

Guide to ripping and printing white with SAI and the HP Latex 630W Printer



This document aims to offer guidance on using the Raster Image Processor (RIP) features of **SAI FlexiPRINT** for printing white ink with the HP Latex 630 W Series. The series consists of two components: the HP Latex 630 W and HP Latex 630 W Print & Cut Plus.

- The HP Latex 630 W includes **FlexiPRINT HP Basic Edition** Software, which includes 1 app called Production Manager.
- The HP Latex 630 W Print & Cut Plus includes **HP FlexiPRINT & CUT** Software, with 2 apps: Production Manager and HP Flexi Sign & Print.

In this document, we will focus on the HP Latex 630 W Print and Cut Plus and its applications.

The HP White Latex Ink is a new feature of HP Latex Printers, offering new possibilities for printing applications. With the inclusion of white ink, HP Latex Printing expands its capabilities, enabling a broader range of options for backlit and two-sided prints. Additionally, it facilitates printing on colored, translucent, and transparent substrates, providing increased versatility.

Summary

1. Basics	2
1.1. White Print Modes	2
1.2. Sandwich Mode Application	3
1.3. Choke Application	4
2. RIP and Print Process from HP FlexiPRINT & CUT	5
2.1. Designing and Preparing a Job with White	5
2.2. Selecting a Print Mode	12
2.3. Selecting a White Type	13
2.4. Spot, Overflood and Underflood Job Preparation	15
2.5. Sandwich Job Preparation	16
2.6. Choke Generation	18
3. Considerations	19

1. Basics

1.1. White Print Modes

The addition of white ink introduces several options, including:

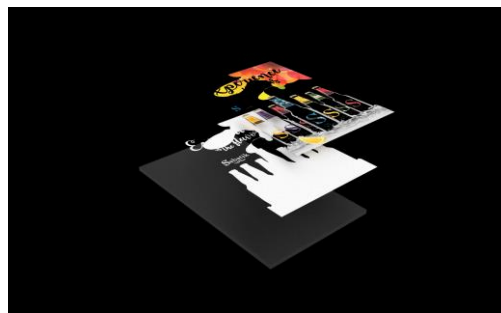
- **Spot:** a white spot color must be predefined to print white simultaneously with other colors.



- **Overflood (OF):** a white layer is printed over the color layer. Used when the presentation involves viewing the image from the reverse side through translucent or transparent media.



- **Underflood (UF):** a white layer is printed between the substrate and the color layer. It serves as a foundation, allowing colors to be printed on non-white, translucent or transparent media.



- **Sandwich:** the white layer is embedded between two different pictures, facilitating the display of both pictures from either side. It is typically used for translucent or transparent substrates.



HP Latex 630W printers offer four ink densities options, each tailored for specific preferences and requirements, depending on the media category:

White Modes
W60 - Productivity / Low Opacity
W100 - High Speed / Medium Opacity
W160 - Medium Speed / High Opacity
W260 - Low Speed / Best Opacity

1.2. Sandwich Mode Application

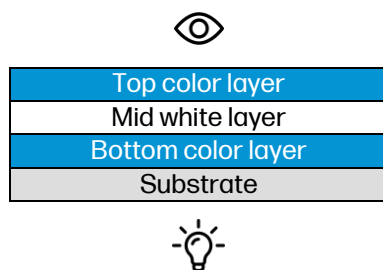
The sandwich mode used in HP Latex 630 W corresponds to a 3-layer configuration. The terms associated with this mode are:

- **Light side:** this application is crafted for backlighting, with one side facing the light source known as the "light side." It is designed to be viewed from the opposite side.
- **Visual side:** this is the printed image that faces the viewer once the application is exposed.

Sandwich Mode offers different applications, such as **Day and Night** and **Dual Side**.

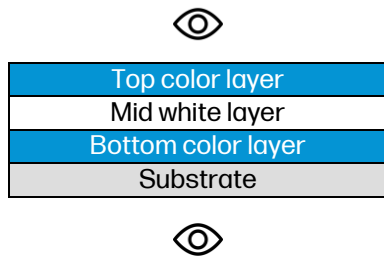
Day and Night

Day and Night printing is designed for single-sided viewing and undergoes a visual transformation when backlit. During the day, the white layer enhances the top color layer. At night, the backlighting causes the bottom color to shine through, creating a high-end look with maximum impact for retail.



Dual Side

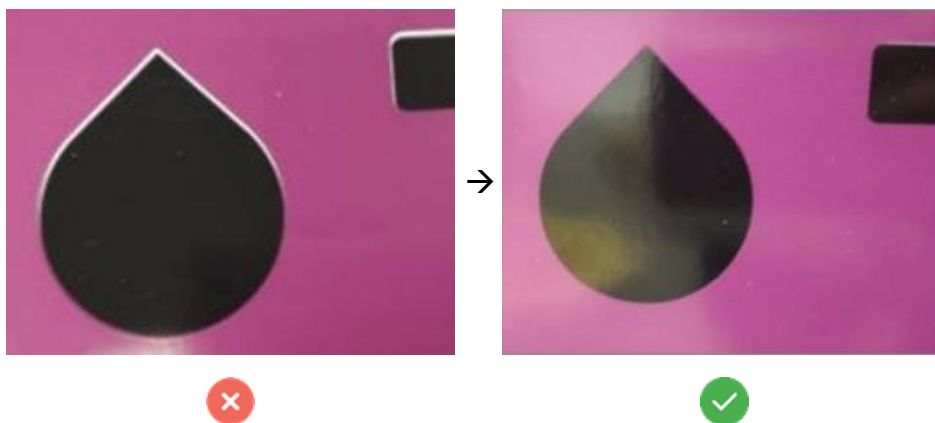
Dual-sided printing is tailored for viewing from both sides, printing identical images on the top and bottom layers, typically without any text.



Section “2.5 Sandwich Job Preparation”, provides detailed steps to set the Sandwich Mode.

1.3. Choke Application

Adding white ink may cause misalignment with color ink. To address this, applying choke is necessary. Choke helps shrink the white layer when misalignment occurs between the color and white layers in the printed output, especially in UF or OF modes. In the images below, printed in UF mode, it is solved by applying choke.



NOTE: Choke may effectively correct misalignment in some areas but may not eliminate it in others. Factors contributing to this include printhead alignment quality, media deformation, and the chosen print mode.

2. RIP and Print Process from HP FlexiPRINT & CUT


HP FlexiPRINT & CUT integrates printing, cutting, and design functions through two modules: HP Flexi Sign & Print and Production Manager. In HP Flexi Sign & Print, users can design print and cut files, while the Production Manager configures printing settings.

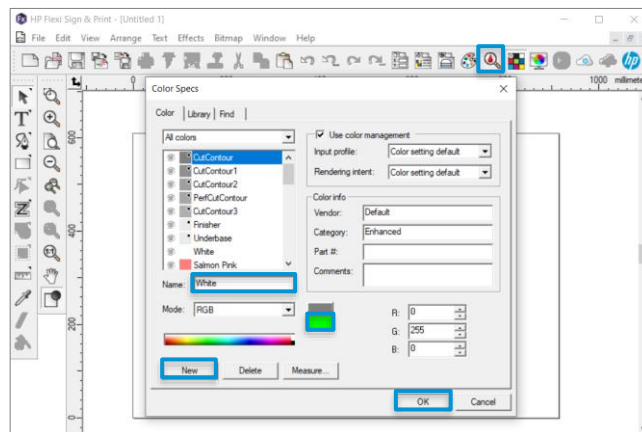
NOTE: Be advised that this manual refers to version 22.0.3. We recommend this version or further. To download, visit [SAi Cloud](#) and log in to your account.

2.1. Designing and Preparing a Job with White

NOTE: Refer to the HP Latex White Ink Workflow Guide for instructions on adding white ink data using Adobe Photoshop or Illustrator. Find the guide here: [HP Latex White Ink Workflow Guide](#).

