

Designing for White on the Afinia Label LT5C



A Practical Guide to Designing and Printing Documents Using Spot Color White on the LT5C printer



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Introduction

The LT5C's ability to print white toner on a broad range of colored media has opened the door for creative professionals like yourself to explore the possibilities it offers. Colored substrates for all your label applications – your designs will never look the same once you have experienced the power of white.

Whether printing standalone white elements or using white behind color to preserve its hue on dark media, the 5-Station Digital label printer can create extremely precise, controlled output.

This guide will take you through the process of designing and preparing documents that take full advantage of the LT5C printer's ability to create unique and impressive and finished pieces.



Why White?

The importance of white in color printing is often overlooked. The foundation of color printing is based on applying Cyan, Magenta, Yellow and Black (CMYK) onto white paper. The paper's white surface reflects a wide range of color back to your eyes.



However, as you can see in the sample above, applying color toner directly onto colored media creates extremely dark, dull results because only a narrow range of colored light is reflected to your eyes.



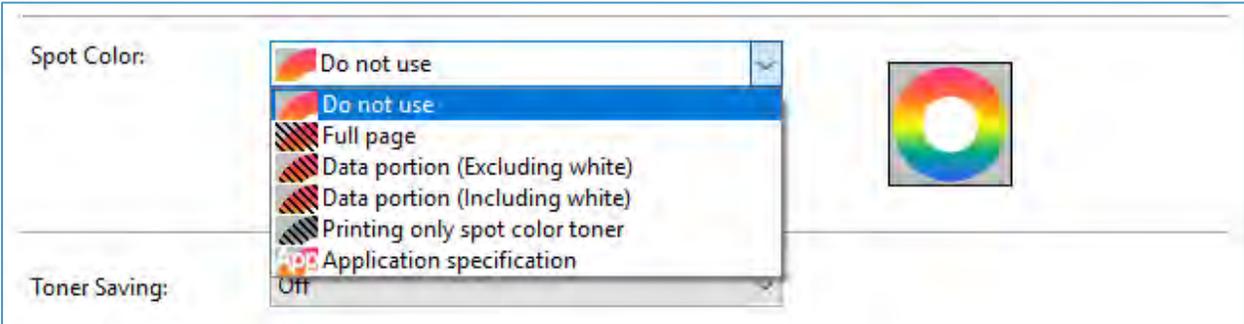
When white is laid down underneath color, it provides a protective, reflective surface like white paper. The result is brilliant color when printing on colored media.

And beyond laying down 100% white to preserve hues on colored media or to create standalone white elements, the LT5C printer is able to control the amount of white toner laid down on different areas of the printed page, enabling for advanced techniques which will be explored later in this document.

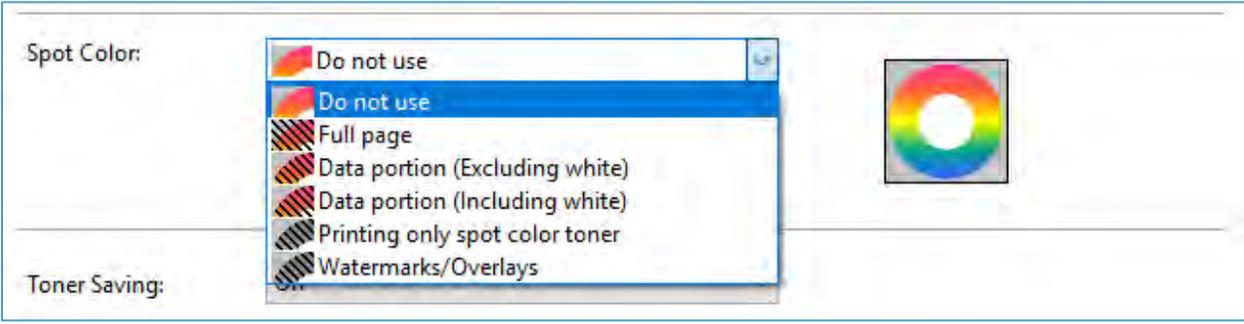
Implementing White

Adding white toner underneath color is a function of the print driver and is referred to as "Spot Color". Both the PCL and Postscript drivers have similar spot color capabilities; however, the Postscript driver has an additional spot color setting called "Application Specific", which gives the designer full control of how white is applied. The PCL driver does not support "Application Specific" but instead includes "Watermarks/Overlays". This is used to print white for the driver's watermark and overlay features. Below are the 5 Spot Color settings for each driver.

