

# 4 Modifying Output Color

## Introduction

The previous chapters of this manual have been concerned with giving an overview of the color printing process, choosing color modes, and using palettes. This portion of the manual explains how color can be modified to produce a desired result, from using halftone render algorithms to change the way color is rendered, to selecting a color treatment and finish mode. The HP color printers can modify colors using the following means:

- *Halftone render algorithms* provide a way to modify images based on a dither cell concept. The algorithm chosen determines how specified colors are “rendered” as dots on the printed page.
- *The Monochrome Print Mode* command converts each color to its grayscale equivalent for faster, draft printing.
- The *Driver Configuration* command provides a way to select a color treatment.
- The *Finish Mode* command allows the user to specify the finish, matte or glossy, to be applied to the document.

All of these methods of modifying output color are explained in the following sections.

# Halftone Render Algorithms

The HP color printers have the capability of applying different halftone render algorithms to achieve the desired output on the printed image. Render algorithms allow you to change the characteristics of the image by changing the way pixels are rendered. Each halftone render algorithm produces a different affect on the output, varying the texture and color appearance of the printed image.

To choose the type of rendering to be used, use the Render Algorithm command, described below.

## Render Algorithm Command

The Render Algorithm command selects the algorithm to be used for rendering page marking entities on a given page.

`EC*t#J`

- `# = 0` - Continuous tone detail (high lpi) (device best dither)
- `3` - Device best dither
- `15` - Continuous tone smooth (high lpi)
- `18` - Continuous tone basic (low lpi)

Default = 3

Range = 0, 3, 15, 18 (invalid values are ignored)

## Device Best Dither

This dither pattern produces the best results for many images. Note, however, that the recommended dither pattern varies with the image, the intended use of the image, and the subjective judgements of the user.

# Monochrome Printing

The *Monochrome Print Mode* command converts each color value to its grayscale equivalent. This improves throughput, costs less to print, and eliminates waste by providing a draft mode.

## Monochrome Print Mode Command

The Monochrome Print Mode command designates whether to print using the current rendering mode or a fast gray-scale equivalent. Pages printed using the gray-scale equivalent do not use any color and therefore print faster and more economically.

**E<sub>C</sub>&b#M**

- # = 0** - Print in mixed render algorithm mode
- 1** - Print using gray-scale equivalent

**Default** = 0

**Range** = 0, 1 (command is ignored for invalid values)

This command must be sent prior to printable data, or it is ignored. The command must be sent at the start of a job, since few, if any, applications support a mixture of color and monochrome printing of color images within the same document.

# Driver Configuration Command

This command specifies the color treatment applied to each color specification.

$E_C * o \# W [device\_id \ function\_index \ Arguments]$

**#** = Specifies the number of bytes to follow (device ID function index arguments)

**Default** = N/A  
**Range** = see description below

## device\_id

Value	Printer
6	Color LaserJet printer family
8	Color LaserJet 4500 printer

## function\_index

function_index	Description	Argument Range	
4	Select Color Treatment	3	Vivid Graphics
		6	Screen Match

The following paragraphs describe the *function\_index* values and their arguments.

### Select Treatment

This value specifies which color treatment mode to use for rendering the next job.

### Vivid Graphics

This setting adds color saturation to the resulting image, and provides access to the full gamut of the printer (at the cost of color matching).

## Screen Match

Due to the emergence of sRGB (standard Red Green Blue) as an international color data standard, there is no longer a need to provide color adjustments in the printer driver to account for alternate types of RGB data. sRGB is the native color space of monitors, the default color space of the World Wide Web, the default space of many digital cameras and scanners. This treatment indicates that the printer should be ready to accept sRGB data. This is the preferred mode of operation to provide a good appearance match between the monitor and the printed document

The table below lists the driver configuration commands for both color treatments:

### Note

The device\_id and function\_index arguments after the  $\text{E}_\text{C}^*\text{o}3\text{W}$  (such as 643) should actually be entered as ASCII-coded decimal. For example, instead of 643 you would actually enter the ACK control code, followed by the EOT and ETX control codes.

Treatment	Command	
	LJ 4500	Other Color LaserJet Family printers
Vivid Graphics	$\text{E}_\text{C}^*\text{o}3\text{W}843$	$\text{E}_\text{C}^*\text{o}3\text{W}643$
Screen Match	$\text{E}_\text{C}^*\text{o}3\text{W}846$	$\text{E}_\text{C}^*\text{o}3\text{W}646$

## Finish Mode Command

The Finish Mode command allows the user to specify the finish, matte or glossy, to be applied to the document. A normal page has a matte finish. Glossy finish can be requested to be applied to the page as it's printed. The finish is distinct from the type of media. Therefore, a matte finish can be requested for glossy media, and a glossy finish can be requested for plain or matte paper.

**E<sub>C</sub>&b#F**

**# =**    0   - Matte finish  
          1   - Glossy finish

**Default**   = 0

**Range**    = 0, 1 (command is ignored for invalid values)

The finish mode must be set before the first page is marked and applies to all the pages in the document. Each document defaults to a matte finish.