TrueColorRendering (TCR)

Overview

TrueColorRendering (TCR) is a built-in printer feature that allows users to adjust the color saturation of their prints. The amount of correction is specified by a single value ranging from 0 to 100. TCR may be specified on both a printer default and user-specific basis across the network and on a printer default basis through the printer's front panel.

Why Use TCR?

Dye-diffusion printers in general, have the ability to print a very large range of densities. This means that the printer can print very black blacks (high D_{MAX}). Unfortunately, this benefit has the drawback that highly saturated colors, ones that are very pure, often tend to be printed darker than they appear on the computer screen.

The TCR feature allows users to de-saturate and lighten the colors in their prints so that they better match what they see on their screen.

Color Saturation and TCR

Saturation is a property of color that specifies how far a color is from a gray tone of the same density. Colors run the gamut from "highly saturated" ones, such as pure red, green and blue, having no gray in them at all, to completely unsaturated ones, which are pure grays with no color hue in them.

TCR is a feature that decreases saturation by adding white to an image. The amount of saturation reduction is specified by a single number ranging from 0% to 100%. Thus, a TCR setting of zero produces no change in the image, a 0% reduction in saturation. A TCR value of 100 removes all of the saturation from the image, producing a greyscale output. The TCR value range is summarized below:

TCR Value

```
0 ——————— 50 ——————— 100
no change    50% reduction    100% reduction
in saturation   in saturation    in saturation
                                 (pure gray)
```
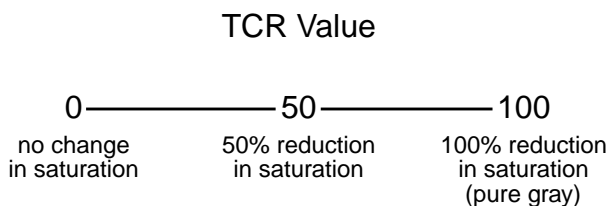
Setting the TCR Value

The printer TCR setting can be adjusted two ways. First, the printer default value may be set using the printer's front panel. Secondly, users may set their individual TCR value preference on the printer by sending a text file to Logical Device 0. These two methods are summarized below.

1. Setting Printer Default TCR Value

Setting the TCR value through the printer's front panel specifies the **printer default value**. This value is used for any users who have not stored a personal settings file on the printer. This value is entered into the printer as follows:

With the front panel displaying the READY message, press the **SETUP** button. Press the **<down-arrow>** button until the IMAGE menu is displayed, and then press **SETUP**. Again cycle through the selections until the TCR item is displayed and press **SETUP**. Using the **<up-arrow>** and **<down-arrow>** keys, select the desired TCR setting and then press **SETUP**. Finally, cycle through the menu items until EXIT is displayed and press **SETUP**.

The front panel menu hierarchy just described is summarized below:

READY → IMAGE → TCR → *default_value*

Where *default_value* is a number from 0 to 100.

2. Setting Personal TCR Value

Users may store a file on the printer specifying their personal image processing preferences. The file must be a plain text file. To specify the TCR value, first create a file with the following text:

TCR *value*

Where **value** signifies an integer number from **0** to **100**. Then send the text file to Logical Device 0 of the printer using the FTP or LPR programs. The user must be logged-in under his/her own user-id for LPR, and must use their own user-id and binary transfer mode when using FTP. For discussion of Logical Devices, FTP and LPR see the applicable Technical Briefs.

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Querying Printer Status

The printer default TCR setting can be determined by querying the front panel as described in the previous section. The printer default and user-specific TCR settings can also be determined using the **stat** command from a telnet session. Users that are familiar with telnet can log into the printer as follows:

1. telnet to printer's *hostname* or *IP Address*
2. login as **root**
3. at prompt, type **stat** *user-id*

The **stat** command displays a page of useful information about the printer status. All of the image processing options for both root (printer default options) and the specific user-id are displayed.

Choosing the TCR Value

An easy approach for choosing the appropriate TCR value is to use the Bracketing feature of the printer. An image that is sent to Device 9 (bracketing device) on the printer will be printed in a 4 x 5 grid in which TCR and gamma values are varied. Just send the desired image to Device 9. To determine the desired TCR value, look down the column of images in which gamma = 1.0 (no gamma correction) and note how the TCR setting affects the look of the image. This method will give a starting point for the TCR setting. Fine-tuning may then be performed by manually varying TCR within the desired range found on the bracketing print. For further details refer to the Bracketing Technical Brief.

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