Creating a white spot color

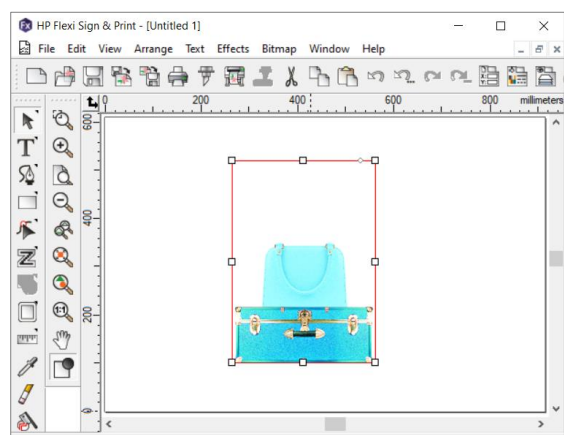
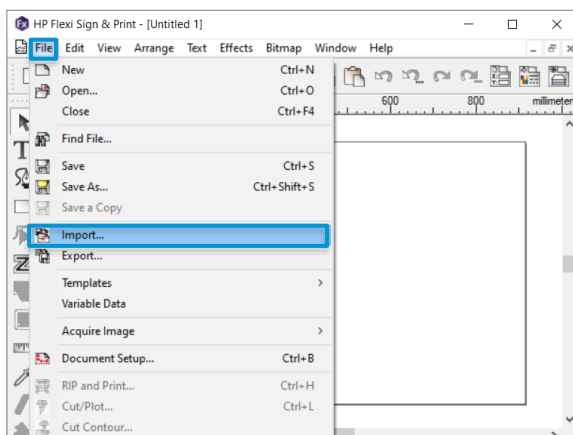
- Launch **HP Flexi Sign & Print**
- Open **Color Specs**  from the Standard Toolbar.
- Set Mode to Spot and type **"White"** as the name.
- Select any color to represent the white channel and press **New** → **OK**.



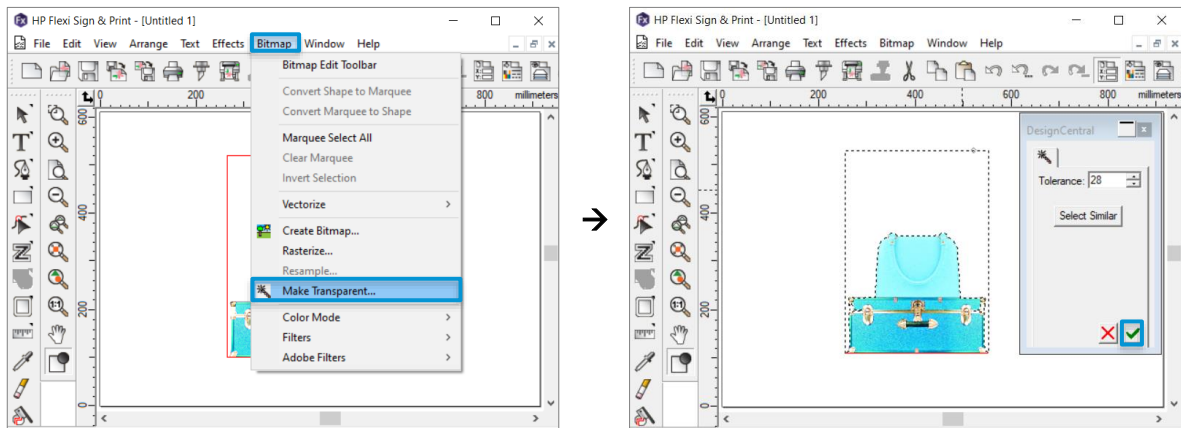
- The white channel adds to the palette color. Any color with a dot signifies a spot color.



Creating a white layer

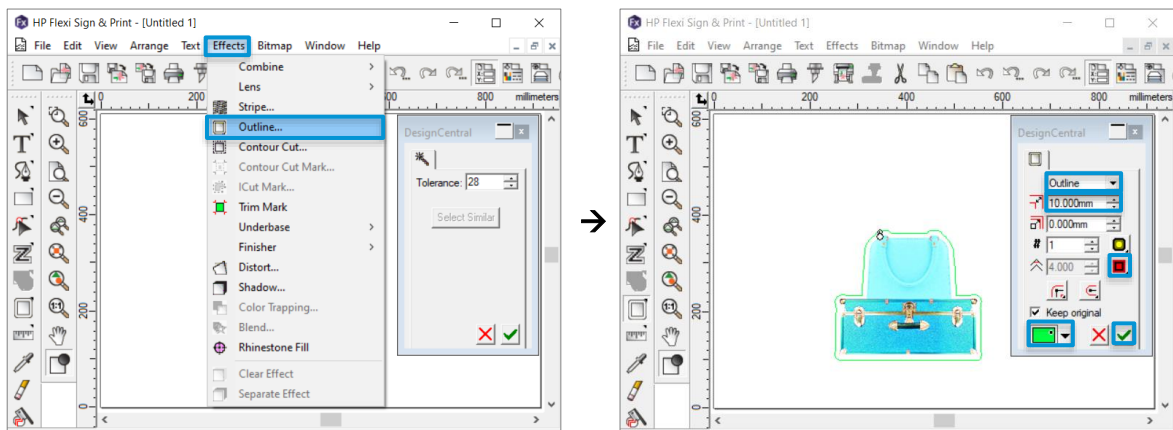
- Import a file without white data by selecting **File** → **Import** from the Standard Toolbar.



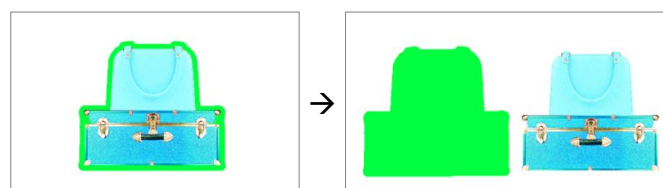
- To remove the background from the graphic, select it and go to **Bitmap** → **Make Transparent**. Select the background to remove and confirm by clicking the green check icon. This will enable the possibility of adding a white background.





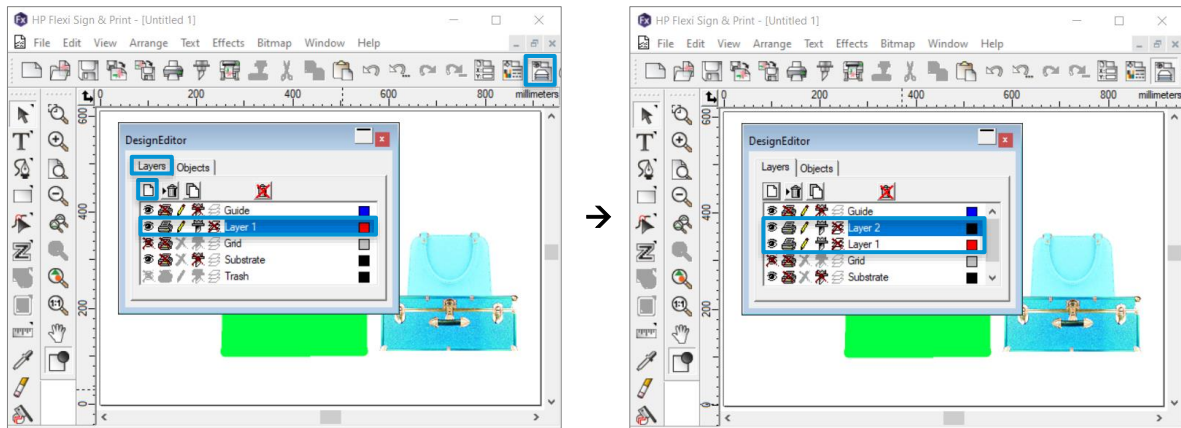
- Select the graphic and go to **Effects** → **Outline**. Set the Outline to the desired offset and click the **Fill**  icon. Choose the **White**  spot color and confirm by pressing the check icon.