Postscript Driver



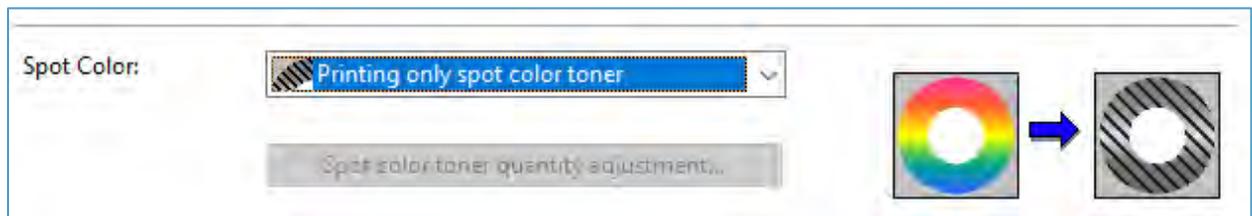
PCL Driver



The most common Spot Color settings you will be using are

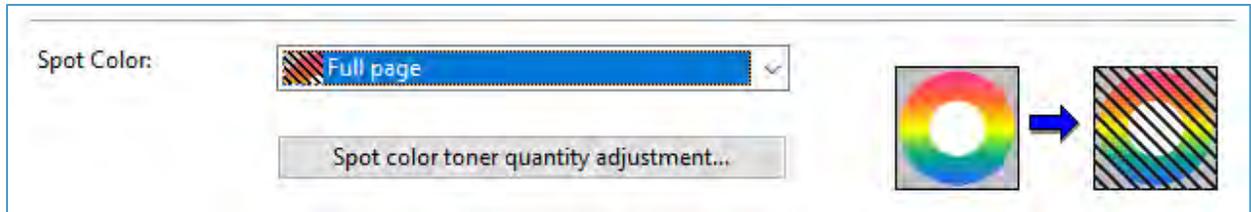
- Printing Only Spot Color Toner,
- Data Portion - Including White
- Application Specification.

The setting chosen is based on how the file is prepared by designers and graphic artists. The next section of this document will cover adding white options in greater detail.



Printing only spot color toner = Only white toner is printed (no black/color). White percentages or gradients from within the file are recognized. Black or color elements in the original document are printed using white toner. The darker the element in the original document, the more opaque the white will print. This setting causes the label printer to behave like a mono printer except white toner is used instead of black.



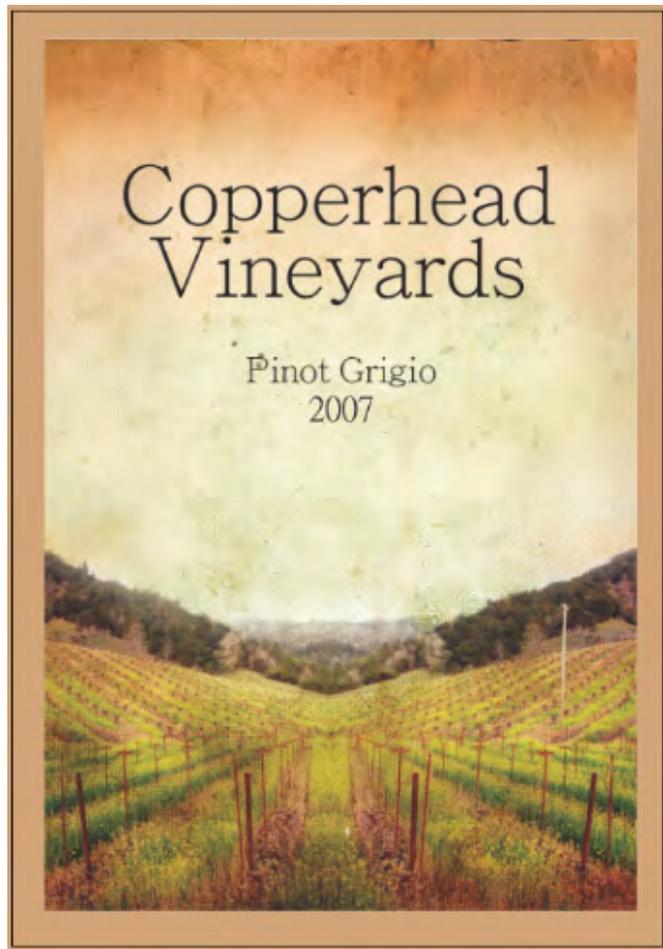


Full Page = White floods the entire printable area of the page. This is useful when the graphic covers the full label and the media color is preferred to the edge of the label. White is still required beneath the printed area but is not applied around the 2.2mm border of the label.

