Optimal Plus Basic Settings

The **Optimal Method** is a technique for matching color printing to an ICC profile using tone curves. The matching algorithm minimizes the overall color error to get the best possible color match. In theory, the resulting calibration is optimal (lower case 'o'). There's nothing more to do.

But consider this – does the ICC profile we've matched so well represent the best possible printing with your equipment and materials? Maybe not. There's a growing faction of printers who've adopted linear SCTV as their calibration method for both process and spot colors. They claim to get excellent print quality, especially the rendering of shadow detail, and reduced banding. This is likely the result of increased print contrast, and shadow linearity.

The downside to SCTV calibration is that gray balance and tonality are not controlled, so matching standard proofs will be hit or miss. Fortunately, universal data sets, with better shadow rendition, are under development.

In support of these trends, we developed the **Optimal+ Method**, which blends Optimal and SCTV curves. You get the best properties of each technique – a good color match to reference profiles and improved shadow rendition.

Run Basic Setting

You can visualize the Optimal+ Method by running the basic settings file. Open the file in TextMate and hit the ⌘**R** key combination. Curves are built and graphed in your web browser. Compared to the plain Optimal Method, there are three additional graphs titled **SCTV curves**, **blending function** and **SCTV blended curves**, as shown on the next page.

The **SCTV curves** are built from your press data to make SCTV linear. For each enabled ink channel, the data samples with only that ink are located and used to build the SCTV curves. Note the black ink channel is *not enabled* by default.

The **blending function** controls the blending of the Optimal curves with the SCTV curves. A function value of 0 selects the Optimal curves, and a value of 1 selects the SCTV curves. Values between 0 and 1 blend the curves proportionately.

The **SCTV blended curves** are the result. If you compare these curves to the others, you will see how blending works. The blended curves resemble the Optimal curves in the highlights and midtones, transitioning smoothly to the SCTV curves in the shadows.

Blend SCTV Setting

The **`blend_sctv:`** setting is a hash with three keys – **`'median'`**, **`'slope'`** and **`'map'`**.

```
blend_sctv: {'median' => 75, 'slope' => 4, 'map' => [0, 1, 2]}
```

The **'median'** and **'slope'** values control the shape of the **blending function** curve. The **`'median'`** is the %-dot value where the blending is 0.5 (50/50). The **`'slope'`** is the inclination of the curve at the median point. Feel free to experiment with these settings and see how they change the curve shape.

The **'map'** value is an array containing the ink channels to be blended. The value **`[0, 1, 2]`** selects the CMY channels. You may add other channels if you like.

Match Quality

As mentioned earlier, the Optimal Method matches printing to an ICC profile with minimal color error. PressCal analyzes this error statistically and plots it as a graph **before** and **after** optimization. The median color error is a good measure of the color match quality.

When we blend Optimal curves with SCTV curves, the median color error increases slightly, meaning the color match is less good. You can check this by comparing the **after** median color error with the **`blend_sctv:`** setting enabled and disabled.

Print Contrast

The effect of blending SCTV curves is a slight increase in print contrast, and a more consistent curve shape in the shadow region. Print contrast is a pressroom measure computed for each ink from the 70% and solid density values. Greater print contrast enables higher print densities and better rendition of shadow detail. The process control report lists print contrast of the curve-adjusted process.