Let's Cross Platforms

A study of cross-platform issues with a focus on visual elements of web design

Rochester Institute of Technology

A Thesis submitted to the Faculty of
The College of Imaging Arts and Sciences
In Candidacy for the Degree of
Master of Fine Arts

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⌘ *Acknowledgement*

⌘Table of Contents

A study of cross-platform issues with a focus on visual elements of web design.

Different platforms and browsers render text and images differently. Therefore, web designers should know how to deal with these types of media. Many web designers use the Macintosh, and the majority of the users are on the PC.

This thesis project examines the visual elements of web design consisting of fonts, colors, and graphics and how they change between the PC and Mac. The two major browsers used by people to surf the web are Internet Explorer and Netscape Navigator and they also cause problems with consistency.

Resolution differences cause font problems. Knowing the default system resolution to specify with Cascading Style Sheets (CSS) can be a solution. Gamma and system palette differences between platforms cause color problems. Changing gamma settings is helpful to simulate other platforms for image correction. Using Web safe color, a standard for the web, is a solution for system palette differences. GIF and JPEG file formats are the most commonly used web graphic formats. If browsers support PNG format in the near future, designers can take advantage of it.

Testing often in target platforms and browsers and allowing enough time for any necessary change is the best solution. Test for as many variable as possible.

KEYWORDS: cross-platform, Web, font, color, graphic, browser, gamma, resolution, Macintosh, PC, CSS, GIF, JPEG, PNG

⌘ *Proposal*

The problem I am trying to solve is cross-platform differences in developing web sites within Macs and PCs. Many multimedia designers work on the Mac but the majority of users are on the PCs. So multimedia applications should be carefully prepared for the PC as well as Mac.

To solve the problem, I am first going to look up reference books, web sites and second, I will experiment in various ways based on research gathered. This will be done by visual elements of the web design such as font, color, and graphics.

The final output will be an informational application about solving cross-platform problems in the form of a web site because this kind of information should be updated frequently and is easily accessible to those who would benefit from the information the most.
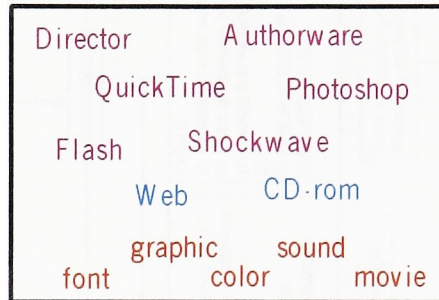
⌘ *Research*

The reason I chose this topic as my thesis project is that whenever I had a cross-platform problem during my course work, I could not find easy solutions. Even though there was a lot of information out there, it was actually not enough information for me. It was just raw data that was not easy to understand, because many of the solutions are not hands-on and are too technical. I needed to understand and interpret the information on my own in order to see how to solve the problem from a design perspective.

The first place I looked up information was on the Internet. I used it the most, because it was convenient and updated often. Unfortunately, because anyone can publish anything on the web the information was sometimes incorrect. In fact I got confused with a couple of topics, because sometimes authors had conflicting opinions on the same topic. In that case, I experimented with the ideas presented and made a decision. That means that the solutions in my thesis could be wrong and they should and will be updated.

When I proposed my thesis project, I included almost every element of multimedia (not only the web but also stand-alone media). As soon as I started my research, I realized that I was too ambitious. Fonts on the web alone can be an independent subject for a thesis. So I decided to focus on the visual elements on the web, which I thought more essential, because the web still depends on the narrow bandwidth and because it is a type of multimedia.

Director   Authorware
QuickTime   Photoshop
Flash   Shockwave
Web   CD·rom
graphic   sound
font   color   movie

1. Categorizing
I categorized elements into three main topics, --fonts, colors, and graphics and asked questions or addressed related subjects about problems that I have encountered during developing designs for the web.