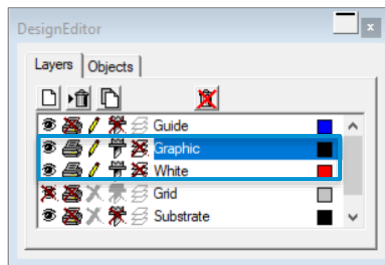
- Select the graphic and right-click → **Separate Outline** to isolate the white layer from the graphic.
- Pull the white layer aside and ensure it is completely solid. If not, right-click to open the menu, select **Uncompound** and delete any unnecessary lines.



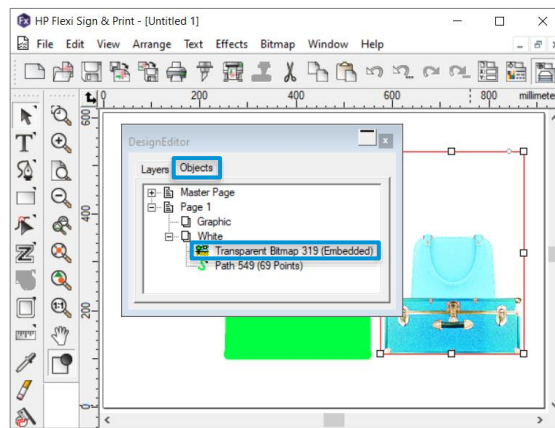
- Next, organize the elements appropriately. Open the **Layer Tool** , access the **Layers** tab, and add a new layer using the  icon.



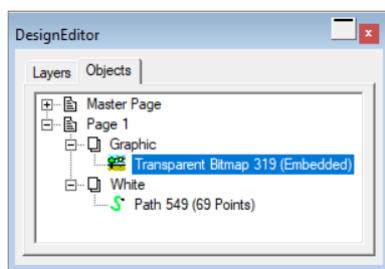
- Rename **Layer 1** as “White” and **Layer 2** as “Graphic”.





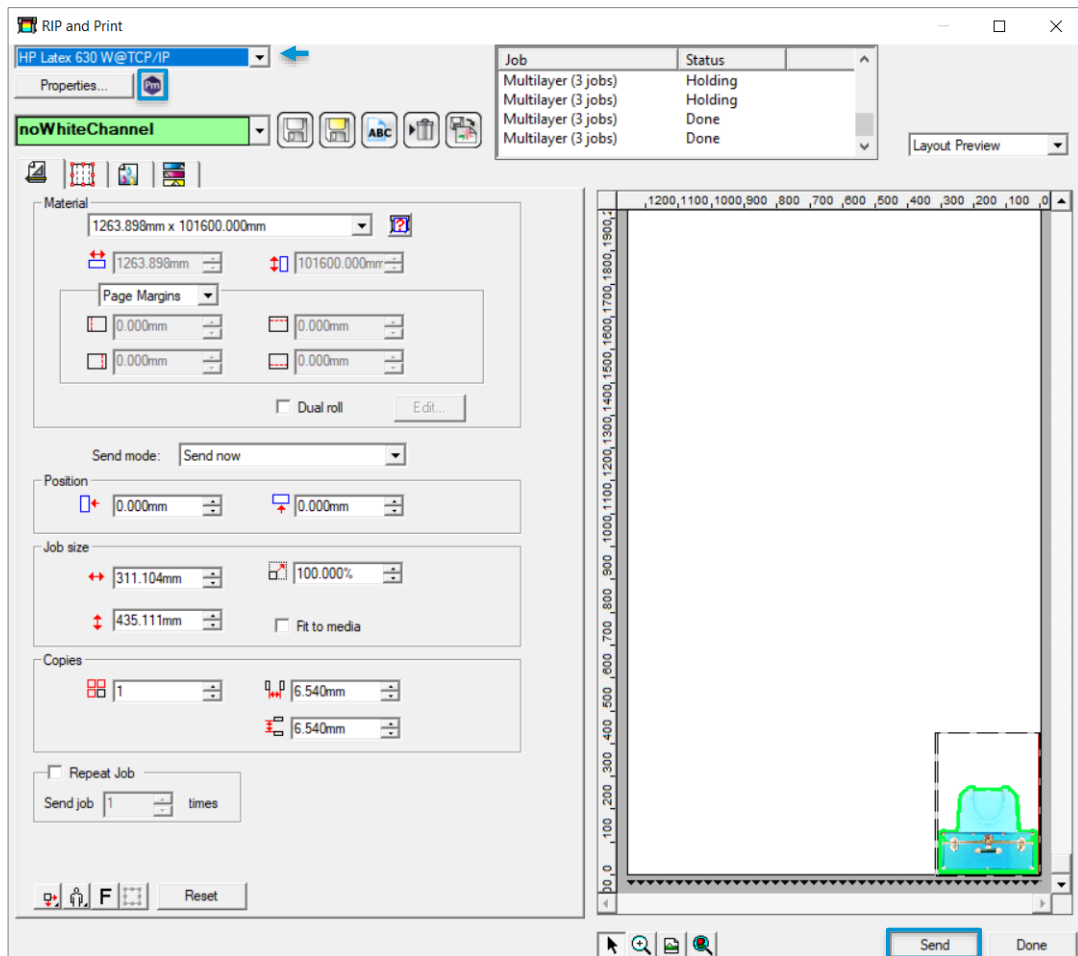
- In the **Objects** tab, all data may initially be under the **White** layer. To differentiate graphic from white data, select the design, and the corresponding data will be highlighted.



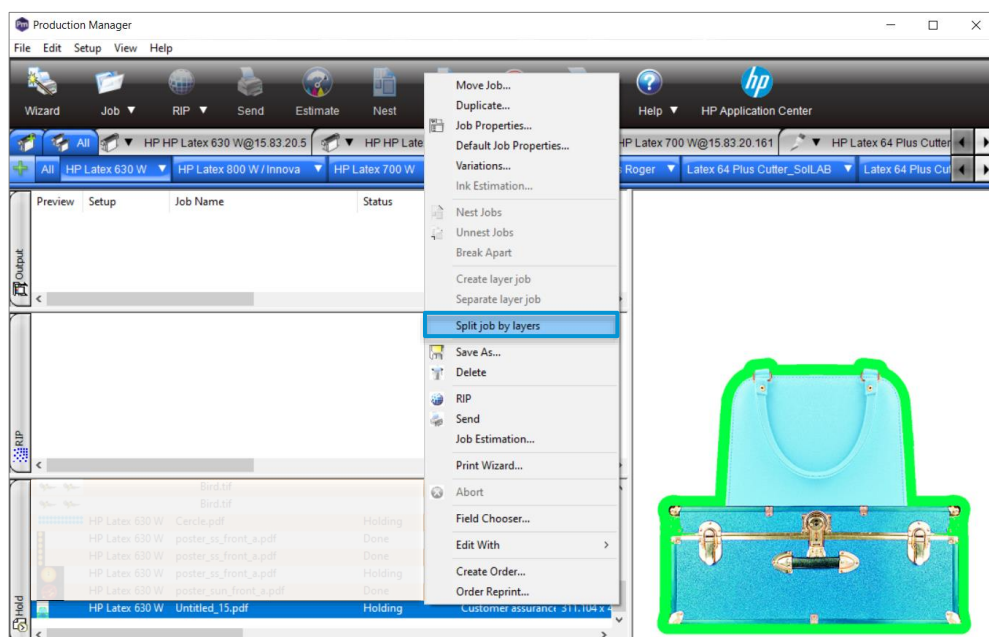
- Drag the graphic data to the **Graphic** layer. Two separate layers are created.



