRACoL C1 2006** as part of a previous activity. See Activity 3.

1. In ColorFlow software, from the **Color Setups list**, select the color setup named **GRACoL C1 2006**.
2. Create a duplicate of the **GRACoL C1 2006** color setup by selecting **Edit > Duplicate Color Setup**.

You can also create a duplicate of the selected color setup in these ways:

- For Mac OS, press Command+D.
- For Microsoft Windows, press Ctrl+D.

3. Rename the duplicated color setup with a name that represents the new target simulation.  
For example, for this activity name the new color setup **SWOP C3**.
4. To open the Simulation Curve Adjustments dialog box, click the **Simulation** icon .

**Note:** Because the Simulation Definition is already defined as **GRACoL C1 2006**, the Simulation icon appears green.

5. Click **Redefine**.  
The Simulation Definition dialog box appears.
6. In the **Target list**, select **SWOP 2006 Coated 3**.
7. Click **OK**.  
A Simulation Redefinition warning appears.
8. Click **Yes** in the Simulation Redefinition warning dialog box.
9. Note the color elements that are updated in your color setup.
10. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.

- c. Make a note of the current snapshot ID.
- d. When you are satisfied with the output from your press run, return to the Snapshots dialog box, select the snapshot you created in the previous step, and click **Approve**.

## Outcome

You have observed the capability of ColorFlow software to update relationships (DeviceLinks) between device conditions based on the definition of a new simulation target. When this occurs, new DeviceLink profiles and curves are generated to reflect the new color target for all device conditions within a color setup. This illustrates the concept of color relationship management.



## Create a press pool

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### Background



#### Why you should complete this activity

With curve-controlled devices, you can include more than one device in a device condition. This is called a press pool. The devices in a press pool must have the same device type and device condition properties.

After you create a device pool, the devices are pooled in all color setups in which the device condition is used. If you remove one of the devices from the device pool, the device is removed from the device condition in all color setups where the device condition is used.

In the device condition, one device is the *promoted* device. The name of the promoted device appears in bold. The color response of the promoted device is used as the color response of the device condition. A device can be promoted only after it is characterized.

In this activity, you will create a press pool.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Set up several devices in the PCO or SCO



## Tasks

### Goal

To create a press pool by calibrating several curve-controlled devices (such as offset presses) in the same device condition in a color setup.

### Task 1: Set up several devices in the PCO or SCO

#### Requirements:

This procedure assumes that you have already defined the color setup **GRACoL C1 2006** as part of a previous activity. See Activity 3.

1. In ColorFlow software, from the **Color Setups list**, select the color setup named **GRACoL C1 2006**.
2. Add a new offset press device named **Press D**.
  - a. Select **View > Devices** or double-click the **color setup viewer**. The Devices dialog box appears.
  - b. Click **Add Devices**.
  - c. In the **Device Type** list, select **Offset - Sheetfed**.
  - d. In the **Device Name** list, type `Press D`.
  - e. Drag the **Press D** icon to the center of the **color setup viewer** pane on top of **Press B**. This creates a press pool with **Press B** as the promoted device.
3. To define the curve for the PCO device, click the **Default Device Curves** icon  in the PCO device condition and select a preset linear curve.
4. Click the **Measurements** icon  to import a file in CGATS5 format, containing CIELAB or spectral data. This data would have come from the measurement of an IT8/7.4 target from another measurement application. If you do not have measurement data, you can import `SheetFedPress.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder for the purpose of completing this activity.
5. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Make a note of the current snapshot ID.

- d. In the **Note** box, type `Added Press D to the color setup GRACol C1 2006` in a press pool.
- e. When you are satisfied with the output from your press run, return to the Snapshots dialog box, select the snapshot you created in the previous step, and click **Approve**.

## Outcome

You have now added a new device to an existing device condition. ColorFlow software generated custom device curves to match the native behaviour of one press to a *promoted* press in a device condition.