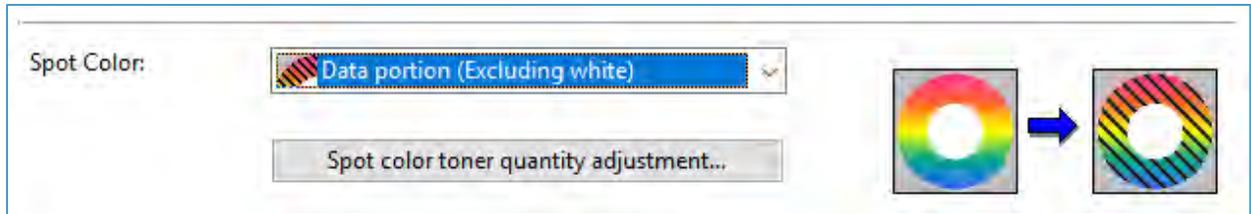
Border area is actual media color.

Image area fills the full print area.

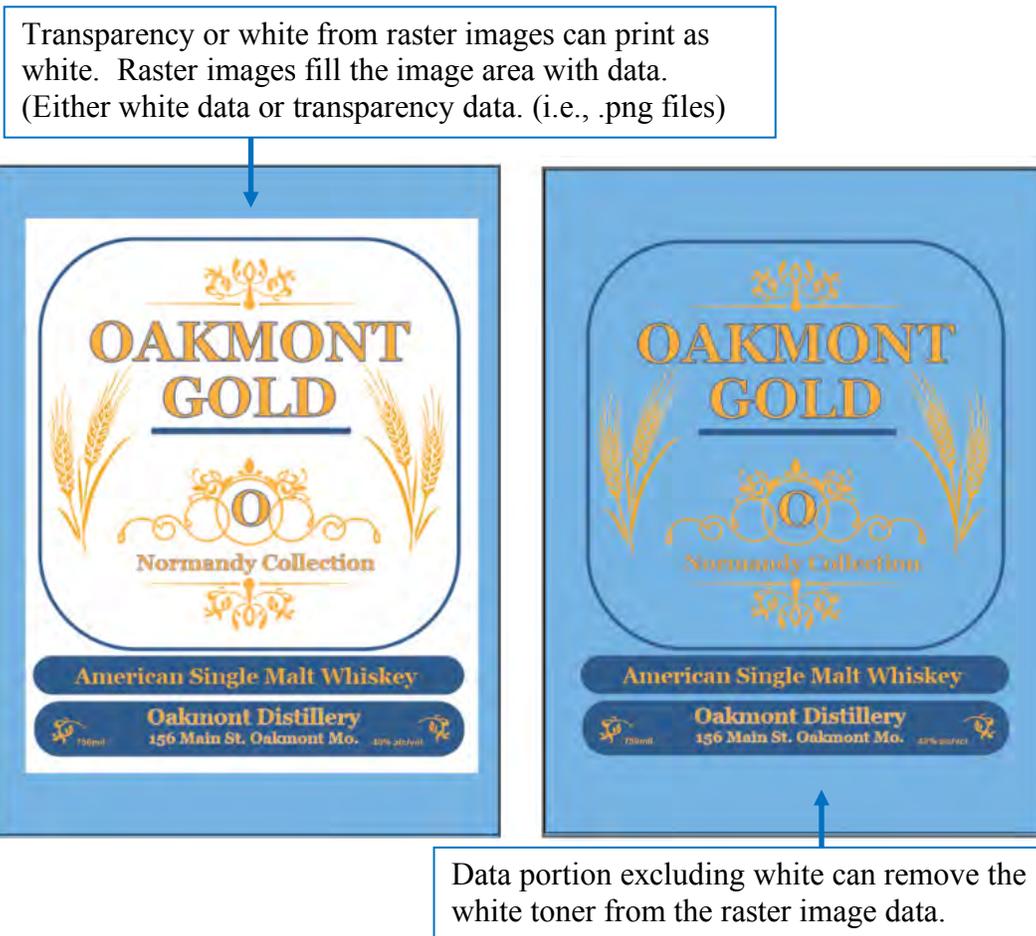
White is applied below full image.



