



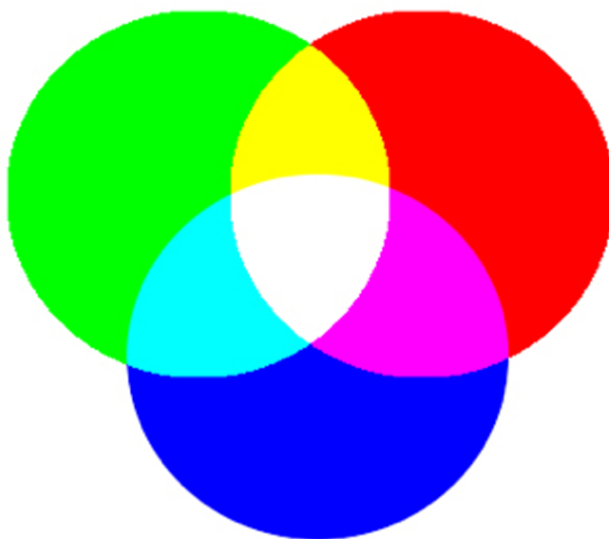
## Digital Colour

Digital colour is a HUGE subject, so I've just picked out what I think are the most useful bits. First we'll look at some ways to use and change colour in Elements. Then we'll look at some basics of colour management, which includes some pointers on how to print the colours you see on your screen. I'll also explain some of the terminology associated with colour such as the difference between additive and subtractive colour, what colour spaces are and so on.

*I've included a few bits that we've looked at briefly before so that they are all in one place if you want to look them up later.*

### Defining colours

To start, we'll look at the colours you see on a monitor. These use the **additive system** (no, don't panic, it's not difficult!). Simply put, colours on a monitor are achieved by adding together varying amounts of red, green and blue light – hence the name 'additive'. If there is no coloured light present the monitor displays black and if the full amount of each colour is present you see white. Anything in between and you see a specific colour.



*The additive system showing the primary colours (red, green and blue) plus the secondary colours (cyan, magenta and yellow).*

Describing colours is difficult – one person’s purple is another’s plum – one person’s burnt orange is another’s brown. It can be useful to have more objective ways of defining what we mean so we’re going to start by revisiting the **Colour Picker**. You are familiar with this from setting Foreground and Background colours in the Tool Bar but we’re going to have a closer look at some of the detail.

As you’ll remember you can use the central bar to do a rough selection of the colour you want – you can rotate through the 360 available hues. Then you can fine tune your selection, by selecting a precise shade in the bigger left hand box, called the Colour Field. You can either single-click on the colour you want to choose or can hold your left-hand mouse button down and move around the colour field, releasing the mouse when the colour you want is selected in the New Colour box. It’s sometimes useful to click on ‘Only web colours’ as this gives blocks of colour to choose from rather than continuous tone. This is probably the most commonly used way to select a colour as it is entirely visual – you just pick the one that looks right.

Elements uses three methods to manually describe colours:

1. The HSB mode (Hue, Saturation and Brightness)
2. The RGB mode: (Red, Green and Blue – 0-255)
3. The hexadecimal mode: (the # symbol plus six digits)

I debated whether to give a detailed description of these but I’ve honestly never used the first two in real life so I’m going to leave you to look them up if you are curious. The third one can be useful as it is the method used to describe colours on web sites. I used to design web sites so I’ve used hexadecimal a lot. It starts with the hash symbol followed by six digits/letters (0-9 plus the letters A - F). The first two characters stand for the quantity of red in the colour, the second two for green and the third two for blue #RRGGBB. For instance white is #ffffff and black is #000000. If you want to understand how hexadecimal works there’s a good description at <http://www.mathsisfun.com/hexadecimal-decimal-colors.html>. Here, also, you can play about with red, green and blue sliders to mix colours on the screen.

All you normally need to know is that if you want to describe a selected colour to a web designer the hexadecimal code is the best way to do it. So, select the colour visually and then read off the hex code from the colour picker.

### **Sampling colours**

You’ll also probably remember that you can sample (pick) colours from any image you have open by clicking on the foreground or background colour swatch and then clicking on the colour in any open image from the colour picker. You can shortcut this by using the eyedropper tool from the tool box. With this tool selected you can just click on a colour and it will become the foreground colour or Alt-click on a colour to make it the background colour.