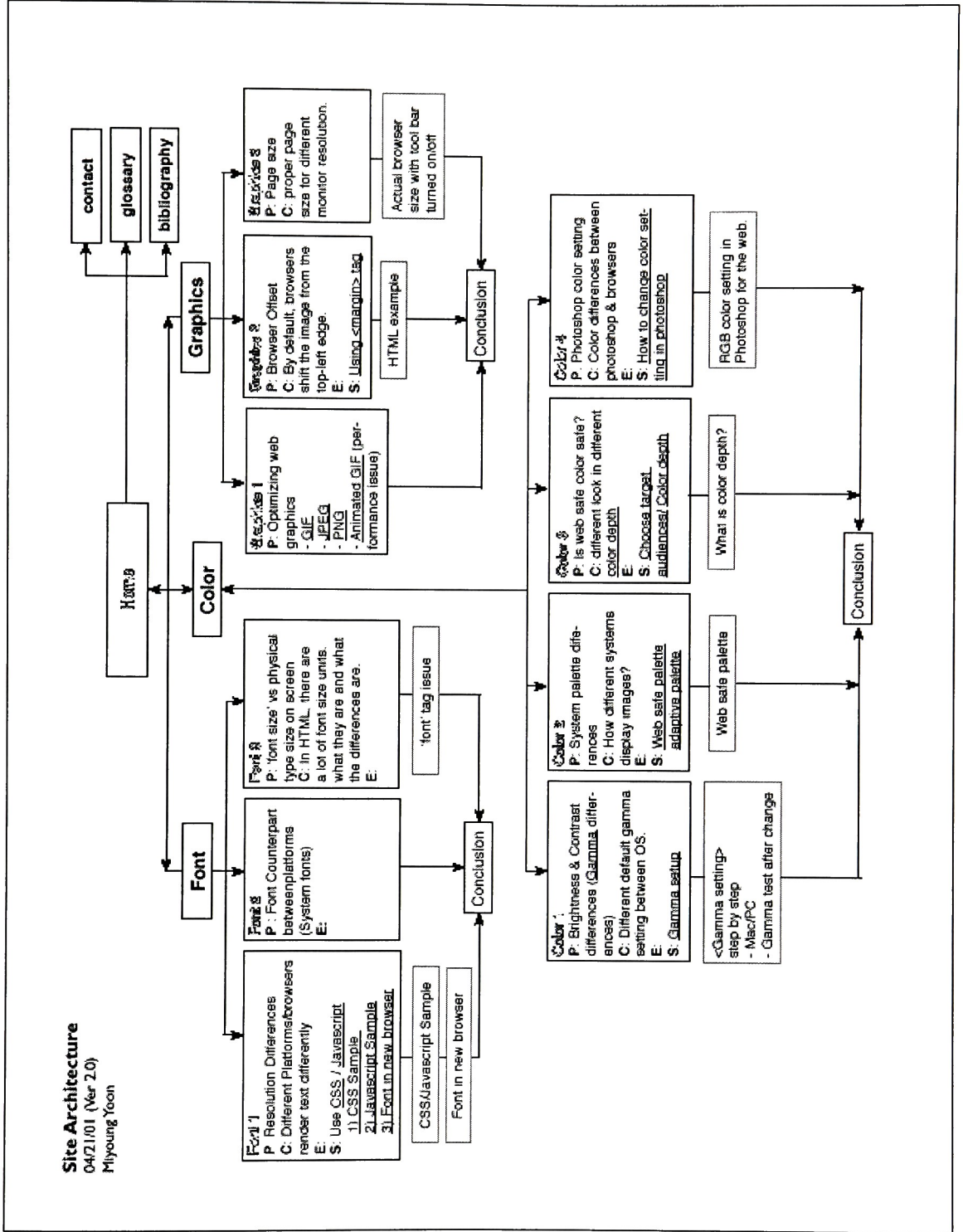Web — font · graphic · color
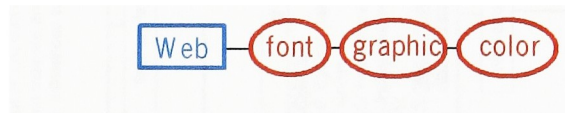
2. Example
I made graphical examples that explain the problem.
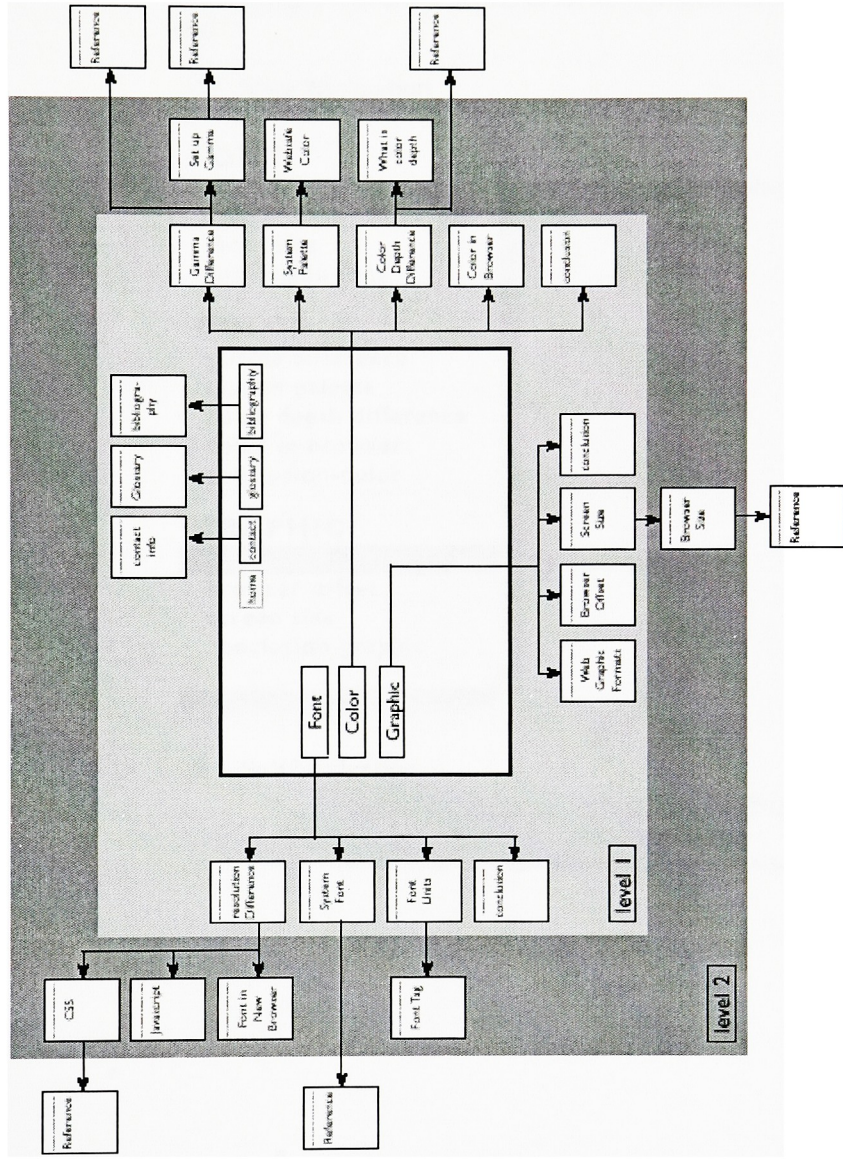
3. Solution
I suggested solutions, which I learned from research.