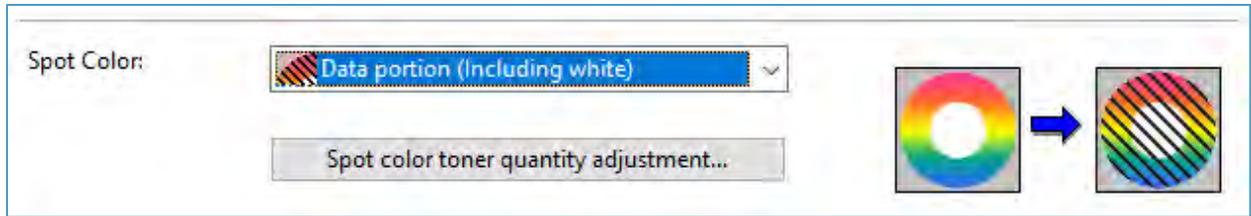
Note; If the image is smaller than the printable area, white toner is still applied up to the 2.2mm margin of the printed area. In this case either “Data portion including white” or “Application specific” spot color must be used.



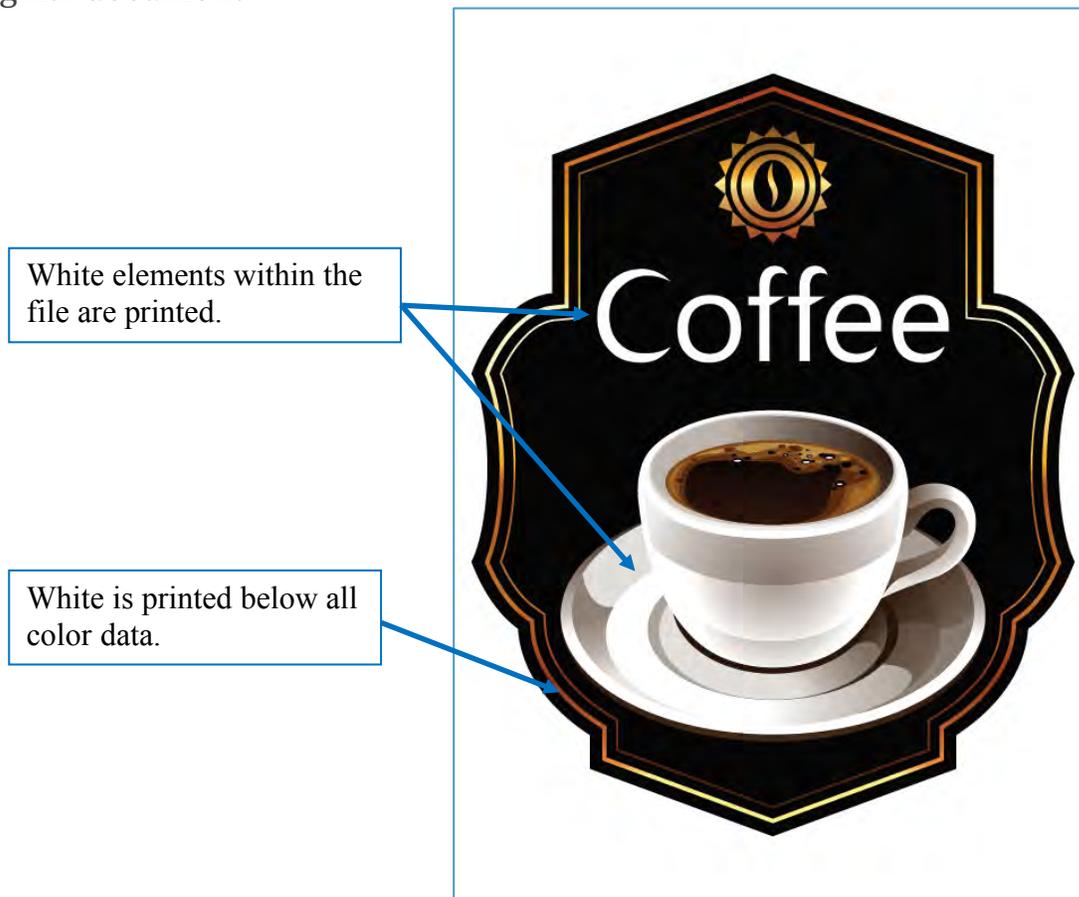
Data Portion (Excluding white) = White data in the file is ignored; White prints behind all color data elements (except Black). This is useful for Raster images where the white or transparent data portion prints in white (Left). Excluding white data only, achieves the desired result(left) if no additional white elements are in the image (right).



