

# Adding Colors and Backgrounds

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The HTML 4 Way gives you lots of ways to change the colors on your screen. You can change text colors, background colors, and background images for everything on the page, or on an element-by-element basis. This chapter explains how your screen renders colors and why no two monitors look alike. It also discusses color palettes — the color information an image sends — including a color-safe palette that renders properly on both PCs and Macs. Next, you learn about color compatibility and why it's wise to choose your colors and stick with them. You learn how to define a background color and text colors. Finally, you learn how to add a background graphic and to specify whether it repeats.

## How Your Monitor Creates Color

Computers use the RGB system to create colors. Don't be put off by another acronym; RGB stands for *Red-Green-Blue*. Basically, the computer can generate only red, green, or blue light. When it generates all three together, at full power, it produces white. When it generates none of them, it produces black. This is contrary to the way that artists think about color. White is usually the absence of color in art — but on your computer screen, white is what you get when you mix all the other colors together.

All information on your computer is passed in the form of binary data — a long string of ones and zeros — which is not a very useful way to convey information to people. A shorthand for the ones and zeros, *hexadecimal* (or *hex*) notation, offers



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people a way to discuss this information. The hexadecimal system assigns each digit a value between 0 and 15. The decimal system, the way we're used to counting, takes two digits to convey the numbers 10, 11, 12, 13, 14, and 15; hex substitutes letters for those six numbers. So, this is how you count from 0 to 15 in hex: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F. If you want to count to 16, it's like going from 9 to 10 in the decimal system; to go from 15 to 16 in the hex system, you introduce a new digit. That's where it gets confusing. If 15 is *F*, then you write 16 as 10 (pronounced "one-zero," *not ten*) in hex.

You frequently see numbers in hex like FF33A0. That might look like a foreign language, but it's far easier to work with than 111111110011001110100000, which translates to the same thing! Here's the good news: You won't have to do math in hex to add colors to your page.

## Introducing Color Codes

The computer projects color based on the intensity of red, green, and blue you tell it to provide. You tell it what intensity to provide by using *color codes* written in the hex system; you have already seen colors in this book defined in hex. In HTML, when you specify a color in hex, you need to precede the color code with a pound sign (#). Here are some easy ones: #000000 (no red, no green, no blue) is black; #FFFFFF (full-power red, full-power green, full-power blue) is white. Are you getting the hang of this? How about #FF0000? Red. #008000? Green. #0000FF? Blue.

## Using English

At this point, there's more good news: You needn't use color codes to define your colors. All the colors in the previous section actually have English names that HTML recognizes. The problem with using English color names is only 16 of them are guaranteed to work. They are listed in Table 28-1.

Table 28-1  
English Names for Colors

<i>Color Name</i>	<i>Hex Value</i>
Black	#000000
Green	#008000
Silver	#C0C0C0
Lime	#00FF00
Gray	#808080

<i>Color Name</i>	<i>Hex Value</i>
Olive	#808000
White	#FFFFFF
Yellow	#FFFF00
Maroon	#800000
Navy	#000080
Red	#FF0000
Blue	#0000FF
Purple	#800080
Teal	#008080
Fuchsia	#FF00FF
Aqua	#00FFFF

## Monitor-to-monitor variations

Have you ever noticed that a screen image you're used to seeing one way on your monitor renders in slightly different colors on another monitor? The reason is no absolute red exists in the computer world. There isn't even an absolute white. Depending on the tubes in your monitor, how old it is, how it is adjusted, and a few other things, white may be white, pinkish white, bluish white, greenish white, or just plain gray. Your eyes adjust to what they know ought to be white, but if you hold a white piece of paper up next to your monitor, you will see your monitor's idea of white probably isn't true white.

What does this mean to you as a designer? It means that although you want to select your colors carefully, you don't have control over how they render. You want to test them extensively on a number of different monitors — not just the same brand of monitor on ten different desks, although there will be a difference — but even on other platforms and brands of monitors.



Chapter 37 takes you through an explanation of bit depth that you may want to review before you select the colors for your site.

## Color Palettes

Remember opening that box of 64 crayons as a child? That was a color palette of 64. It didn't seem limiting at the time. You had blue, green-blue, blue-green, green, and 60 other colors to choose from. If you had to limit yourself to a 64-color palette for your Web site, though, you'd be terribly frustrated. Fortunately, nearly everyone

who visits your site with a browser that supports more than text is also likely to have a color monitor that supports at least 256 colors. Where does that number 256 come from? In the hex system, 100 (one-zero-zero) translates into 256 in the decimal system.

When you send information (such as a background image or information about the text color), you want to save time by using the palette on the visitor's system whenever possible, rather than sending another palette across the Web to the visitor's system. All computers have built-in color palettes — how convenient! — the only problem is that color palettes are not the same on all systems. A 256-color palette is available on both Macs and PCs, but only 216 of the colors are the same on both platforms. If you plan to use the built-in color palette on your visitors' computers, make sure your site is using a *color-safe* palette.