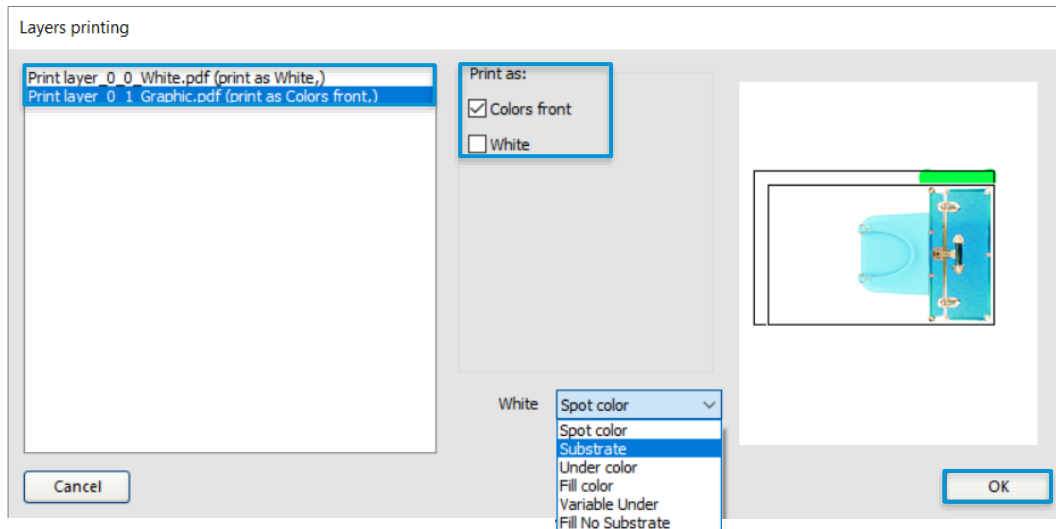
- Center the layers by selecting the white layer and going to **Arrange → Align → Both Centers**.
- Open **RIP and Print**  from the Standard Toolbar, select printer through the drop-down menu, and click on **Send** to transfer the job to the **Production Manager**.
- Select the **Production Manager** icon  to introduce printing settings.



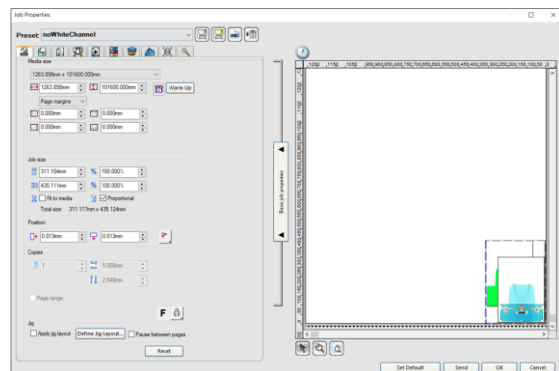
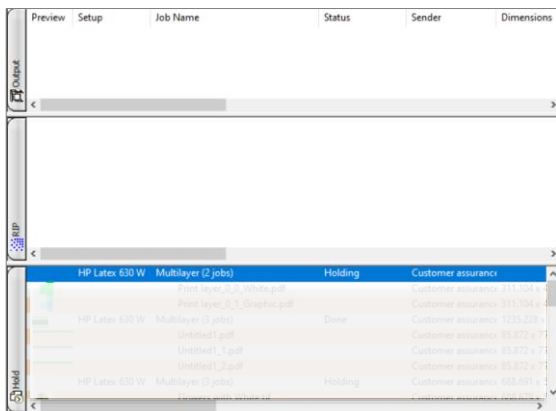
- The job will appear in the Hold Queue. Right-click on the job and choose **Split job by layers**.




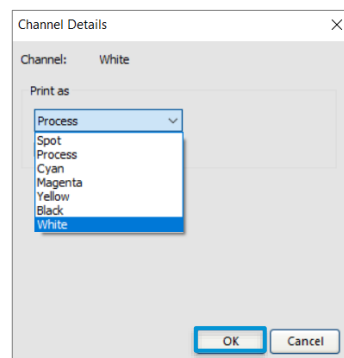
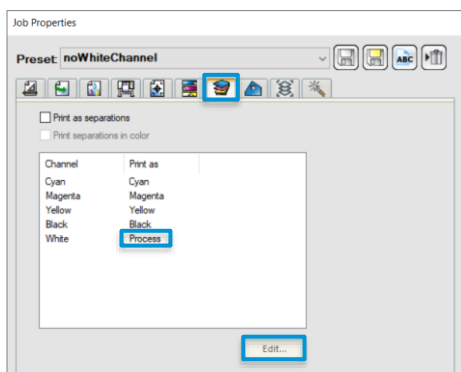
- Set the **Graphic** layer as **Color Front** and the **White** layer as **White**. Choose the **White** type from the drop-down menu (go to section “2.3 Selecting a White Type” to learn more about white types) and press **OK**.




- Double-click on the **Multilayer** job to open **Job Properties**. The layer disposition in the preview is a representation and will not print offset.

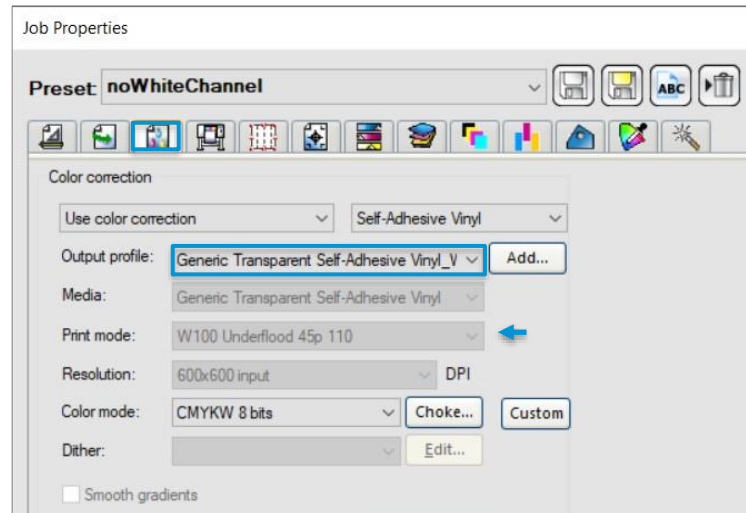


- Go to the **Separation**  tab and check that the white channel has the **Print as** value equal to **White**. If not, click the **Edit** button and select **White** from the **Print as** drop-down list → **OK**.



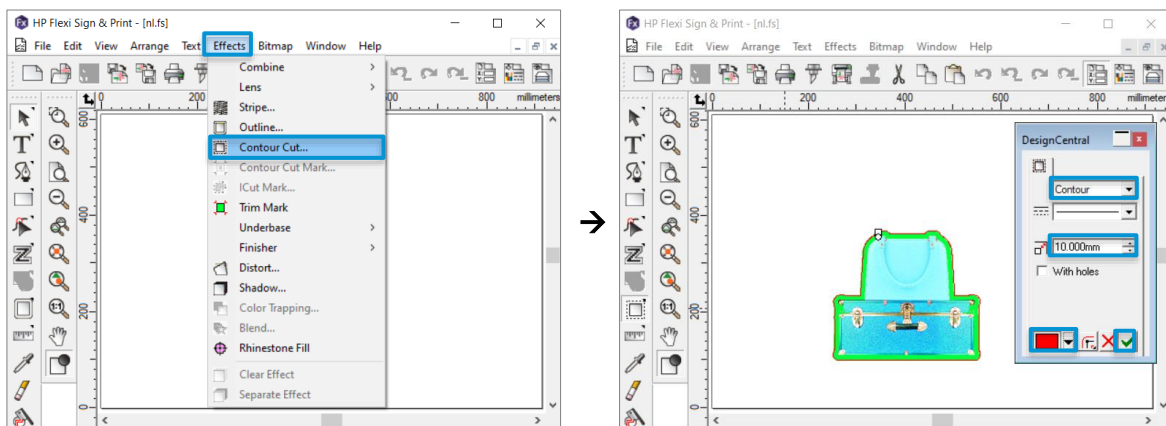
NOTE: The white channel must be identified as “White”.


- Tap on the **Color Management**  tab à open the **Output Profile** drop-down menu à choose the Underflood print mode. Verify that the selected media matches the printer media. Section “2.2 Selecting a Print Mode”, offers a detailed description of the process.
- Click on **Send**.