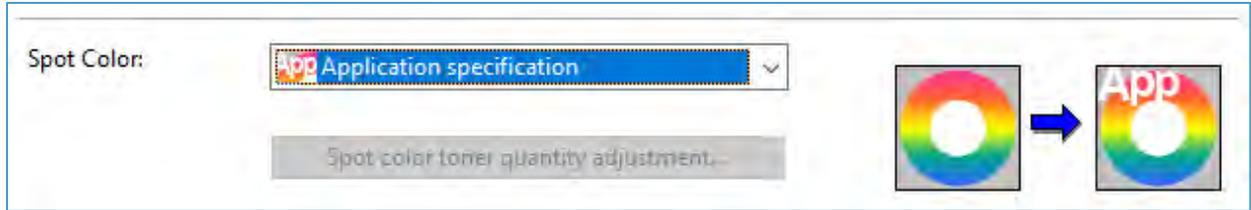
Note; If white exists in the image area and is needed, this will also be excluded or removed. In this case, either Data portion including white or Application specific spot color must be used and may require modifications to the file.



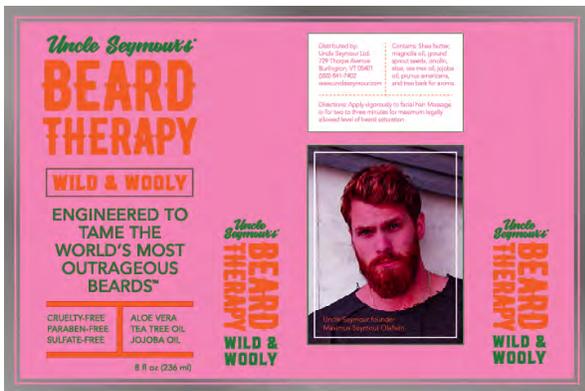
Data Portion (including white) = White data in the file prints; White also prints behind all other data elements (except Black). Prints 100% white behind all elements allowing printed colors to remain vibrant on dark or colored media. Also prints elements that are defined as the color white in the original document.



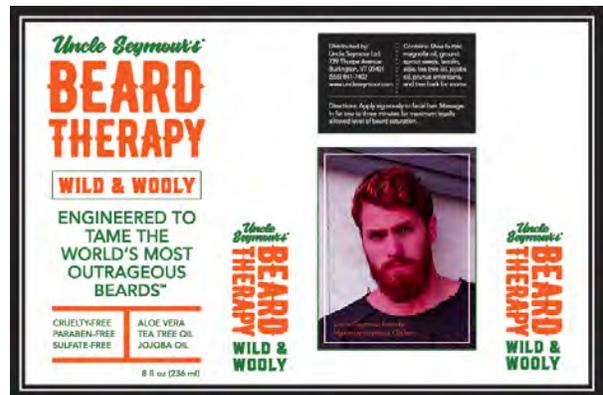
Note: Vector images will only have data in the areas of color. Data portion including white is best for vector images. Raster images have data elements across the whole image, including white and transparency. Some raster images may require using Application Specific setting to ensure proper placement of white toner.



Application Specification = Postscript Driver Only! - White will only print where it has been specified by the graphic artist in the file. The designer must create a “Named” *spot color swatch* or *spot color channel* in the design application. The exact name of “**SpotColor_White**” is required and is case sensitive. The printer will recognize this and apply white toner for all elements using this swatch or channel name. In addition to having full control of where white is applied, subtle white effects such as glows, gradients and percentages can be achieved with no restrictions. This setting also allows color elements to have any amount of white behind them or none, which is not possible with the other Spot Color driver settings.



