

The Digital Coach™

Easy-to-understand training in Digital Imaging & Color Management



Creating a FlexColor Custom Setup Tutorial

As I began to think about preparing this tutorial I realized it began with the philosophy of scanning with FlexColor.

At the time Imacon created the Flextight scanner, scanning for commercial reproduction was done on drum scanners by skilled operators. It was the duty of these technicians to correct the color, adjust the highlight and shadow points and the exposure by turning knobs or other controls. Some of these adjustments were done one at a time by the operator.

All digital capture devices are analog devices. All must convert the image data from the analog chip to digital image data. With the exception of drum scanners, all the devices have a built in analog to digital converter.

After previewing, the device will present you a preview image with the scanner manufacture's "Secret Sauce" applied. Most of these devices don't allow much, if any, control over this initial conversion.

FlexColor however, gives you complete control over the initial conversion to digital, based of the parameters in the Setup.

Shadow point, white point, contrast, exposure, color correction, sharpening, dust removal etc. can all be controlled automatically by FlexColor on the initial scan.

When you do a preview of your film, FlexColor will automatically apply all the settings programed into the Setup control panel. In order to get you started right away, Imacon/Hasselblad has provided you with some starting points. When you install your FlexColor software, it will install a whole group of setups named for different film types. This allows you to get off to a fast start using your device.

These setups are only intended as starting points. Some are quite good, some not so good. These setups along with the Auto tool can do an analysis of your image and give you a very nice image, if you are scanning transparencies. Auto has problems

with some negative films so I don't recommend it's use unless you have tested and confirmed it works OK. In the rest of this tutorial, when I say to use Auto I am assuming you are scanning transparencies.

When you select an area with the crop tool, then hit the Auto button, FlexColor will apply the white point and black point settings that are stored in the Auto control panel and remove or leave color casts as you have chosen. Auto removes color casts based on the technique of adjusting the end points of the Red, Green and Blue channels. For a lot of work, that's all you need. If you select a different Setup, FlexColor will apply it's settings.

In the Setup selection panel shown on the right, the setups are grouped by type. At the top are the standard transparency setups. RBG Standard, RBG Saturated, RBG Dark and RBG Dark Saturated. Also the CMYK Setup group. Below those are the Negative film groups. First the default or universal setups, followed by the film specific setups. At the bottom are the custom setups you create or modify. On the 4.5 and later FlexColor, there is Customize, this will allow you to select what Setups you want to see. No need to display ones you don't use. To do this on FlexColor 4.0 you will need to remove them from the file folder.

If you think about it, FlexColor is giving you a clue. By having the different versions such as Saturated,

```
Customize...
=== Standard ===
CMYK dark
CMYK dark saturated
CMYK saturated
CMYK standard
RGB dark
RGB dark saturated
RGB saturated
RGB standard
=== Standard Negative ===
B&W negative standard
Negative CMYK saturated
Negative CMYK standard
Negative RGB saturated
Negative RGB standard
=== Film Specific ===
Agfa Optima II 100
Agfa Optima II 200
Agfa Optima II 400
Fuji NPH 400
Fuji Superia 200
Fuji Superia 400
Kodak Gold 200
Kodak GPX 160
Kodak Portra 160 NC
Kodak Portra 160 VC
Kodak Portra 400 NC
Kodak Portra 400 VC
Kodak Pro 400
Kodak VPS III 160
Konica Professional 160
Konica Professional 400
Konica VX 100
Konica VX 400
=== User defined ===
Adjusted RGB Standard 3-31-15
Car&people
Gerry
Gerry 10-30-10
Gerry's RGB
Mike
=== Embedded ===
RGB standard
✓ P-2_Dennis
```

Dark, Dark Saturated and Standard, FlexColor is showing you that you can create different Setups for different films. FlexColor allows for modifying them to deliver the results you desire or you can create your own from scratch. Note: you can use a factory Setup as a starting point but after modifying it you must create a new Setup because the factory ones are locked. I'll explain more about that later.

So why would you want to modify them? There are many factors that affect your film. Lighting for example has a big effect. Where and when you took the picture can have an affect on the color temperature of the light. The processing of the film can create different contrasts and density. With all these variables you can see why one size fit's all doesn't work.

Once your setups are tweaked, select the best one for your film and make a preview. Additionally you may use Auto to set your white point and black point if desired. All of the settings that had to be manually applied before, are now applied automatically. Any of the controls such as Curves, Histogram, Unsharp mask, White Point, Black Point and Color Corrections that you can adjust will be automatically applied by Setup.