If any changes are made to the device curves of the promoted press, the device curves of the pooled press will also change.

For information about how to promote a pooled device in a device condition, see the *ColorFlow Software User Guide*.



## Align an FM device condition with an AM device condition

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### Background



#### **Why you should complete this activity**

In this activity you will learn how to align a new FM device condition with an existing AM device condition. This creates calibration curves that will make your FM print condition look like your AM print condition.



#### **What you will learn**

After completing this activity, you will know how to perform the following tasks:

- Align an FM device condition to an AM device condition



## Tasks

### Goal

To align an FM device condition to an AM device condition in the ColorFlow software.

### Task 1: Align an FM device condition to an AM device condition

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button.  
The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or by double-clicking the **color setup viewer**.
2. In the Devices dialog box, select the device **Press C** and drag it to the center of the **color setup viewer** pane.  
This defines the PCO as Press C.
3. In the PCO device condition, click the **Properties** icon . Use an existing AM condition.  
For example: **175 lpi + 100 lb Ctd.**
4. To define the curve, click the **Default Device Curves** icon  in the device condition and select a preset linear curve.
5. Click the **Measurements** icon  and import measurement data. If you do not have measurement data, you can import `SheetFedPress.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder for the purpose of completing this activity.
6. Click the **Device condition Profile** icon  to generate an ICC profile for the PCO device condition.
7. To define the simulation, click the **Simulation** icon , make these selections in the Simulation Definition dialog box, and click **OK**:
  - a. In the **Target** list, select **None**.
  - b. In the **Curves** list, select **Manual Adjustments**.
  - c. In the **DeviceLinks** list, select **None**.These should be the default settings.
8. From the Devices dialog box, select the device **Press C** and drag it to the SCO position in the **color setup viewer** pane.
9. Click the **Properties** icon  in the SCO device condition and select the FM condition that you want to align to the AM condition.  
For example, in the **Screening** list, select **Staccato 20**, and in the **Substrate** list, select **Type 2 coated**.  
This defines the SCO device condition.

10. Click the **Default Device Curves** icon  for the SCO, and select a preset linear curve.  
This defines the device curve.
11. Click the **Measurements** icon  to import a file in CGATS5 format, containing CIELAB or spectral data.  
This data would have come from the measurement of an IT8/7.4 target from another measurement application. If you do not have measurement data, you can import `ColorFlowSheetFed2001piType1Linear.cgt` from your `Program Files\Kodak\ColorFlow\SampleData\Measurements` folder for the purpose of completing this activity.
12. To generate the device ICC profile, click the **Device condition profile** icon .  
ColorFlow will take the color response obtained by measurement data to build the device condition profile with the black generation parameters that you specify. Default black generation values are populated based on the device type.
13. To define the conversion method, click the **Conversion Link** icon  and select these settings:
  - a. For the **Curves Method** setting, select **Gray Balance**.
  - b. For the **DeviceLink Method** setting, select **None**.This definition creates gray balance curves to align the FM condition to the AM condition.
14. In the **Color Setups** table, find the color setup you just created and double-click the name column, and then enter `AM to FM match` as the name.
15. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Make a note of the current snapshot ID.
  - d. In the **Note** box, type `Aligned new FM condition with existing AM printing`.
  - e. When you are satisfied with the output from your press run, return to the Snapshots dialog box, select the snapshot you created in the previous step, and click **Approve**.

## Outcome

You have used ColorFlow software to create calibration curves that will make your FM print condition look like your AM print condition.



## Use ColorFlow Flexcel NX preset device curves to adjust the tonal response of a flexographic press

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### Background



#### Why you should complete this activity

In this activity you will learn how to use ColorFlow software to configure the correct Kodak Flexcel NX C3 curve for printing on a flexographic press with Flexcel NX plates.