Design View

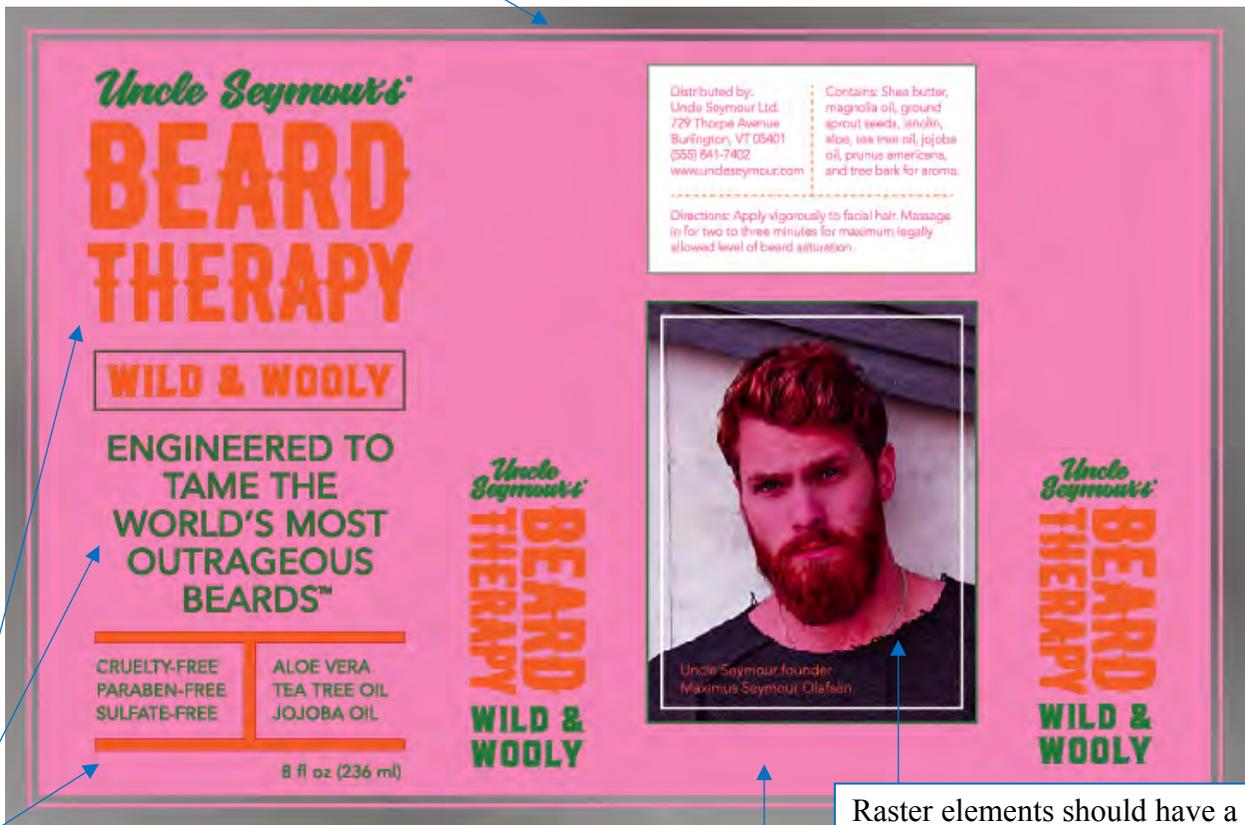
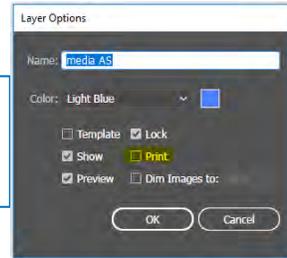


Printed Output

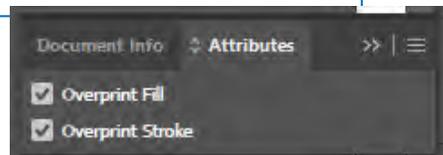
The **SpotColor_White** swatch can look like any color – While designing, when set for white, it is difficult to see. Best practice is to pick any color to represent your **SpotColor_White** to avoid confusion. Here, we show it as Pink for easy reference.

Application Specification (Continued)

Media simulation layer - Created so that white elements are visible. The Print capability for this layer is turned off under Layer Options.



All colored vector elements and type must be Copied, pasted in place then filled or stroked with **SpotColor_White**. Overprint Stroke or Fill must be turned on for each element.



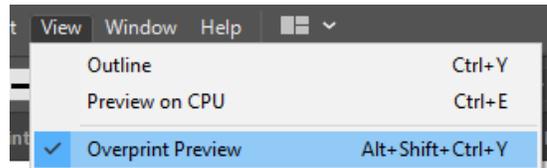
Raster elements should have a Spot Alpha Channel named **SpotColor_White** to represent White. Adobe® Photoshop® is needed to add the spot alpha channel. However, white can be placed below the raster image in Illustrator to achieve a similar result.

Best practice is to pick any color to represent your SpotColor_White to avoid confusion. Here, we show it as Pink for easy reference.

Application Specification (Continued)

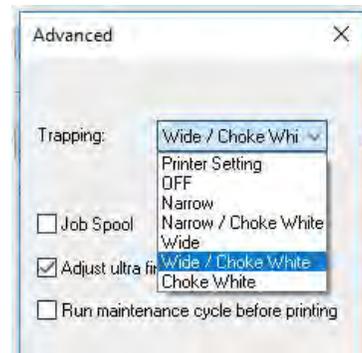
Key settings when working with Application Specific white.