Now that we know why to create Custom Setup, Lets look at how.

Here is a test image I created to test with.



It has the RGB Standard Setup applied with 0-0 values for white point and black point. Lets modify it.

Select a starting Setup to modify. RGB Standard is a good one for transparencies. Make sure there are no settings such as Curves being applied. Look at each tool and see if the Apply button is active. If so unclick the Apply button to deactivate it.

The first step is to make sure we have neutral color. The Xrite Color Checker is an excellent tool for this. I shoot one on every film type I have and it provides a good control for making the image neutral. In other words if R=G=B of a true neutral gray reference, all colors are correct in the image. I use the middle gray eyedropper in the Histogram control panel and click on a gray square, number 3 or 4 works good.

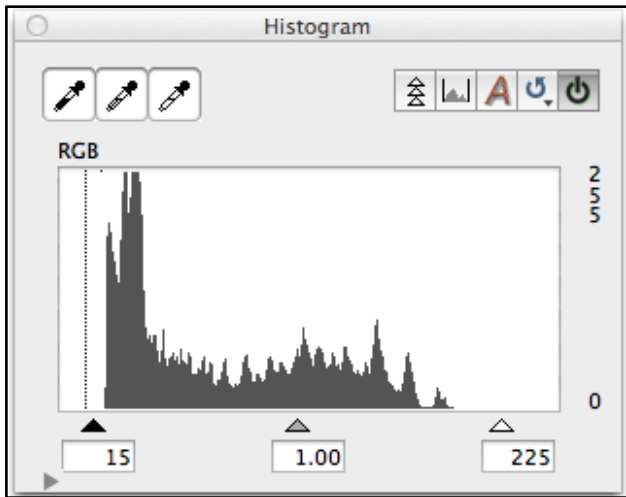
Now I want to set the black point. Using the black eyedropper in histogram control panel, I click on a deep shadow area. The back square on the Color Checker is not quite black enough and clicking it would make the shadows too dark. Next I will set the white point using the white eyedropper on the first square. Now I want to change the overall exposure using the middle slider in the histogram. I will adjust it so my midtones have a pleasing value.

Here is the adjusted image. The overall exposure is better. The grays are neutral. The contrast is good.



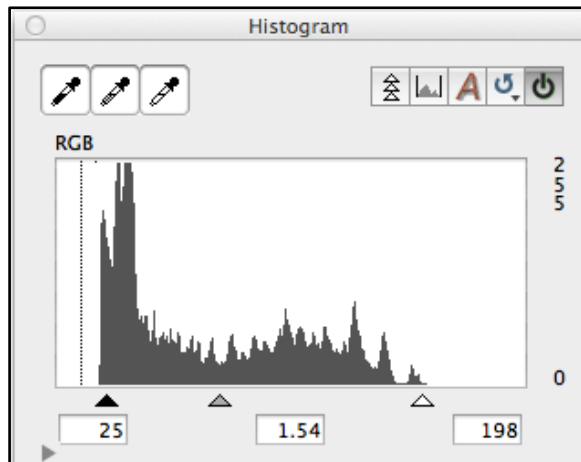
I will now go to the control panel, click on New, name it "Adjusted RGB Standard 3-31-15" and save. All I need to do now is select my new setup and make my preview scan. My image is adjusted, with perfect color.

Here is the Histogram control panel for RGB Standard.



Notice the midtone value 1.00. Look at where the white and black point triangles are.

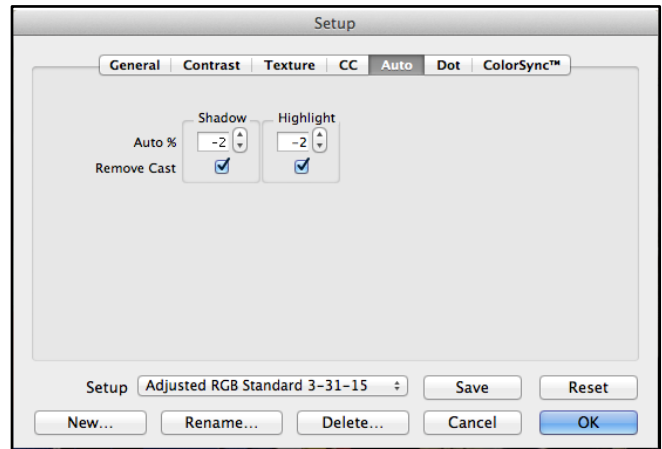
Below is the Histogram for the Adjusted RGB Setup. Notice the midtone value is now 1.54. Look at the