If you do not already know the correct Flexcel NX C3 curve to be used for the flexographic print condition, use the procedure in *Single Color Benchmark Fingerprint Procedure for Flexcel NX Plates* (Partner Place Answer ID [62384](#)) to determine the curve. A one-color benchmark fingerprint provides adequate information about how much dot gain typically occurs on a specific press. Use the fingerprint to determine which calibration curve will compensate for that dot gain.

The curve is selected according to the TVI (tone value increase) or dot gain of the cyan 50% tint as determined by the Flexcel NX fingerprint procedure. For example, the EDA (effective dot area) or TVI measure of the 50% cyan tint may be EDA 87% and TVI 37%. This indicates that the correct Flexcel NX C3 curve is C37%.



#### What you will learn

After completing this activity, you will know how to perform the following tasks:

- Create a new color setup for a single flexographic press device condition
- Refine and output a file in Prinergy Connect Workflow software



## Tasks

### Goal

To configure the print condition for a flexographic device to use the appropriate Flexcel NX C3 curve.

### Task 1: Create a new color setup for a single flexographic press device condition

Use ColorFlow software to create a new color setup that contains only a primary color output, defined by a single flexographic press device condition.

#### Requirements:

If you do not already know the correct Flexcel NX C3 curve to be used for the flexographic print condition, use the procedure in *Single Color Benchmark Fingerprint Procedure for Flexcel NX Plates* (Partner Place Answer ID [62384](#)) to determine the curve.

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button.  
The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or by double-clicking the **color setup viewer**.
2. In the Devices dialog box, perform these actions:
  - a. In the Device Type list, select **Flexographic Press**.
  - b. Name the device **Narrow Web Flexo Press**.
  - c. Drag the **Narrow Web Flexo Press** device to the center of the **color setup viewer** pane.
3. In the device condition, click the **Properties** icon  and configure these device condition properties:
  - **Screening** = 175 lpi
  - **Substrate** = White on poly
  - **Spot default curve** = black
4. Click the **Default Device Curves** icon  and perform these actions in the dialog box:
  - a. Select **Preset**.
  - b. Select **Linear**.
  - c. Leave all other settings as the default settings.
  - d. Click **OK**.

5. Click the **Device Curve** icon  and redefine the device curve to use the appropriate C3 curve for this NX device:
  - a. In the Device Curves Adjustments dialog box, select **Redefine**. The Device Curves - Definition dialog box appears.
  - b. Select **Preset**.
  - c. Locate and select the appropriate C3 curve.  
For example, **c3, NX Any 37% 2400 AM**.
  - d. In the Device Curves dialog box, click **OK**.

**Note:** When the device curve is redefined, the measurement icon changes back to orange. This is normal behavior.
6. Click the **Simulation** icon  and perform these actions in the dialog box:
  - a. In the **Target** list, select **None**.
  - b. Click **OK**.
7. In the **Color Setups** table, find the color setup you just created and double-click the name column, and then enter `Flexo Press White Poly` as the name.
8. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Make a note of the current snapshot ID.
  - d. In the **Note** box, type `Characterized Flexographic Press via Flexcel NX Press target and defined Flexcel NX C3 curves`.

## Task 2: Refine and output a file in Prinerger Connect Workflow software

1. In Prinerger Connect Workflow software, create a new job, and name it `Activity 10`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the Edit Job Attributes dialog box:
  - a. Select the **Enable ColorFlow** check box.
  - b. For the **Default Snapshot**, select **Current State** or, if applicable, the snapshot ID that you noted in Task 1.
  - c. From the **Default Job Color Setup** list, select the **Flexo Press White Poly** color setup.
  - d. Add a test input file.
3. Create a new refine process template, and name it `ColorFlow Refine - Flexo Press White Poly`.
  - a. Select the **Color Convert** pane. In the **Match Colors** area, select **Enable ColorFlow**.
  - b. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.