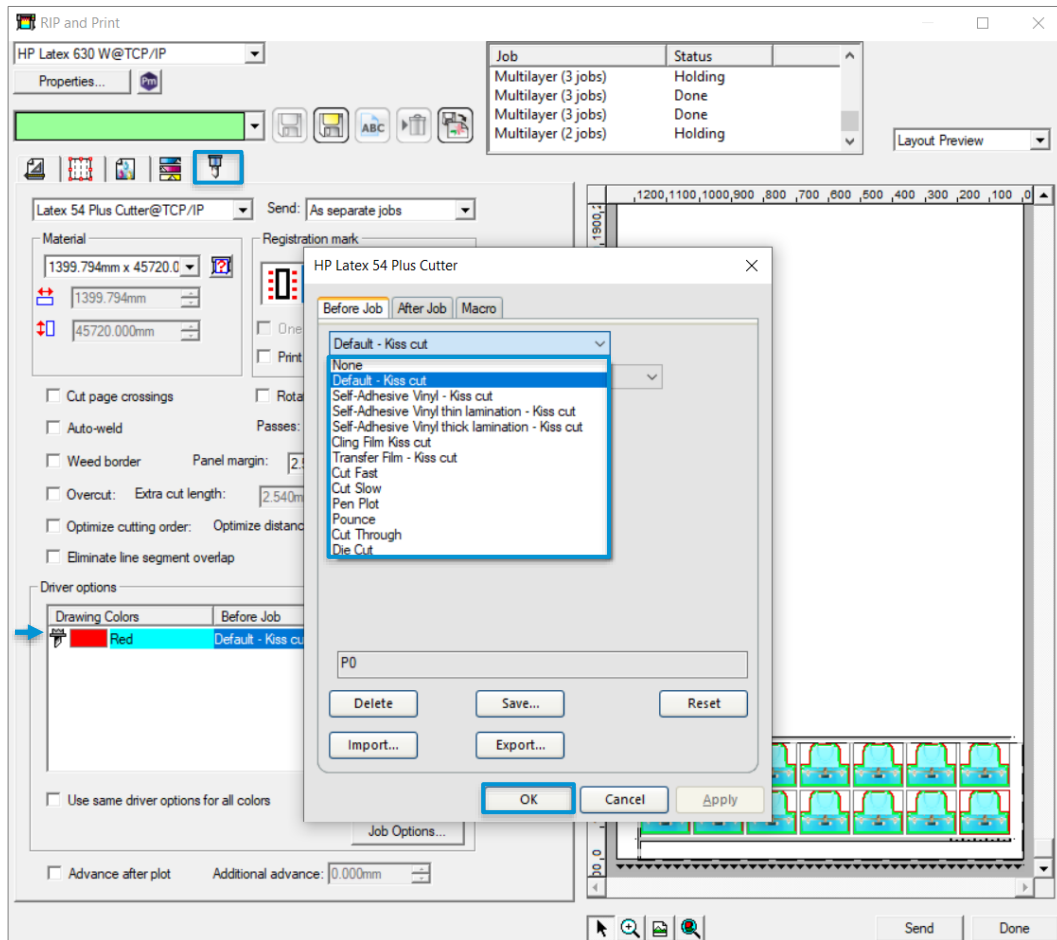


Creating a Print & Cut file with a white layer

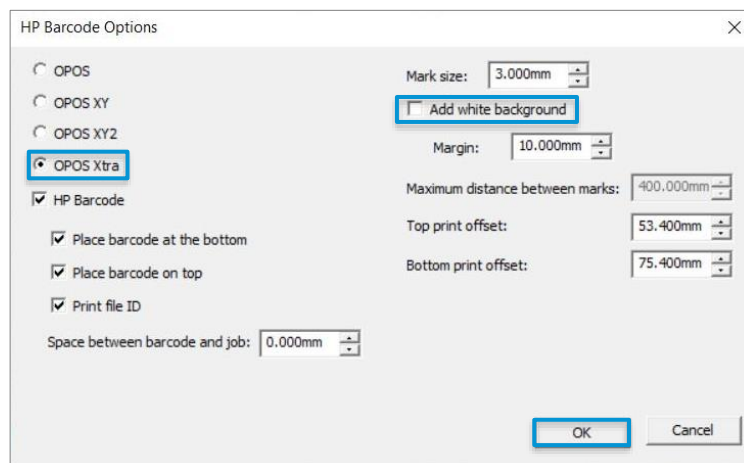
- After incorporating a white background, select the graphic and go to **Effects** → **Contour Cut**.
- Pick the **Contour Shape**, **Offset**, and a **Color** to identify the line. In this example, red is selected. Apply the changes by clicking the green check button.
- For additional cutting lines, replicate the entire process.




- Click on **RIP and Print** and select the printer from the drop-down menu.
- From the **General**  tab adjust the printing settings as needed.
- Go to the **Contour** tab. Under the **Driver options** section, double-click on the cutting line and select the kind of cut from the drop-down list. Click **OK**.



- Define the OPOS by clicking on **Options** under the **Registration mark** section. Make sure to check the **OPOS Xtra**. For transparent medias, check **Add a white background**. Press **OK**.

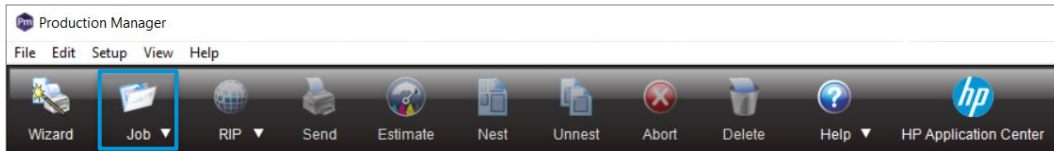



- Click on **Send**.
- Select the **Production Manager** icon  to introduce other printing settings. To continue, follow the steps outlined in the previous section "**Creating a white layer**".

2.2. Selecting a Print Mode

It's important to note that print files don't necessarily need a white channel to enable white printing. Whether the file contains white data or not, the following steps must be followed:

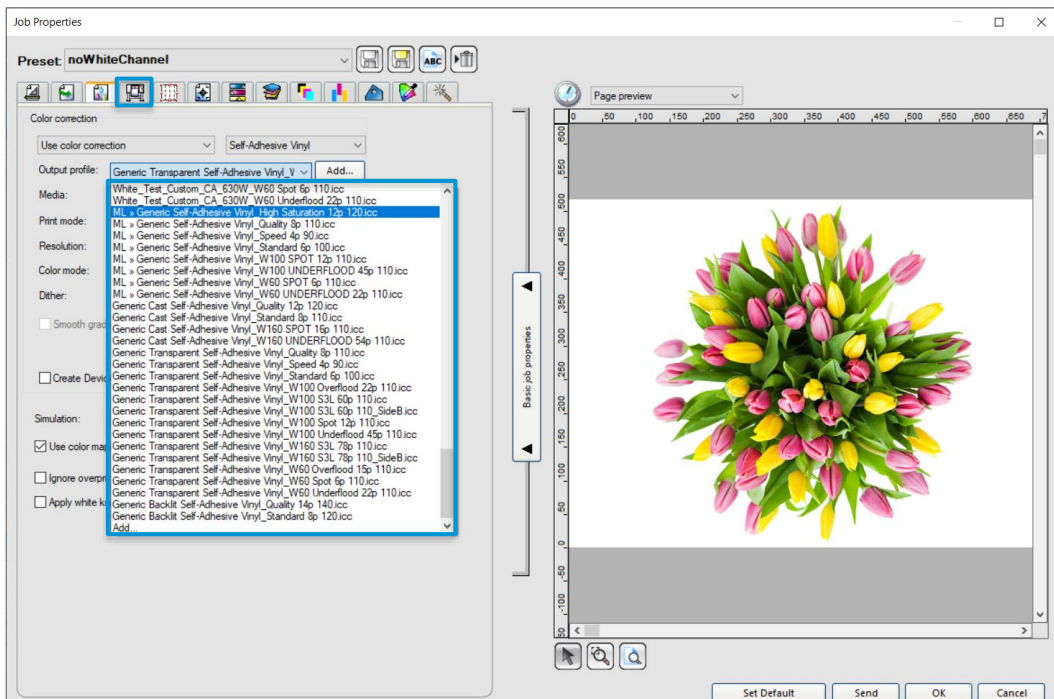
- Open **Production Manager**.
- Click the **Job** icon in the main toolbar. Select the desired file.