Not quite so well known is that you can sample colours from outside Elements. To do this, make sure you have the eyedropper selected in the

toolbox. Then click somewhere inside Elements and drag, while holding the mouse button down, until you are over the colour you want to sample. This can be something in another program such as a web page in your browser or something on your desktop – literally anything you can see on your screen. To show you this I'm going to temporarily overlap a web browser so I can sample a colour from the BBC web site.

### Tips

- When I was doing the research for this tutorial I came across something I didn't know – always good! If you have the eyedropper selected, you can right click on a colour you want to sample which gives you the option to 'Copy color as html'. This copies the hexadecimal code for the colour on to the clipboard – you can then paste it straight into an editor, like Notebook or Dreamweaver. That would have saved me quite some time if I'd known about it earlier!

## Hue and Saturation adjustment layer

As you'll remember from the layers tutorials, the Hue & Saturation adjustment layer can be added to the layer stack from the Layers panel. As the name suggests, this adjustment allows you to change colours and their saturation in an image.

Firstly, select which colour ranges to change from the drop down list eg yellow or blue. Selecting the default of Master means any changes will affect the whole image. Then make your changes using the sliders.

**Colorize** – tucked into the bottom of the hue and saturation adjustment layer is a little option called Colorize. This converts the image to a monochrome version, using the colour you specify. You can either convert the image to greyscale first (Enhance > Convert to black and white) or you can apply colorize to the coloured version. The results are a bit different and both can be lovely but I think you have more control when you make the image greyscale first.

*Remember that you can modify the effects of an adjustment layer by adjusting the opacity of the layer or by using an adjustment layer mask so that the results of the adjustment are restricted to only certain parts of the image. Look back to the layers tutorials if you can't remember how to do this.*

## Replace Color command

This is a useful little tool to replace one colour of your image with another. It works directly on the pixels of the active layer so it's best to duplicate the original layer and work on the duplicate.

- Duplicate the image layer.
- Then select Enhance > Adjust Color > Replace Color.

- Now click on the colour(s) you want to replace in your image or click on the Color box and select a colour from the color picker– this makes a sample. You have the option to add to the sample or subtract from the sample. So, you can keep adding areas of colour until you have everything selected.
- You have two views of what's going on – I'd suggest you have 'Selection' showing in the small window so you can see the areas of the image that will be changed. ( I do wish they'd be consistent – in one part of the dialogue box they are using the term 'sample' and later in the same box they call it a selection !!)
- Next select the colour you want to use for the replacement. You may need to use the Saturation slider to get the strength of colour you are expecting. When you are happy with your selection and with the replacement colour then click on OK and you're done.

*The fuzziness slider acts like the tolerance setting on the magic wand – moving it to the right, increasing the fuzziness, selects more pixels. The 'Localized Color Clusters' setting acts a bit like the Contiguous setting on the magic wand, restricting the sample to areas close to where you click.*

The downsides of this method are that after you've clicked on OK you can't go back and make changes in the same way that you can with an adjustment layer. You can, of course, undo the changes and re-do them from scratch but it's a bit of a faff. Also it doesn't work well for adding colour to white areas and the results can be unpredictable with greys and black.

## Filling a selection

As you'll realise by now, there are often a number of ways to do the same thing in Elements. To get similar results to the Replace Color command we could

- Make a selection,
- Add a new layer and
- Fill the selection with a new colour.
- Use one of the blending modes, such as Hue to blend the layers together.

The Replace Color command is a quicker option **if** it gives you the results you want.

## Gradients

We've looked briefly at gradients before but I'm going to revisit them here in more detail. We'll start by looking at the gradient tool/adjustment layer. The difference between the two is that the gradient adjustment layer allows you go back and make adjustments at any time should you wish to fine tune your effect.

A gradient simply adds a graduated layer of colour onto your image. Don't forget that you have options to select the colours and style of gradient you want to use. So, you might select 'foreground to transparency' or 'foreground to background', from the gradient picker on the left of the Options Bar, plus

'Linear' or 'Radial' from the Styles section. As you'll know by now I favour setting things like the blending mode and opacity on the layer rather than on the tool but there are the options to set these here if you wish.