- c. In the **Color Setup** list, select **Flexo Press White Poly**.
  - d. Clear the check boxes for **Assign Input Device Condition**, **RGB Graphics**, and **RGB Images**.
  - e. Save the process template.
4. Refine the test input file with the process template.
5. Create a new loose page output process template, and name it `VPS - Flexo Press White Poly`:
  - a. In the **Output To** list, select **Virtual Proof**.
  - b. Select the **ColorFlow** check box.
  - c. For the **Halftone Output Mode**, select **Print Production**.
  - d. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.
  - e. For the **Color Setup**, select **Flexo Press White Poly**.
  - f. In the **Device** list, select **Narrow Web Flexo Press**.
  - g. Select the **Device Condition**.
  - h. In the **ColorConvert** settings, leave the **Match Colors In Page Content** check box cleared. Color matching will not be applied on output.
  - i. Save the output process template.
6. Select the refined test file, and process it with the output process template **VPS - Flexo Press White Poly**.

## Outcome

You have used ColorFlow software to tonally adjust a device condition for a flexographic press with Flexcel NX preset device curves.

# Use ColorFlow to create a bump curve and align a flexographic press with tonal curves to an industry standard

## Background



### Why you should complete this activity

In this activity you will learn how to create a bump curve and a tonal calibration curve for a flexographic print condition that uses a Laser Ablative Mask System (LAMS) plate.

When LAMS plates are imaged on a Kodak ThermoFlex platesetter or a similar device, the final high-resolution screened data must be modified to compensate for:

- The limitations of flexographic media
- Dot gain that occurs on press

Flexographic media has difficulty forming very small halftone dots. Even if they do form, presses may have problems printing small highlight dots. To compensate for these problems, output is typically corrected to eliminate these small dots. This is accomplished by applying a special compensation curve known as a bump curve when the file is output.

Effective dot area (EDA), or tonal value increase (TVI), on press must be adjusted to achieve the desired appearance and to maintain gray balance. This is accomplished by creating a tonal calibration curve.

To perform this activity using actual flexographic press data, you must have this information for the LAMS plate:

- Mask exposure values (minimum dot)
- Plate media UV exposure values
- Washout, drying, and post-processing settings

For the LAMS platesetter setup requirements, refer to the first three chapters of the *Prinerger Flexo Implementation Guide*. A media representative can make a determination about minimum dot, but ultimately the results must be confirmed by a press run, typically for one color, such as black. Kodak provides a test file named `StepWedge_v3b.pdf` for this purpose, as well as various raster file formats. These high-resolution 1-bit TIFF files can be used without having to configure and run test files through the Prinerger workflow

system. For more information and a list of Kodak raster file targets, see the *Kodak Raster File Targets* section (page 21) in the *Prinerger Flexo Implementation Guide*.



### **What you will learn**

After completing this activity, you will know how to perform the following tasks:

- Create a new color setup for a single flexographic press device condition with LAMS plate
- Characterize the flexographic press print condition via the ColorFlow tint ramp chart (Prinerger Connect Workflow)
- Print and measure sample sheets for the tint ramp chart
- Define the simulation target, import profile data, and capture a snapshot
- Refine and output a file in Prinerger Connect Workflow software



## Tasks

### Goal

To configure the print condition for a flexographic device that uses a LAMS plate with a bump curve and a tonal calibration curve.

### Task 1: Create a new color setup for a single flexographic press device condition with LAMS plate

Use ColorFlow software to create a new color setup that contains only a primary color output, defined by a single flexographic press device condition. In this task, you will create a ColorFlow tint ramp chart to process with the configured print condition.

1. In ColorFlow software, click the **Color Setups** tab, and then click the **Add** button.  
The Devices dialog box opens automatically. If necessary, open it manually by selecting **View > Devices** or by double-clicking the **color setup viewer**.
2. In the Devices dialog box, perform these actions:
  - a. In the Device Type list, select **Flexographic Press**.
  - b. Name the device **LAMS Flexo Press**.
  - c. Drag the **LAMS Flexo Press** device to the center of the **color setup viewer** pane.
3. In the **Color Setups** list on the left, find the color setup you just created and double-click the name column, and then enter `Flexo Press LAMS plate White Poly` as the name.
4. In the device condition, click the **Properties** icon  and configure the following device condition properties.