- Double-click the job in the queue to open **Job Properties**.
- Tap on the **Color Management**  tab à **Output Profile** à verify that the selected media matches the printer media.


NOTE: Look for “ML” (Media Loaded) for quick localization.

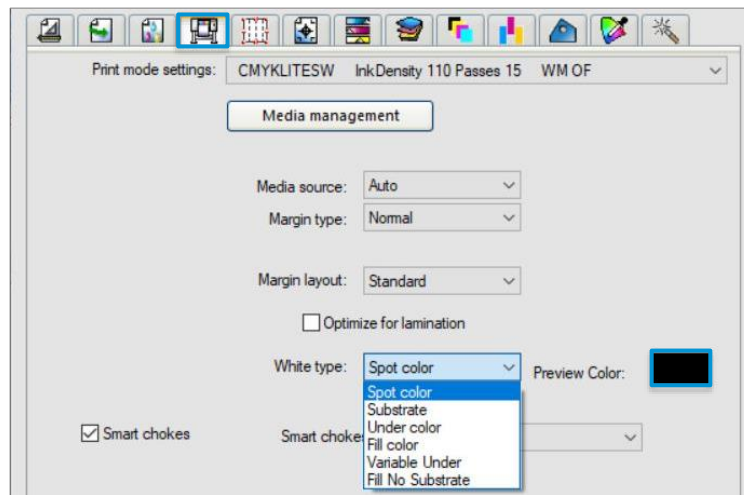
- Select the desired print mode. Common modes include:
 - Spot.
 - Overflood.
 - Underflood.
 - S3L, which stands for sandwich 3 layers.
 - S3L_Side B, which stands for sandwich 3 layers side B.



2.3. Selecting a White Type

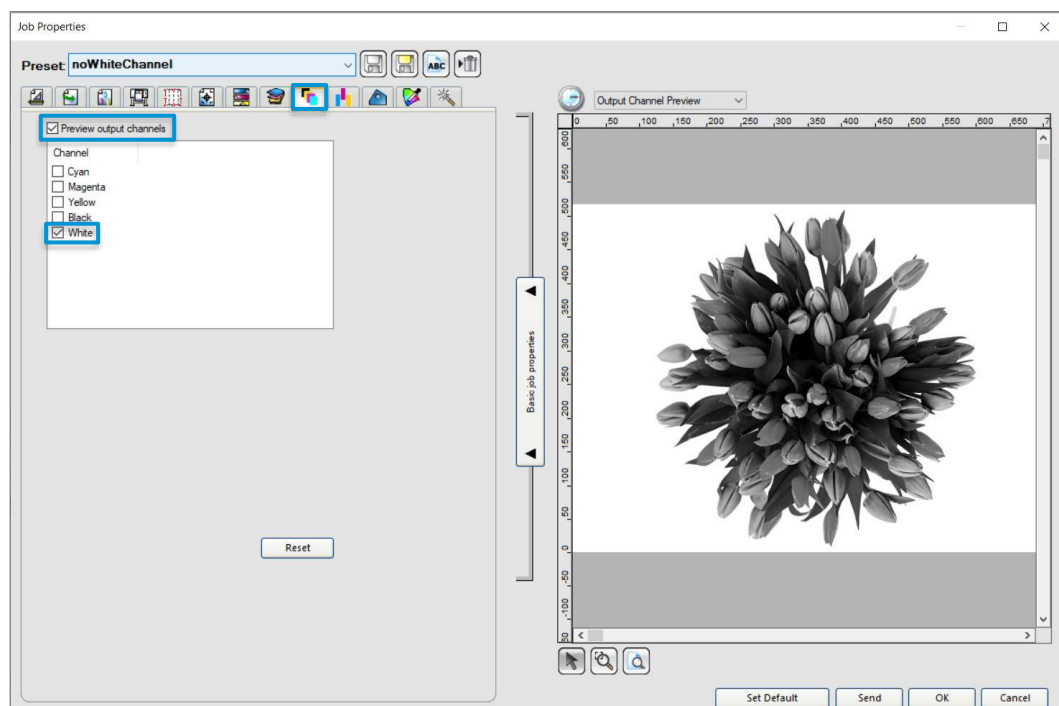
Once the print mode is selected, it is possible to assign a white type:

- Tap on **Printer Options**  → select the desired option from the **White type** drop-down menu:
 - **Spot color**: prints white ink simultaneously with the rest of the colors.
 - **Substrate**: fills the entire graphic with white ink.
 - **Under color**: prints white wherever there is color in the graphic.
 - **Fill color**: applies more white ink in lighter-colored areas of the graphic.
 - **Variable Under**: adds more white ink in darker areas and less in lighter ones.
 - **Fill No Substrate**: similar to Fill color type but without applying ink on the substrate.




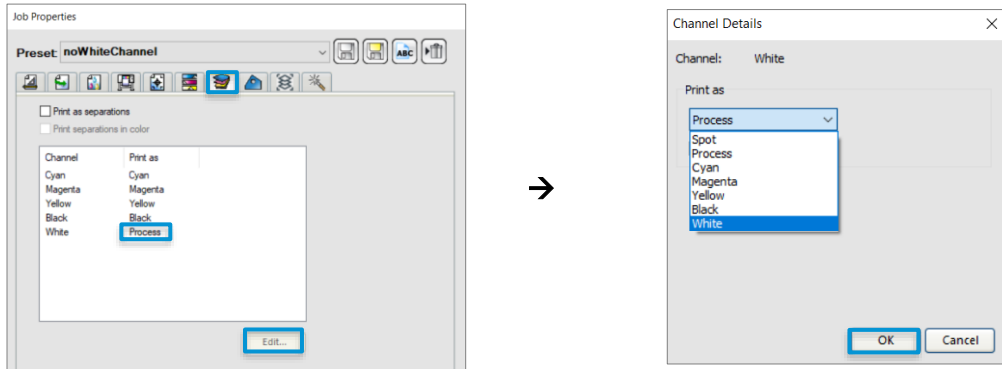
NOTE: Preview Color references the color to represent the white data in the printer front panel.

- To preview the white settings, go to the **Output Channel Preview**  tab à check **Preview output channels** and select the **White** channel. Areas highlighted in black will be printed in white.



If you did not create the file, the white spot color might be named something other than “White”. Go through the following steps to assign that spot color name to the white channel:

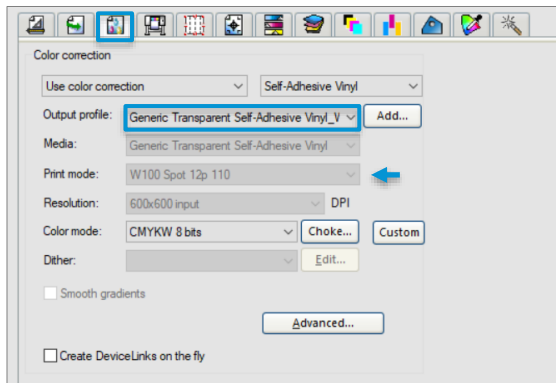
- From the **Separation**  tab, check that the white channel is visible. If not, the picture selected does not have a white channel. If it is visible, check that it has the **Print as** value equal to **White**. If not, click the **Edit** button and select the **White** value from the drop-down list.



NOTE: The white channel must be identified as “White”.