4. More Information
Since I wanted the page to have concise information, I made another page to explain the concept in depth.

⌘ *Site Architecture*

Site Architecture
04/21/01 (Ver 2.0)
Miyoung Yoon

contact

glossary

bibliography

Graphics

Home

Color

Font

Graphics 3
P: Page size
C: proper page size for different monitor resolution.

Actual browser size with tool bar turned on/off

Graphics 2
P: Browser Offset
C: By default, browsers shift the image from the top-left edge.
E:
S: Using <margin> tag

HTML example

Conclusion

Graphics 1
P: Optimizing web graphics
- GIF
- JPEG
- PNG
- Animated GIF (performance issue)

Color 4
P: Photoshop color setting
C: Color differences between photoshop & browsers
E:
S: How to change color setting in photoshop

RGB color setting in Photoshop for the web.

Color 3
P: Is web safe color safe?
C: different look in different color depth
E:
S: Choose target audiences/ Color depth

What is color depth?

Conclusion

Font 3
P: 'font size' vs physical type size on screen
C: In HTML, there are a lot of font size units. what they are and what the differences are.
E:

'font' tag issue

Color 2
P: System palette differences
C: How different systems display images?
E:
S: Web safe palette adaptive palette

Web safe palette

Font 2
P: Font Counterpart between platforms/browsers (System fonts)
E:

Conclusion

Color 1
P: Brightness & Contrast differences (Gamma differences)
C: Different default gamma setting between OS.
E:
S: Gamma setup

<Gamma setting>
step by step
- Mac/PC
- Gamma test after change

Font 1
P: Resolution Differences
C: Different Platforms/browsers render text differently
E:
S: Use CSS / Javascript
1) CSS Sample
2) Javascript Sample
3) Font in new browser

CSS/Javascript Sample

Font in new browser

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Flowchart

04-1-21-01

⌘ Navigation Design

This site has two navigation systems. The main menu (fonts, colors, and graphics) on the left and a sub menu (home, glossary, contact, and bibliography) on the top of every page. I let the users know where they are and where they can go in more than one way (HTML title bar and color change) and allow access to all navigation from every page of the site.