**Note:** If any of these values are not listed, you will need to add them before you can select them. Click the edit  button next to the property that you want to configure, click the add  button, and enter the desired value.

  - Under **Selection Properties: Screening** = 133 lpi
  - Under **Selection Properties:Substrate** = Metal on poly, white backing
  - Under **Other Properties**, select black as the default curve for spot inks
5. Click the **Default Device Curves** icon  and perform these actions in the dialog box:
  - a. Select **Preset**.
  - b. Select **Linear**.

- c. Leave all other settings as the default settings.
  - d. Click **OK**.
6. (Optional) Capture a snapshot:
  - a. Select **View > Snapshots**.
  - b. Click **Capture**, and note the snapshot ID number.
7. Create a new tint ramp characterization chart.
  - a. Click the **Measurements** icon . The Measurements dialog box appears.
  - b. In the **Charts** tab, click the add button  to add a new chart.
  - c. In the **Chart Type** list, select **Tint Ramp**.
  - d. Edit **Tint Set** to create a new tint set with the following values: 0, .5, 1, 2, 3, 4, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100.
  - e. For all the other settings, use the default value.
  - f. Click **Save**.
  - g. Click **Export**, saving the chart to the file system as `CMYK_3.pdf`.

## Task 2: Characterize the flexographic press print condition via the ColorFlow tint ramp chart (Prinerger Connect Workflow)

**Note:** For the purpose of this activity, we will output to VPS, not final output.

1. In Prinerger Connect Workflow software, create a new job, and name it `ColorFlow Characterization - Tint Ramp`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the **Edit Job Attributes** dialog box:
  - a. In the **Default Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in task 1.
  - b. From the **Default Job Color Setup** list, select the **Flexo Press LAMS plate White Poly** color setup.
  - c. Click **OK**.
3. Refine the `CMYK_3.pdf` file exported from ColorFlow:
  - a. Use the default **1st Ref-Normz** refine process template.
  - b. In the refine process template, clear the **ColorConvert** check box.
4. (Optional) To add any custom sheet marks for the press, include this chart within an existing imposition.
5. Output the imposed surfaces or single page to VPS, ensuring that, in the **ColorConvert** settings, the **Match Colors In Page Content** check box is cleared.

**Note:** When using a ColorFlow-enabled process template for characterization output, select these values:

- Select the **ColorFlow** pane check box.
- In the **Halftone Output Mode** section, select the **Print Characterization** option.
- In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot ID that you noted in Task 1.
- In the **Device** list, select **LAMS Flexo Press**.
- Select the **Device Condition**.

### Task 3: Print and measure sample sheets for the tint ramp chart

You can print the chart on your press, select sample sheets for measurement, and then measure the effective dot area (EDA) on a printed chart using a supported measurement device. Or, for the purposes of completing this activity without performing a press run, you can skip the measurement by performing the following actions:

1. Click the **Default Device Curves** icon .
2. Clear the **Snap Tint In to 8-bit values** setting.
3. Select the **Allow Tint Out Increase to improve color match** option.
4. In the **Mindot bump/Cutoff** settings for the process and spot colors, enter 1.0 for **Tint In** and 7.0 for **Tint Out**.
5. Set the **Highlight Contrast** to 50%.
6. Click **OK**.
7. Update the device curves by clicking the **Device Curve** icon  and clicking **Redefine**.
8. In the Device Curves Definition dialog box, click **Default** and then click **OK**.
9. Click the **Measurements** icon .
10. In the **Measurements** tab, import `Flexo Lams AvgSolids.cgt`, found on the training resource CD. Note the flexographic press measurements used for this bump curve.