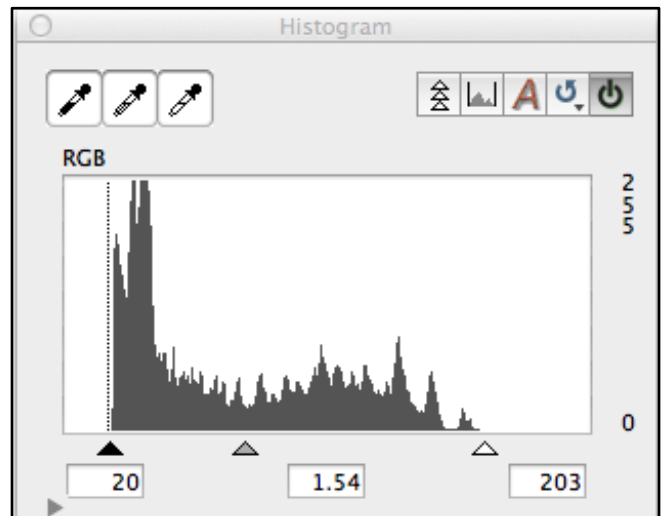
position of the white and black point triangles. When the Adjusted RGB Setup was selected, the values that were set by the highlight and shadow eyedroppers in the test image were automatically applied.

However, the white point and black point may not be perfect for each different piece of film we scan. This is where Auto comes into play. If we crop our image,

and click Auto it will look at all the image info inside the crop area and place the shadow and white point at the end points of that particular image. These endpoints are set by the values in the Auto control panel inside the Setup Control Panel.



Here I have set the values each to -2. This will nudge the white point and black point outward to prevent clipping. Moving the highlight is especially useful for wedding and portrait photographers to prevent clipping backlit blonde hair or white lace in wedding dresses. Entering a value > 0 will move the endpoints in. Notice the 2 buttons for "Remove Cast" are checked. For most Setups you will want to uncheck them. Leaving them checked will change your color balance when you hit Auto as explained



previously. We have already set that with the midtone eyedropper and the Color Checker.

Notice the end points moved outward slightly on both the highlights and the shadows when I clicked Auto. If you prefer to adjust the endpoints manually on each image you can do this in the Histogram

control panel. In that case it would be OK to skip using the Auto button.

One other option would be to slide the triangles out all the way in the Histogram control panel when making your Custom Setup. This will create an image that is flat but nothing is clipped. You can then skip the Auto button and adjust the endpoints manually.

One final note on the Auto button. If you are not using a custom Setup, you may want to leave the Remove Cast buttons checked and when you hit Auto it will try to neutralize color in your image. You can also do that as an alternate workflow.

With color negative film, the starting point Setup is Negative RGB Standard. Check to make sure no Curves or other settings are being applied. Remove them by unclicking the Apply button to turn it off. That is just the very basics in creating a custom setup. Remember any adjustments can be saved in your custom setup.

With B&W negative film, we don't have to worry about color. We want to get the exposure, contrast and saturation right. But here is something else to think about with B&W. FlexColor still scans to 3 channels. The CCD has three individual rows of photocells filtered with red, green and blue. That means our B&W image is an RGB image until we save it out as a B&W image. It is then converted with a standard formula much like Photoshop does when you convert an RGB to B&W. I believe the standard mix is 40%, 40% and 20%. There is actually a better way. I like to save the file as an RGB file from FlexColor then use a tool such as Channel Mixer in Photoshop to custom blend the 3 channels to be sure I get the look I want.

So what if I don't have a Color Checker to work with? What if I have legacy film that's an unknown type? I like to look for something that is a known gray or white in the image. I will click on it with the gray eyedropper and see what happens. I keep trying different spots to see if I find one that works. If I don't have anything that is close to gray, I will try adjusting the end points on the individual r-g-b histograms. Another approach would be to try the Auto tool. You don't have to crop the whole image. You can select an area that has a gray value or select a known reference item in the image. The object is to get correct color. You are the best resource, you know what the image should look like.

Here is a good example. An unknown film with a definite color cast.



With a little work we can get a usable image.