- Saving as PDF - You must select the PDF X1-a standard from the save menu. This setting is required to carry the **SpotColor_White** swatch over to the PDF.
- In Adobe Illustrator Overprint Preview should be Checked

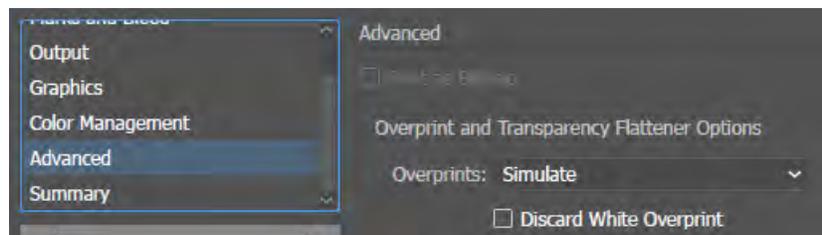


- Print Driver - Trapping should be set to Wide/Choke to avoid white edges around all color objects.

However, small text items and fine lines may be negatively affected. In those cases, manual trapping can be designed into the white spot color underneath these elements.



- Printing from Illustrator - Overprints must be set to simulate and Discard White Overprint must be deselected.



- Paper white and swatch white from the applications will not be recognized as white, therefore these area's will be void of toner. (Media color). This can be a useful effect, to show media such as foils, gold and silver through the image, similar to a punch out.

Printer Menu Settings

The LT5C printer's operator panel menus contain settings that allow full control of the printer. The selected menu settings below are highlighted as being the most useful in improving results when printing documents using spot color white on dark media.

Print Adjust Menu

Paper Color Setting ranges from **(-3 to +3)** – adjust up or down if Spot Color toner isn't fully settling into the media

SMR Setting Ranges from **(-6 to +3)** – adjust individual colors up or down when print quality is uneven.

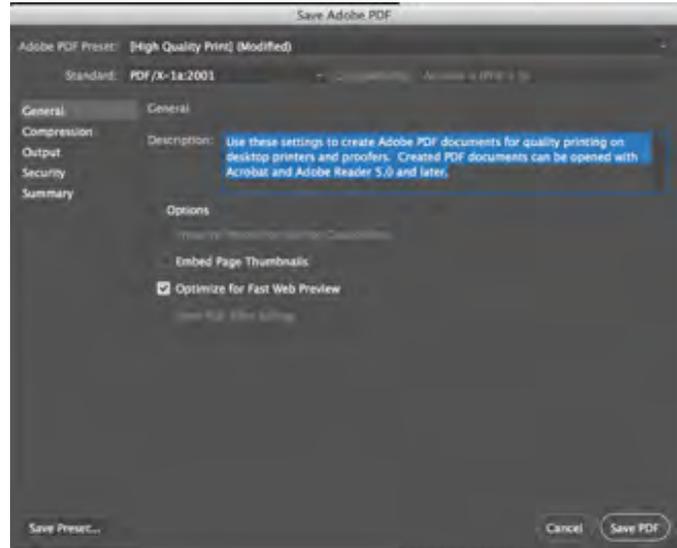
Calibration Menu

Color Density - Range from **(-6 to +3)** - adjust individual colors (typically White) up when toner isn't fully settling into media (this setting is especially helpful with textured media)

Adjust Registration - Execute this to force the LT5C printer to automatically correct its registration. Doing this at the start of each day before printing will ensure improved print quality.

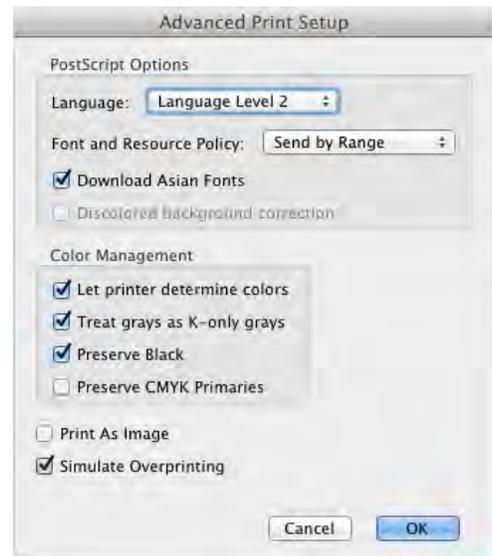
Exporting to PDF

Exporting documents from Adobe Illustrator, Photoshop, and InDesign to PDF and printing from Acrobat or Adobe Reader will streamline the printing process and reduce errors. And because Photoshop isn't able to directly print files containing spot channels, exporting to PDF is necessary when designing your documents.