1. Main Navigation

FONT
☐ resolution difference   ◄ where you are going
   system font
   font units
   conclusion-font

COLOR
   gamma difference
   system palette
   color depth difference
   color in browser
   conclusion-color

GRAPHIC
   web graphic formats   ◄ where you are
   browser offset
   screen size
   conclusion-graphic

2. Sub Navigation

home   contact   glossary   bibliography

⌘ *Visual Theme*

1. Fonts
I chose Verdana for the contents typeface because it is designed for screen readability when it is small. I chose Gill Sans for the navigation text because it is easy to read and complements Verdana.
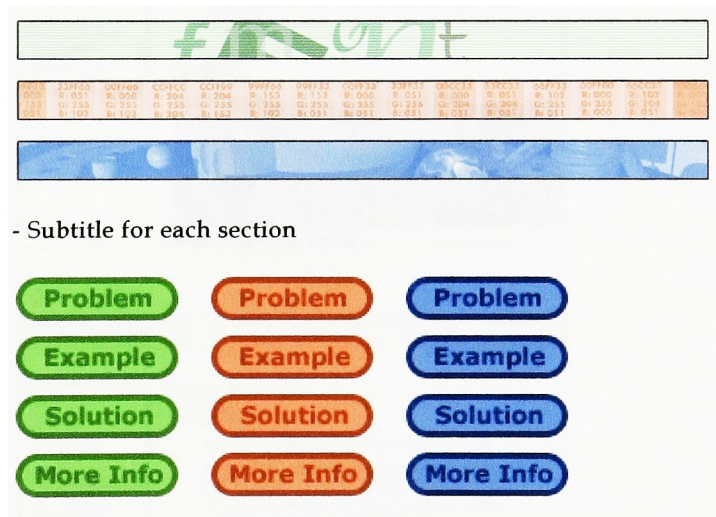
2. Colors
I used three (R,G and B) different color schemes for each main category, but tried to keep it simple using grayscale and mono tone color because I did not want my graphics to compete with the contents which contain a lot of colorful examples.

3. Graphics
I chose images that represent each topic and used in every page in the same position with the same size to be consistent.

- Subtitle for each section

⌘ *Prototype*

1. Intro

2. Fonts

3. Colors

4. Graphics

5. Contact/Glossary/Bibliography

• Subtitle Graphics

Many of the users tried to click on the subtitle graphics because they have a traditional button shape. The users found out soon that they are just graphics because there were no cursor changes nor image swapping. I would like to keep this feature even though it might be confusing because this coincides with the round shape of the user interface and this can be found easily.

• Link to Glossary Page

At first, I made a link to the Glossary Page to explain difficult terms in a new browser window. This can cause some confusion, because you can jump to any page from the Glossary Page too. Instead, I decided to make a small pop-up window instead of opening the Glossary Page in a new browser window.

Before
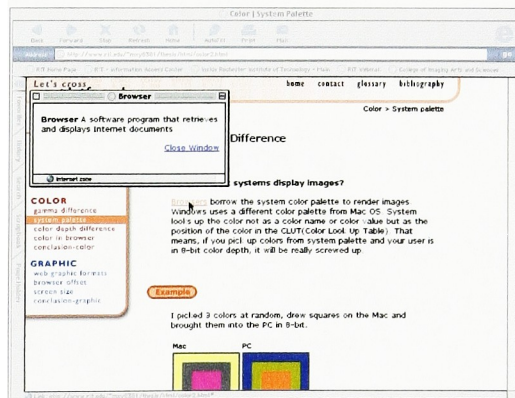
After

⌘ Conclusion

Developing the web site for cross-platform users is getting easier and easier because browser companies have given a good amount of effort to overcome the gap.

During the developmental process of the web site for my thesis project, I suffered from browser differences rather than platform differences. They do not seem to compromise with each other for their users. They only try to make their things fancy, innovative, and different. Even worse, they release NEW versions too often. I tried to cover cross-browser issues in my thesis as much as possible, but it is definitely another issue.

In the future, I would like to expand my research to cross-browser issues as well as other elements of the web design, such as audio and video.

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⌘ *Credits*

Software used
- Adobe Photoshop 6.0
- Macromedia Dreamweaver 3.0
- Macromedia Flash 4.0

Adobe Gamma The utility created by Adobe Systems, Incorporated for calibrating and characterizing your monitor, resulting in the creation of an ICC device profile for use in Adobe Photoshop, Adobe InDesign, Adobe Illustrator, and all other ICC-aware applications. For more information on Adobe Gamma, see the technical guide, "Using Adobe Gamma."

Adobe PostScript An object-oriented page description language developed by Adobe Systems, Incorporated. PostScript is widely used for pixel-based output devices (e.g., imagesetters).

Adobe RGB (1998) The RGB working space created by Adobe Systems, Incorporated that provides a fairly large gamut of colors and is well-suited for documents that will be converted to CMYK.

Animated GIF A GIF graphic file, which consists of two or more images shown in a timed sequence to give the effect of motion.