To complete this activity with data collected from a press run, perform these actions:

1. Output the job to plate.
2. Complete a press run with the press at standard densities, printing at least 500 sheets.  
Use the same substrate, screening, and ink that you specified in the ColorFlow device condition.
3. Select 5 to 10 sample sheets from a point in the press run where you confirmed densities to be accurate and stable.
4. From the ColorFlow device condition that you set up in Task 1, click the **Measurements** icon .
5. In the **Charts** list, select the `CMYK_3` chart.

6. In the Charts dialog box, click **Measure**.  
The measurement wizard appears.
7. Follow the instructions in the Chart Measurement wizard.

#### Task 4: Define the simulation target, import profile data, and capture a snapshot

1. Click the **Simulation** icon  and perform these actions in the dialog box:
  - a. In the **Process Inks** tab, in the **Target** list, select **SWOP 2006 Coated C3**.
  - b. From the **Curves Method** list, select **Tonal Match**.
  - c. From the **DeviceLinks Method** list, select **None**.
  - d. Click **OK**.
2. Import an ICC profile for the PCO.
  - a. Click the **PCO Profile** icon .  
Because the device condition measurements were taken from a tint ramp chart, ColorFlow software will not have the colorimetric data required to generate an ICC device profile. The only option is to import a profile.
  - b. Import the profile `sampleISO.icc`, found on the training resources CD.
3. (Optional) Capture a snapshot.
  - a. Select **View > Snapshots**.
  - b. Click **Capture**.
  - c. Make a note of the current snapshot ID.
  - d. In the **Note** box, type `Characterized Flexo LAMS Press` and `aligned to SWOP C3`.
  - e. After you run a verification press run, approve the snapshot by clicking the **Approve** button in the Snapshots dialog box.

## Task 5: Refine and output a file in Prinergy Connect Workflow software

1. In Prinergy Connect Workflow software, create a new job, and name it `Activity 11`.
2. In the new job, select **Edit > Edit Job Attributes** and perform these actions in the **Edit Job Attributes** dialog box:
  - a. From the **Default Snapshot** list, select **Current State** or, if applicable, the snapshot ID that you noted in Task 5.
  - b. From the **Default Job Color Setup** list, select the **Flexo Press LAMS plate White Poly** color setup.
  - c. Add a test input file.
3. Create a new refine to PDF process template and name it `ColorFlow Refine - Flexo LAMS White Poly`. Use the following settings:
  - a. Select the **ColorConvert** pane. In the **Match Colors** area, select **Enable ColorFlow**.
  - b. In the **Snapshots** list, select **Current State** or, if applicable, the snapshot ID that you noted in Task 5.
  - c. In the **Color Setup** list, select **Flexo Press LAMS plate White Poly**.
  - d. Clear the check boxes for **Assign Input Device Condition**, **RGB Graphics**, and **RGB Images**.
  - e. Save the process template.
4. Refine the test input file with the process template.
5. Create a new loose page output process template, and name it `VPS - Flexo LAMS White Poly`.
  - a. In the **Output To** list, select **Virtual Proof**.
  - b. Select the **ColorFlow** pane check box.
  - c. For **Halftone Output Mode**, select **Print Production**.
  - d. In the **Snapshot** list, select **Current State**, or, if applicable, the snapshot number that you noted in Task 5.
  - e. In the **Color Setup** list, select **Flexo Press LAMS plate White Poly**.
  - f. In the **Device** list, select **LAMS Flexo Press**.
  - g. Select the **Device Condition**.
  - h. In the **ColorConvert** settings, leave the **Match Colors In Page Content** check box cleared. Color matching will not be applied on output.
  - i. Save the process template.
6. Select the refined test file and process it with the **VPS - Flexo LAMS White Poly** process template.

## Outcome

You have used ColorFlow software to create a bump curve and a tonal calibration curve for a flexographic print condition that uses a Laser Ablative Mask System (LAMS) plate.



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