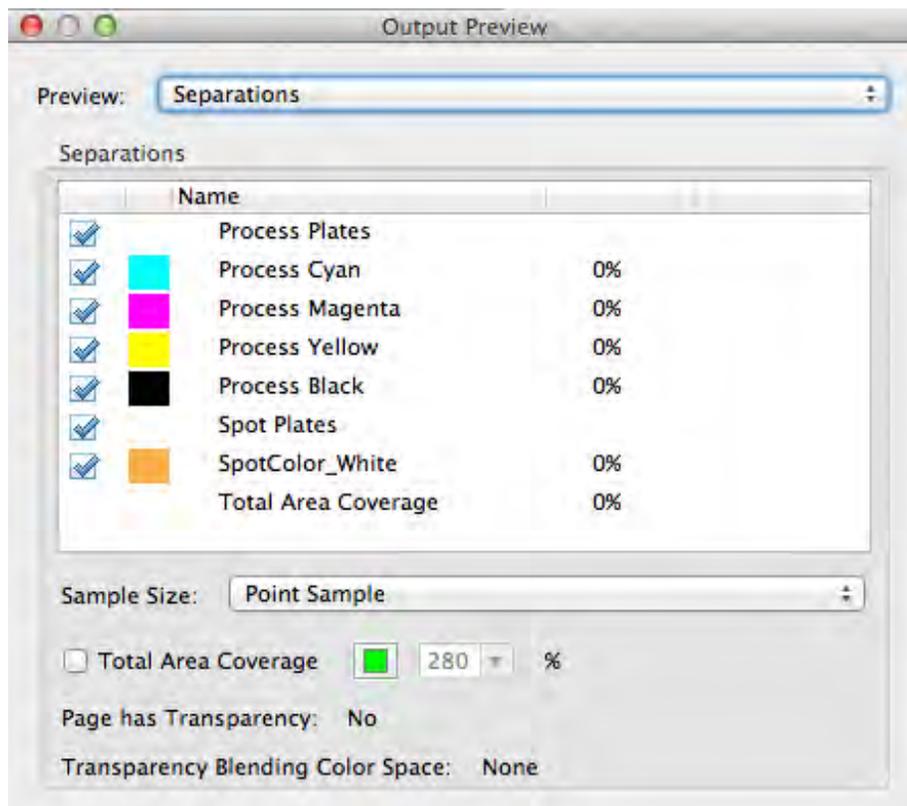
Additionally, files using the Spot Color setting of Application Specification require PDF type **X-1a** (either **X-1a:2001** or **X-1a:2003**) for the named Spot Color to be transferred correctly from the source file to the PDF.

One helpful feature in Acrobat is the **Output Preview** mode under **Print Production**. This allows you **Simulate Overprinting** which is useful in making sure that Spot Colors are set up to overprint correctly. Acrobat Reader has a Simulate Overprint setting under **Advanced Print Setup**.



Another benefit of Acrobat's Output Preview is the ability to view the spot color that you've defined in your file, which must be named **SpotColor_White**. Check under **Separations** to make sure this name is listed correctly.

You can also mouse over areas within your file to see where the Spot Color has been placed as well as the percentage used in each area.



Trapping

Trapping is a feature that helps to hide unintended white edges that sometimes appear around color objects being printed on a page. The concept of trapping dates to old ink presses that needed methods to hide imperfect registration of two different colored objects printed next to each other.

There are two approaches to trapping: Spread and Choke. Spread slightly expands CMYK elements over white, while Choke shrinks or contracts the white areas underneath to hide their edges. Because the LT5C printer can apply white toner behind colored elements to improve their visibility on dark paper, Trapping helps to ensure that the white toner does not peek out from under the edges of those colored elements.

The trapping feature offers different combinations of Choke and Spread:

- Off - Print without any trapping features
- Narrow - Slightly spread color objects
- Narrow/Choke White - Slightly spread color objects AND contract areas of white toner
- Wide - Expand color objects more
- Wide/Choke White - Expand color objects AND contract white toner
- Choke White - Contract areas of white toner

	SPREAD	CHOKE
OFF		
NARROW		
NARROW/CHOKE WHITE		
WIDE		
WIDE/CHOKE WHITE		
CHOKE WHITE		