Bandwidth The capacity of a network to transmit data over a particular connection at a particular time, based on the weakest connection

Browser A software program that retrieves and displays Internet documents

Bitmap Image A graphic image stored as a specific arrangement of screen dots, or pixels. Web graphics are bitmap images. A graphic which is defined by specifying the colors of dots or pixels which make up the picture. Also known as raster graphics. Common types of bitmap graphics are GIF, JPEG, Photoshop, PCX, TIFF, Macintosh Paint, Microsoft Paint, BMP, PNG, FAX formats, and TGA.

Brightness (1) The amount of light reflected by a surface. (2) The intensity of a light source. (3) The luminance of a color.

CMYK Abbreviation for cyan, magenta, yellow, and black; the inks used in process printing. They represent the subtractive color model, where a combination of 100% of each component yields black and 0% of each yields white. Cyan, magenta, and yellow are the subtractive complements of red, green, and blue respectively.

Color depth The number of distinct colors that can be represented by a piece of hardware or software. Color depth is sometimes referred to as bit depth because it is directly related to the number of bits used for each pixel. A 24-bit video adapter, for example, has a color depth of 2 to the 24th power (about 16.7 million) colors. One would say that its color depth is 24 bits.

Compression A method of packing data in order to save disk storage space or download time. JPEGs are generally compressed graphics files. Compression is a technique to make a file or a data stream smaller for faster transmission or to take up less storage space.

CSS Stands for Cascading Style Sheet, a new feature of HTML developed by the W3C. With Cascading Style sheets, both web designers and end users can create style templates (sheet) that specifies how different text elements (paragraphs, headings, hyperlinks, etc.) appear on a web page. Currently, not all browsers support CSS.

dithering The technique by which the gap between two pixels is filled with another pixel. The color of the added pixel is an average of two on either side of it to visually smooth the result. Dithering is generally used when not enough colors are available.

DNS Stands for Domain Name System. The DNS translates URL text addresses (such as grantasticdesigns.com) into a numeric Internet address (such as 201.214.12.6).

Font A font is a complete set of characters in a particular size and style of type. This includes the letter set, the number set, and all of the special character and diacritical marks you get by pressing the shift, option, or command/control keys. For example, Times New Roman Bold Italic is one font, and Times New Roman Bold is another font. Times New Roman is a single typeface.

Gamma The values produced by a monitor from black to white are nonlinear. If you graph the values, they form a curve, not a straight line. Gamma defines the slope of that curve at halfway between black and white. Gamma adjustment compensates for the nonlinear tonal reproduction of output devices such as monitor tubes. Gray Gamma 1.8 matches the default grayscale display of Mac OS computers. Gray Gamma 2.2 matches the default grayscale display of Windows computers.

GIF Acronym for Graphics Interchange Format; a commonly used graphic file format (e.g., for Web pages) developed by Compuserve, Inc. that can be either 1-bit or 8-bit, rendering from 2 to 256 colors or shades of gray.

Hexadecimal A numbering system which uses a base of 16. The first ten digits are 0-9 and the next six are A-F. Hexadecimal numbers are used to color web pages. For example, the hexadecimal equivalent for the color white is #FFFFFF.

HTML Stands for Hypertext Markup Language; a cross-platform text-formatting system for creating web pages, including copy, images, sounds, frames, animation and more.

Hyperlink A hyperlink, more commonly called a link, is an electronic connection between one web page to either (1) other web pages on the same website, or (2) web pages located on another website. More specifically, a hyperlink is a connection between one page of a hypertext document to another.

Hypertext Hypertext is any text that can be chosen by a reader and which causes another document to be retrieved and displayed.

Interlace Storing partial data from a single graphic image in multiple

sequences. The purpose of interlacing is to have a partial image initially appear on screen rather than having to wait for the image to appear in its entirety. With interlacing, equally spaced sets of lines from the original image are stored together, and these sets appear one on top of the other in sequence.

JavaScript JavaScript is a scripting language developed by Netscape. JavaScript can make web pages more animated and dynamic in terms of graphics and navigation. One of the most common graphic JavaScript effects is called a mouseover, and JavaScript navigation is commonly created using drop-down menus.

JPEG Acronym for Joint Photographic Experts Group. Commonly used to indicate a pixel-based graphic file format, JPEG is actually a compression method used mostly for continuous tone images.

Lossless Compression In graphic design, lossless compression refers to a data compression technique where the file quality is preserved and no data is lost. Lossless compression is commonly used on GIF images, but can only reduce file size to about half of its original size. Lossy compression, by contrast, eliminates some data can further decrease file size.