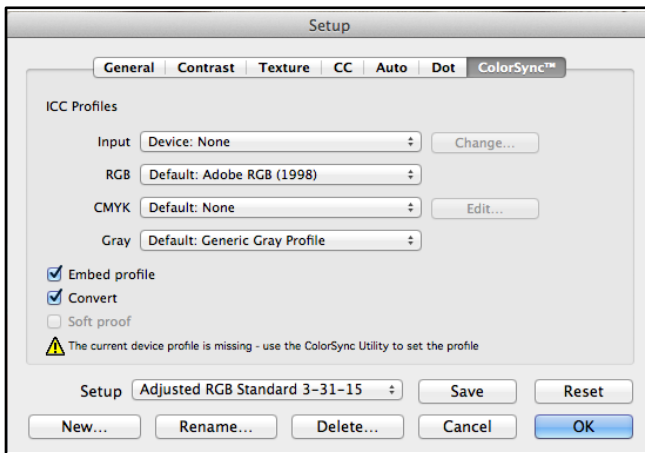


You can make different setups for different lighting conditions or different end uses. For example you may want a setup for daylight and another for studio strobes. To save a modified Setup, go to the Setup control panel under File > Setup and open the panel.

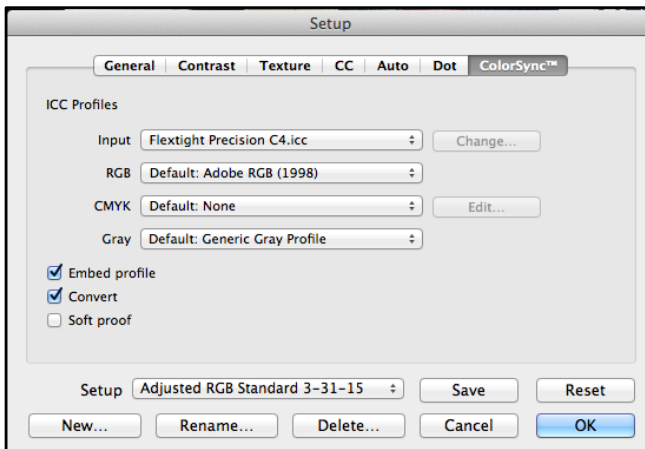
With the example for positive film I just left Unsharp Mask at the default of 250. That is usually OK for most transparencies. For negative film, you will probably want to adjust the sharpening for the film

type and the result desired. You may want to remove sharpening altogether. To do that, open the Texture control panel and set the desired amount. See the separate tutorial for sharpening setup.

The last panel in the Setup Control Panel is very important to know about. It is the ColorSync on a Mac, ICC on a PC, Control Panel. FlexColor fully supports ICC Color Management. It is important to understand how this works and how FlexColor uses it. The Preview window displays how an image looks with an ICC profile conversion applied if set properly. This is a different function than the film type Setup. Both are applied to the image in the Preview window.



In the above example, conversion is turned off. The Input profile is set to None. The image displayed will not be affected by the ICC profiling. When saved the image data will not be converted. You must have an Input and an Output profile in order to convert the data.



In this panel the Input profile is set to the profile of the scanner and the RGB or working space is set to the Adobe RGB working space profile. Embed Profile is

checked and so is Convert. This image will display the converted data on screen in FlexColor and the data in the final scan will be converted to the RGB Working Space of Adobe RGB. Any ICC savvy application such as Photoshop than opens this file will recognize it has been converted if that application is set correctly for Color Management.

If both the Input profile and the RGB (Working Space) are selected and the Embed is checked, but the Convert button is not checked the data will not be converted but the data will be tagged with the input profile. The preview in FlexColor will show the conversion. Color savvy applications will know how to handle the image.

If the Embed button is not checked the file will not be tagged and Photoshop will not know what space the file was created in. Color Management is lost in that case.

If you are scanning your own work and you are ICC color managed, you should select both profiles and check both Embed Profile and Convert. Whatever you chose will be saved as part of your Custom Setup. So it will be applied automatically. No further conversion is necessary in Photoshop for editing. Outputting is another chapter.

If you are scanning for others you should ask them how they want to receive their files. Many will not know what they want. In that case, I would embed the profile and give them the file as scanned with the best Setup applied. If the file is intended for web publication I would convert to SRGB and furnish a converted file.

I hope this helps to understand how to use the full power of FlexColor to get better images faster and be more productive. The more different custom Setups you create the closer to a perfect image on the first try you can come.

As always, I am available for one on one personal training. See the website for details.

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