Tip

You can find the color-safe palette on the Web at [www.lynda.com/hex.html](http://www.lynda.com/hex.html), courtesy of Lynda Weinman.

## Color-Compatibility Considerations

When you choose the colors for your background, background images, text color, and headings colors, you want to be sure that you are selecting them all from the same palette. If you select colors across palettes, there are two problems. The first is you need to send more palette information over the Web than necessary, slowing your page's download time. The second is your colors might not match. Not every shade of blue goes with every shade of green. By keeping your color selection within a single palette, you are sure to avoid the problem of clashing shades, where some of your colors are considered warm, while others are considered cool.

## Defining a Background Color

You are finally ready to start defining colors for your page. You saw in the previous chapters that you can define colors in your style sheet. You can define a background color for each element on your page, but unless you are doing that for some instructional purpose, you probably don't want to do that. Under normal circumstances, you define a background color for your `BODY` element and just let inheritance do its job so that every other element on the page ends up with the same background color.

By including a declaration like the one here in your style sheet, you can set the background color for any element:

```
background-color: #00AAAA;          /* light aqua */
```

The important thing to remember is that the property is called *background-color*. If you are used to defining the background color directly in the `BODY` element, you are used to an attribute name of `bgcolor`.

## Changing Default Text Colors

You can use style sheets to set text colors, as well. The property name to remember is *color*. By setting the color property for the `BODY`, all other elements will inherit that color. You can, of course, change the color of the text for any element by including the color property in a declaration like the one in the following, in that element's style-sheet rule.

```
color: #FF33FF;          /* a loud shade of fuchsia */
```

You have already seen how text colors for links can be changed: You use the pseudo-elements related to the `A` element. In the style sheet that follows, the link color for links that have not yet been visited is yellow. The color for links that have been visited is gray; the color of the active link is blue. It sounds awful, but it wouldn't look bad if the background color were very dark.

```
A:link {
    color: yellow;
}
A:visited {
    color: gray;
}
A:active {
    color: blue;
}
```

## Adding a Background Graphic

HTML 4 does a great favor for Web visitors by helping Web designers curb their natural desire for flash. For the first time, you can add a background graphic to your page that does not tile. The default is for all background images to tile. This means any image you assign to be your background image automatically repeats itself until the screen is covered. This may or may not have been what you intended. If you aren't careful, the results can be horrendous.

Clever Web designers have always taken advantage of the tiling effect by specifying graphics that tile well, or tile invisibly, such as a marble effect, or clouds. An effect that can be stunning is creating a logo or the name of your company in a nice font and then using a graphics package — such as Photoshop — to emboss the image and then subduing the colors and letting that tile.

Adding a background image is a cinch in CSS:

```
BODY {
    background-color: white;
    background-image: url(../images/background.gif);
    background-repeat: no-repeat;
    background-attachment: scroll;
    background-position: top center;
}
```

A few things to note about these five background properties:

- ♦ **background-color.** This property determines the background color for your page. You want to make sure that the background color you select matches your background image color, if you have one.
- ♦ **background-image.** This property contains the URL of the background image. Notice that the URL is specified within parentheses with the keyword `url` preceding the parenthesis. This is how URLs are specified in CSS. You haven't seen this convention yet in this book.
- ♦ **background-repeat.** This property determines whether to repeat (that is, tile) the background image. Your choices are `repeat` (tile the way you are used to seeing background images tile), `repeat-x` (tile horizontally only), `repeat-y` (tile vertically only), or `no-repeat`.
- ♦ **background-attachment.** This property enables you to specify whether the background image moves with the text (that is, scrolls) or stays in one position relative to the page (remains fixed).
- ♦ **background-position.** You can specify two values for this property with a space between them: vertical position and horizontal position. You can specify them in terms of a percentage of the page, the distance on the page, or a keyword. All of the following are valid:

```
background-position: 10% 10%;
background-position: 1cm 3in;
background-position: top center;
background-position: 30% center;
```

As with font definitions, you can define background properties together in one property called `background`. The `background` property is defined by this code:

```
background: background-color background-image background-repeat
background-attachment background-position
```

In the following valid examples of the `background` property, notice `background-position` is actually two values; a complete list of all the background properties is actually six values long. As with all shortcuts, you needn't include all the values.

```
background: white url(../images/logo-faded.gif) no-repeat  
scroll center center;  
background: url(../images/logo-faded.gif) 2cm center;  
background: url(../images/logo-faded.gif) repeat-x fixed  
10% center;
```

## From Here



Jump to Chapter 37 and learn about bit depth in colors.

Proceed to Chapter 29 and learn about formatting paragraphs.

## Summary

In this chapter, you learned about how your computer creates colors from zeros and ones. You learned a little bit about the hexadecimal system and how you can use it to define colors. You also learned about palettes and where to find system-safe palettes. Finally, you learned how to apply all this information to define a background color, text colors, and a background image that doesn't tile.