*Tips:*

- *If you have the gradient tool selected in the tool bar then you can simply right click anywhere on your image to bring up the gradient picker.*
- *The points at which you start and stop when you are dragging a gradient will affect the end result. A shorter stroke will give you a more abrupt transition of colour than a longer one. You can actually start your stroke outside the image window to give a very soft transition of colour.*

There are numerous preset colour options that you can try out. A couple of favourites are 'copper' and 'violet/green/orange'. There are further gradient libraries in the drop down list accessed from the double arrow head on the gradient picker. You can also set up, and save for future use, your own gradient combinations.

To do this:

- Make sure the gradient tool is selected
- Click on Edit on the Options Bar – this brings up the gradient editor.
- The easiest next step is to select the nearest gradient to the one you want to create and edit it. You can
  - Change the colours by double clicking on the color stops below the editing bar and selecting a new colour.
  - You can add additional colours by clicking under the bar where you want the new colour to be, and then selecting the new colour.
  - You can also change the points where the colour transitions occur by dragging the color stops and/or the Color Midpoint (the little diamond) below the bar from side to side.
  - Two further settings you may wish to consider are Smoothness – which determines how smooth the transitions between the colours will be, 100% being the smoothest – and the gradient type. Here you have a choice of Solid or Noise. Solid is self-explanatory and Noise is, frankly, a bit weird. I'd never even looked at this option until I was doing the research for this tutorial so the effects you can achieve came as a bit of a (nice!) surprise.
- When you have the gradient as you wish, give it a name and click on New. This adds it **temporarily** to the **current** gradient set. To save it permanently (for future use) you need to Save it. Before you do anything else, consider which gradient set you are going to save it to. I like to put all my custom gradients into a custom set so that they are all together. So, click on Save. You'll be prompted to give your new set a name, then click on ok. This new set won't be available in the Gradient Picker until you have closed and re-opened Elements.

So the basic sequence is to create the gradient, click on New to make it temporarily available and then on Save to make it permanently available.

But there is something you need to be careful about. When you create a new custom gradient which you want to save, make sure you have the right gradient set active **BEFORE** you click on New and Save. Otherwise when you say yes to overwriting the existing custom set **all the custom gradients that have been saved into your custom set will be OVERWRITTEN with the contents of the active group plus the single new one!!**

- I usually have my custom gradient set active all the time rather than the default one. You can customise this by adding your own gradients as we've just seen but you can also take out any existing gradients that you don't like by right clicking on them to delete.

**Remember, you can apply a gradient to anything you can select.**

### **Gradient fill adjustment layer**

You add a gradient adjustment layer from the layers panel – don't confuse it with the gradient **map** adjustment layer, which we'll look at next.

This has the same facilities to select different gradients, gradient styles etc as before but you now have the option to go back and fine tune these at any point. You also have the options to change the opacity of the layer or to set an adjustment layer mask. You can revise these from the layers tutorials if you wish. You could also use a blending mode to blend the adjustment layer with the image.

### **Gradient map adjustment layer**

The last technique using gradients that I want to show you is a Gradient Map Adjustment layer. This is a lovely way to use gradients. For this, Elements analyses the tones in an image, the relative amounts of brightness and darkness, and then lets you allocate different colours from a gradient to each one. So, a gradient map adjustment layer maps selected colours to the shadows, midtones and highlights of an image. To do this

- Create a new Gradient Map adjustment layer from the Layers panel.
- Select the gradient you want to apply. If you want to edit the gradient, click inside the gradient bar to get the gradient editor
- As with the Gradient fill layer, you can select a blending mode to integrate your gradient map into the image and can also adjust the opacity of the adjustment layer to vary the intensity of the gradient map.

### **Some Shortcuts and Tips**

- The default colours for the background and foreground colours are black and white. To return to these quickly press the D on the keyboard (D for Default colours).
  
- **Fill any selection**
  - alt-backspace fills with the foreground colour
  - ctrl-backspace fills with the background colour
  
- You can set 'hue jitter' as an option on many brushes so they will use a mixture of the background and foreground colours.

### **Web site/app**

You might like to have a look at the following:

[http://www.xrite.com/custom\\_page.aspx?pageid=77&lang=en](http://www.xrite.com/custom_page.aspx?pageid=77&lang=en) - how good are you at judging colours visually.

<https://play.google.com/store/apps/details?id=com.macaw&hl=en> – this app generates a colour palette from a digital image.