Lossy Compression A term coined by graphics programmers to refer to a technique of shrinking file sizes by giving away some precision of detail. JPEG is an example of a file that is compressed this way. By reducing the so-called quality of a picture when you save it, you can make the file size smaller. Many photos can take of loss of fine detail before it becomes noticeable on a web page.

Meta-tag Meta-tags are HTML tags that can be used to identify the creator of a web page, what HTML specifications a web page follows, the keywords and description of the page, etc. The most common use of a meta-tag in online marketing is the keyword and description tags, which tell the search engines that index meta-tags what description to use in their search query results.

Pica: A unit of measurement traditionally equal to about 1/6 inch. (In some modern typesetting systems, a pica is treated as exactly 1/6 inch.) There are 12 points to a pica.

Plug-ins Additions to a software program that are installed at a later date to provide more functions

PNG Sands for Portable Network Graphics format. PNG is used for lossless compression and displaying images on the web. The advantages of PNG is that it supports images with millions of colors and produces background transparency without jagged edges. The disadvantages are that PNG images will not show up on older browsers, and still can be comparatively larger in file size than GIFs.

Point: A unit of measurement, often used to measure type size, equal to 0.013837 inch. Some modern typesetting systems consider the point to be 1/72 of an inch, or 0.013888... inch.

Ray Tracing a method that allows you to create stunning photo-realistic images on a computer.

RGB Abbreviation for red, green, blue; the colors used in displays and input devices. They represents the additive color model, where 0% of each component yields black and 100% of each component yields white. Red, green and blue are the additive complements of cyan, magenta, and yellow respectively.

Sans Serif A style of typeface that means "without feet." Common serif typefaces include Arial, Helvetica, AvantGarde and Verdana. The following graphic image shows sans serif typefaces the color intensity of an image. An image high in saturation will appear to be very bright. An image low in saturation will appear to be duller and more neutral. An image without any saturation is also referred to as a grayscale image.

Saturation The color intensity of an image. An image high in saturation will appear to be very bright. An image low in saturation will appear to be duller and more neutral. An image without any saturation is also referred to as a grayscale image.

Screen Font A part of the font suitcase (of Adobe Type 1 fonts), describes the shape of each character to the operating system so that the font can be seen onscreen.

Search Engine A search engines is a program that searches documents (i.e. web pages, which are HTML-documents) for specified keywords and returns the list of documents. A search engine has two parts, a spider and an indexer. The spider is the program that fetches the documents, and the indexer reads the documents and creates an index based on the words or ideas contained in each document.

Serif A style of typeface that has "little feet." Common serif typefaces include Times Roman, Garamond, and Palatino. The following graphic image shows serif typefaces.

TIFF Acronym for Tag Image File Format; the graphics file format first released by Aldus Corporation in 1986. TIFF is the standard file format used for most digital imaging programs. TIFF is a highly extensible format that allows image data to be tagged with additional information through an image file directory (IFD) which contains header-type information without actually being a part of the file's header. TIFF can be used for black-and-white, grayscale, RGB, and CMYK images. TIFF can be uncompressed or may use any of a variety of compression methods, though TIFF most commonly uses LZW compression.

Typeface A typeface contains a series of fonts. For example, the typeface Arial contains the fonts Arial, Arial Bold, Arial Italic and Arial Bold Italic.

URL URL stands for Uniform Resource Locator and is an address referring to an HTML document on the Internet. In other words, it is the address of your website on the Internet. The syntax of a URL consists of three elements:
* the protocol, or the communication language, that the URL uses;

* the domain name, or the exclusive name that identifies a website; and
* the pathname of the file to be retrieved, usually an HTML document.

Vector Graphic A graphic image drawn in shapes and lines, called paths. Images created in Illustrator and Freehand (graphic design software) are vector graphics. They are usually exported to be bitmap images.

Web site or Website A website is a collection of electronic pages formatted in HTML (Hypertext Markup Language) that can contain text, graphic images, and multimedia effects such as sound files, video and/or animation files, and other programming elements such as Java and JavaScript.

white point How the color white is reproduced. On a monitor, the white point is the combination of all three red, green, and blue phosphors at full intensity as measured by its color temperature in Kelvin. It is necessary as a reference point in calibration and characterization.

WYSIWYG Those who remember "The Flip Wilson Show" will remember one of the actor's personas, Geraldine, who frequently spouted the line, "What you see is what you get!" Apparently, "she" said that line often enough for it to become ingrained in the minds of early Windows programmers. Pronounced "whiz-zee-wig," the phrase's use in computers refers to the ability of a program to display fonts and other document formatting exactly as they will look when printed. In early Windows-based software, "WYSIWYG" programs were the exception rather than the rule.