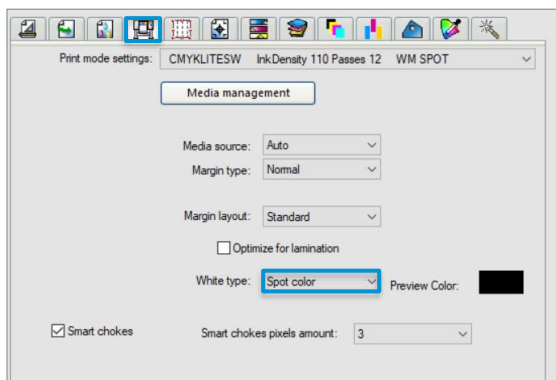
2.4. Spot, Overflood and Underflood Job Preparation

Spot Mode



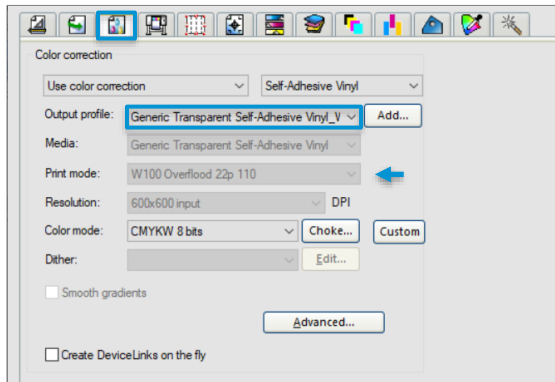
Key Points: a white spot color must be predefined in the graphic.

- - Open file → **Job Properties** → go to the **Color Management** tab.
- Under **Output Profile** à select Spot print mode.



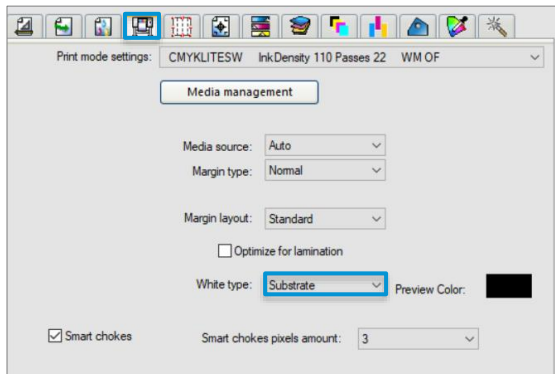
- - In the **Printer options** tab, open **White type** drop-down menu and select **Spot color**. Then tap **OK**.
- The file is now ready to print.

Overflood (OF) Mode



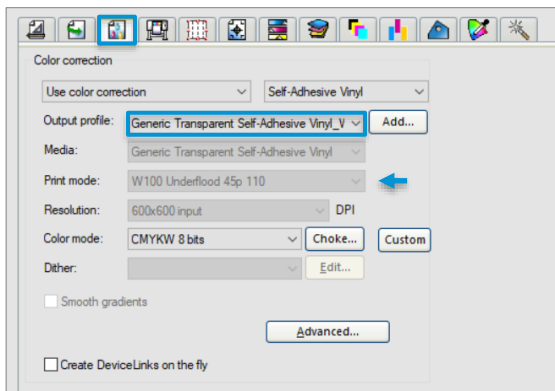
Key Points: a predefined white spot color is not needed.

- - Open file → **Job Properties** → go to the **Color Management** tab.
- Under **Output Profile** à select print mode Overflood.



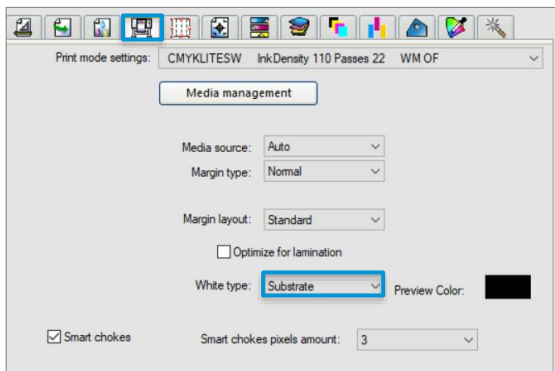
- In the **Printer options** tab, open **White type** drop-down menu and select the desired type. For full coverage, select **Substrate**. Then tap **OK**.
-
- The file is now ready to print.

Underflood (UF) Mode



Key Points: a predefined white spot color is not needed.

- - Open file → **Job Properties** → go to the **Color Management** tab.
- Under **Output Profile** à select print mode Underflood.




- In the **Printer options** tab, open **White type** drop-down menu and select the desired type. For full coverage, select **Substrate**. Then tap **OK**.
-
- The file is now ready to print.

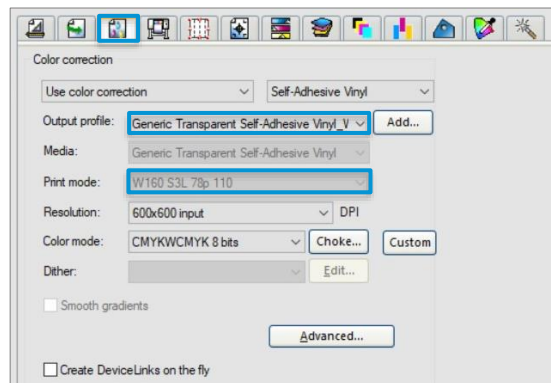
2.5. Sandwich Job Preparation

Key Points:

- Layer distribution:
 - **Bottom** or **side A** layer: in contact with the substrate.
 - **White** layer: positioned between side A and B.
 - **Top** or **side B** layer: in contact with air.
- It is crucial to load three identical images in terms of size, resolution and print mode.
- The image for the white layer can be any since we will tell the RIP to print it white. In this guide, we will use the same image for side A, white, and side B layers.

To define a sandwich job, follow the next steps:

- Open the **Production Manager** application.
- Open three files to serve as side A, white and side B layers.
- For each file, right-click and choose **Job Properties**. Tap on the **Color Management**  tab, and under **Output Profile** ã select the print mode **S3L**.

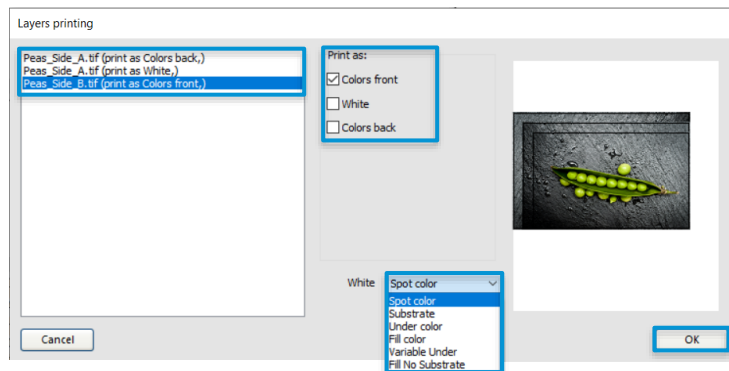



NOTE: To save time, open one file, select print mode **S3L** and click on **Set Default**. This ensures that subsequent jobs added will share the same print mode.

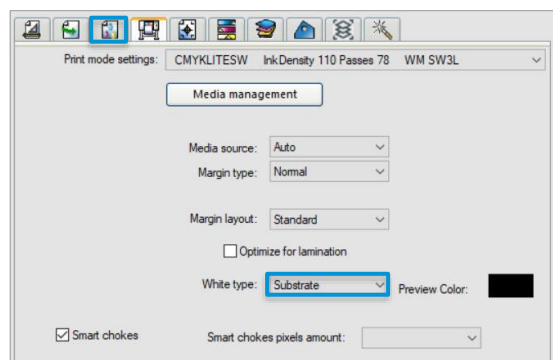
- Adjust other printing settings and ensure they are consistent among all layers.


NOTE: Certain settings, such as the number of copies or tiling, need to be adjusted now. These adjustments won't be applicable after constructing the sandwich.