< Resources >

Adobe Systems Incorporated, *"Glossary of color management terms"* (http://www.adobe.com:82/support/techguides/color/cms_glossary/main.html)
- Grantastic Design, *"Glossary of graphics design and web page design terms"* (http://www.grantasticdesigns.com/glossary.html)
Weisblatt, Adam, *"Grossary surfing"* Art of Ideas (http://www.artofideas.com)

⌘ *Contact Information*

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- Portfolio : http://www.HarrierStudio.com

⌘ *Thesis Project*   http://www.rit.edu/~mxy8381/thesis/html/index.html

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@ Miyoung's thesis project

Back | Forward | Stop | Refresh | Home | AutoFill | Print | Mail

Address: @ http://www.rit.edu/~mxy8381/thesis/html/index.html   › go

Let's cross _platforms!_   home   contact   glossary   bibliography

Font

Color

Graphic

Click on the subject that you are interested in.

[Thesis Project]

A study on cross-platform issues with a focus on visual elements of the web design

This is a thesis project of an MFA candidate in Computer Graphics Design at Rochester Institute of Technology.

Over the last few years, because of the development of multimedia manipulation software, cross-platform authoring has been easier and simpler. What happened to the web? The advent of well-developed WYSIWYG (What you see is what you get) editors allow the designer to publish the web site easily without complicated HTML coding. But because of the nature of HTML – not for presentation but for structure- and differences between platforms and browsers, designers need to make more subtle adjustment for qualified web design.

I focused on visual elements of the web design in this study, because even though many of the web site have included audio and video media, visual media seems to be more important because the web still depends on the narrow bandwidth.

Thank you for visiting my thesis site. If you have any questions or comments, please email me.

Internet zone

Back Forward Stop Refresh Home AutoFill Print Mail

Address: @ http://www.rit.edu/~mxy8381/thesis/html/font1.html › go

Let's cross platforms!

home   contact   glossary   bibliography

Font > Resolution Difference

Resolution Differences between Platforms

Problem

Different platforms/browsers render text differently.

Many web designers who use Mac experience a change in text size when viewed on a PC. On the flipside, Mac users encounter smaller text sizes in web page that were designed on a PC. What's the matter with the font? It's because Windows renders fonts at 96 dpi, whereas the Mac OS renders the same font at 72 dpi. For example, this means that the same size fonts on a Mac will look about 33% bigger (72/96) on Windows.

Example

Dreamweaver 3.0 Mac   Dreamweaver 3.0 PC

Internet Explorer 4.0 Mac   Internet Explorer 4.0 PC

Netscape Navigator 4.0 Mac   Netscape Navigator 4.0 PC

Internet zone

Address: http://www.rit.edu/~mxy8381/thesis/html/font1.html

Internet Explorer 5.0 Mac

Internet Explorer 5.0 PC

Netscape Navigator 6.0 Mac

Netscape Navigator 6.0 PC

Solution

Use CSS (Cascading Style Sheets) to set up a style for each browser/platform and some Javascript to detect the browser/platform.

Assume that the users have a default setting for their browser. If not, my suggested solution for the problem might not work at all.

More Info

CSS sample

Javascript sample

Resolution Change in New browsers

TOP

Internet zone

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Back Forward Stop Refresh Home AutoFill Print Mail

Address: @ http://www.rit.edu/~mxy8381/thesis/html/css.html › go

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Font > Resolution difference > CSS Example

FONT
resolution difference
system font
font units
conclusion-font

COLOR
gamma difference
system palette
color depth difference
color in browser
conclusion-color

GRAPHIC
web graphic formats
browser offset
screen size
conclusion-graphic

CSS Example

1. Make different CSS files.
2. Link externally from your HTML file.

Example

Here is the CSS code. I focused on designing a consistant font size for both platforms and browsers.

[mac.css] for Mac IE 4.x and NS 4.0 or earlier

```
p {font:12pt Verdana, Arial, Helvetica, sans-serif}
H2 {font:bold 14pt Verdana, Arial, Helvetica, sans-serif}
p.small {font: 10pt Verdana, Arial, Helvetica, sans-serif}
p.gray {font: 10pt Verdana, Arial, Helvetica, sans-serif; color:#666666}
```

[macns6.css] for Mac IE 5.0 and NS 6.0

```
p {font:10pt Verdana, Arial, Helvetica, sans-serif}
H2 {font:bold 12pt Verdana, Arial, Helvetica, sans-serif}
p.small {font: 8pt Verdana, Arial, Helvetica, sans-serif}
p.gray {font: 8pt Verdana, Arial, Helvetica, sans-serif; color:#666666}
```