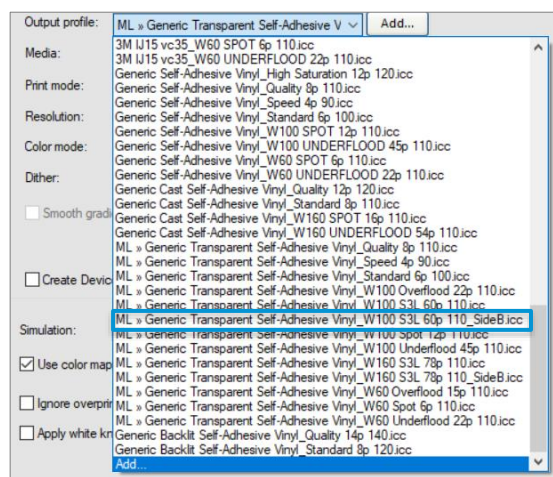
- Select the three files, right-click, and choose **Create layer job** from the menu.
- The **Layers printing** window will display the three layers. Confirm that sides A and B are set to print as **Colors Back** and **Colors Front** respectively, while the white layer is set to print as **White**.
- Choose the white type from the **White** drop-down menu. Click **OK**.



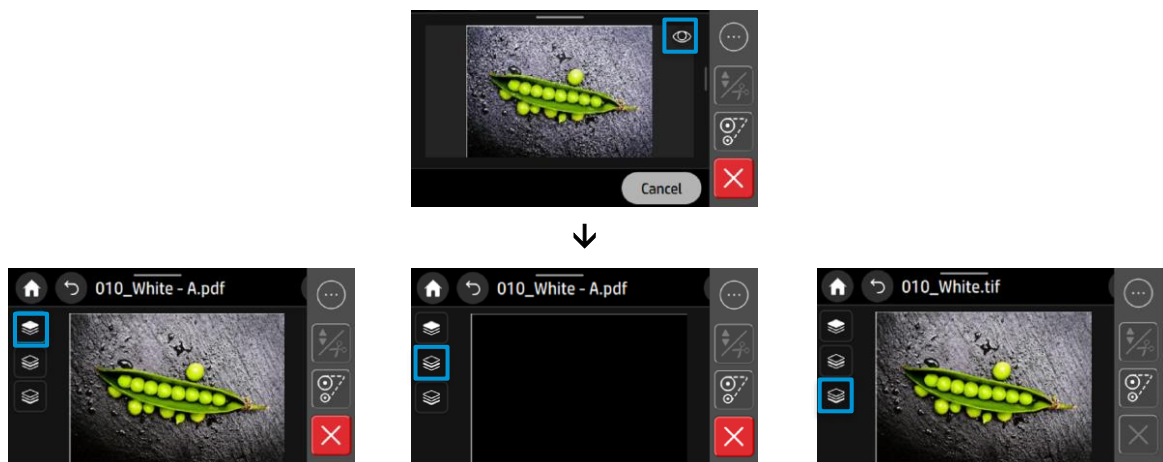
- Open the Multilayer job to access **Job Properties** and go to the **Layers**  tab. Check that all layers are configured correctly.
- In the **Printer options** tab, ensure that the white type corresponds to the selected one, in this case, **Substrate**. Then tap **OK**.



- Double-click on each layer to ensure that the white type corresponds to the selected one, in this case, **Substrate**. Then tap **OK**.
- For side B, tap on the **Color Management**  tab, and under **Output Profile** à choose **S3L_Side B**. This print mode is tailored with a slightly different color saturation for its designated use.



- Send the job to print by clicking **Send**.
- First, the **Production Manager** will rip the three jobs. Subsequently, the jobs will be sent to the printer. In the printer queue, only one job will be listed, identified by the name of the side A job.
- Check the layer arrangement in the printer:
 - Tap on the menu ☰ icon à **Jobs** à **Upcoming**.
 - Tap on ⏸ à press **Pause** to check the job prior printing. Once checked, tap on **Resume**.
 - Tap on the eye 👁 icon and check if all layers are represented correctly.




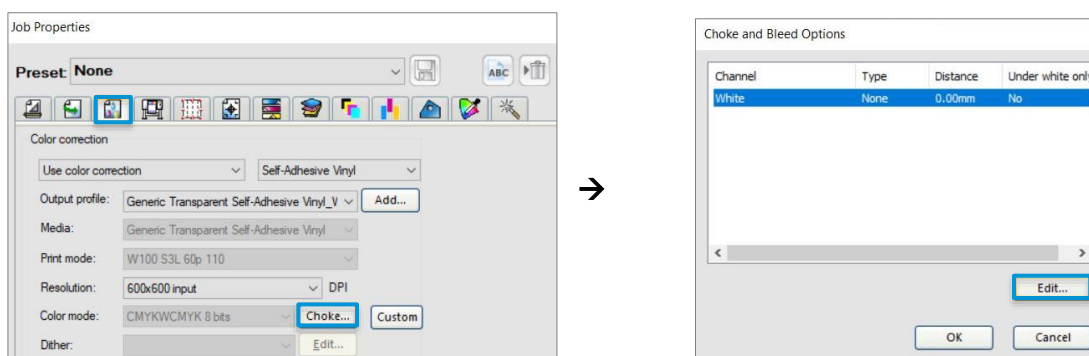
2.6. Choke Generation

There are two different types of choke generation: **Choke** and **Smart chokes**.

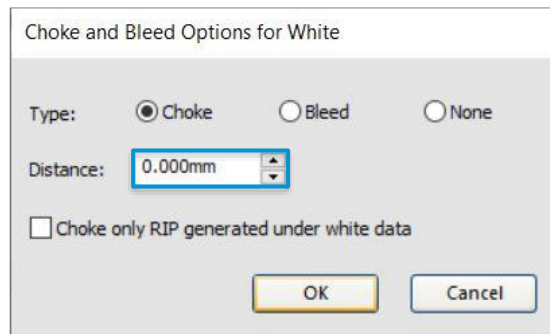
Choke

This setting will be applied to all white areas. Here's how to configure it:

- Go to **Job Properties** and access the **Color Management**  tab.
- Click on **Choke...** → select the **White Channel** → Click on **Edit**.




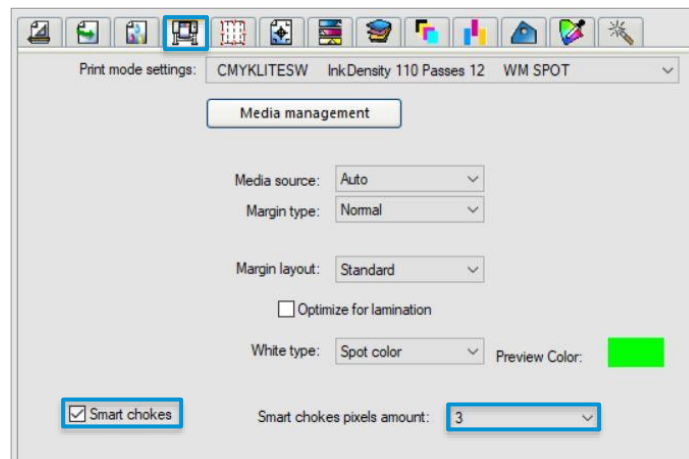
- Introduce the desired settings.
 - To shrink white layer, select **Choke** and increase the in the **Distance** box.
 - To expand it, select **Bleed** and increase the value in the **Distance** box.



Smart Chokes

The **Smart chokes** feature is a tool that strategically applies choke only in areas where color and white overlap. It is specifically designed for HP printers capable of printing white. HP recommends starting with 3 pixels, which is the default setting provided by SAI. To configure smart chokes:

- Go to **Job Properties** and select the **Printer Options**  tab.
- Check the **Smart chokes** functionality.
- Increase the value to shrink the white layer in the **Smart chokes' pixels amount**.



3. Considerations

These considerations apply specifically to the tested version of this guide. Be aware that there may be variations with newer versions.

- Sandwich jobs cannot be nested.
- Sandwich jobs consist of three images that must share identical sizes and resolutions.
- Print & Cut jobs for sandwich mode are not supported (temporary consideration).