[win.css] fon Windows

```
p {font:10pt/12pt "Verdana", "Arial", "Helvetica", "sans-serif"}
H2 {font:bold 12pt Verdana, Arial, Helvetica, sans-serif}
p.small {font: 8pt Verdana, Arial, Helvetica, sans-serif}
p.gray {font: 8pt Verdana, Arial, Helvetica, sans-serif; color:#666666}
```

More Info

Cascading Style Sheets Home Page

W3Schools.com

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Address: http://www.rit.edu/~mxy8381/thesis/html/javas.html

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Font > Resolution difference > Javascript Example

JavaScript Example

1. Make a text file that includes the code below and call it '*.js'

2. In the <HEAD> tag, copy this.
<script src="*.js"> </script>

```
<Script language = "JavaScript">

<!--
//----- PLATFORM DETCTION -----//
var agt=navigator.userAgent.toLowerCase();
var appVer = navigator.appVersion.toLowerCase();
var is_minor = parseFloat(appVer);
var is_major = parseInt(is_minor);
var is_win = ((agt.indexOf("win")!=-1) || (agt.indexOf("16bit")!=-1));
var is_win95 = ((agt.indexOf("win95")!=-1) || (agt.indexOf("windows 95")!=-1));
var is_win16 = ((agt.indexOf("win16")!=-1) || (agt.indexOf("16bit")!=-1) ||
(agt.indexOf("windows 3.1")!=-1) || (agt.indexOf("windows 16-bit")!=-1) );
var is_win31 = ((agt.indexOf("windows 3.1")!=-1) || (agt.indexOf("win16")!=-1) ||
(agt.indexOf("windows 16-bit")!=-1));
var is_win98 = ((agt.indexOf("win98")!=-1) || (agt.indexOf("windows 98")!=-1));
var is_winnt = ((agt.indexOf("winnt")!=-1) || (agt.indexOf("windows nt")!=-1));
var is_win32 = (is_win95 || is_winnt || is_win98 || ((is_major >= 4) &&
(navigator.platform == "Win32")) || (agt.indexOf("win32")!=-1) ||
(agt.indexOf("32bit")!=-1));
var is_mac = (agt.indexOf("mac")!=-1);
var is_mac68k = (is_mac && ((agt.indexOf("68k")!=-1) || (agt.indexOf("68000")!=-
1)));
var is_macppc = (is_mac && ((agt.indexOf("ppc")!=-1) || (agt.indexOf("powerpc")!=
-1)));

//----- BROWSER DETECTION -----//
var IE4 = (document.all && !document.getElementById) ? true : false;
var NS4 = (document.layers) ? true : false;
var IE5 = (document.all && document.getElementById) ? true : false;
var NS6 = (document.getElementById && !document.all) ? true : false;

//----- LINK TO EACH CSS FILE -----//
if (is_mac && NS6) document.writeln('<LINK rel="stylesheet" type="text/css" href=
"macns6.css">');
else if (is_mac && (NS4 || IE4))document.writeln('<LINK rel="stylesheet" type=
"text/css" href="mac.css">');
else document.writeln('<LINK="stylesheet" type="text/css" href="winie5.css">');
//-->

</Script>
```

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Address: @ http://www.rit.edu/~mxy8381/thesis/html/morefont.html › go

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Font > Resolution difference > Font in new browser

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Font in New Web Browsers

On a Mac, Internet Explorer 5.X and Netscape Navigator 6.0 have default resolution settings of 96 dpi. It seems to be moving toward Windows. What does that mean to us? This means that you will see same - not the exact same, but almost the same - size of text across the platforms and browsers.

Internet Explorer 5.0 Preference

Netscape 6.0 Preference

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Address: http://www.rit.edu/~mxy8381/thesis/html/morefont.html go

One of the most important factors regarding fonts on the web is that the user always has control. Even though designers develop pages for every single occasion (Windows-Mac OS-each version of Internet Explorer and Netscape Navigator), it can be overridden.

But one thing you need to remember is that each browser treats space between paragraphs very differently. If you take a look at the same page in Internet Explorer 4.0 and in Internet Explorer 5.0 with 72 dpi resolution setting, they render font at the same size, but they end up looking different because of the spaces.

IE 4.0	IE 5.0 (72dpi)
Font Size Test Font Size Test **Font Size Test** **Font Size Test**	Font Size Test Font Size Test **Font Size Test** **Font Size Test**

Guess how much they will look different in different browsers and platforms. Please test this in as many browsers and platforms as possible.

For your reference, here is a statistics on population of browser usage.

TOP
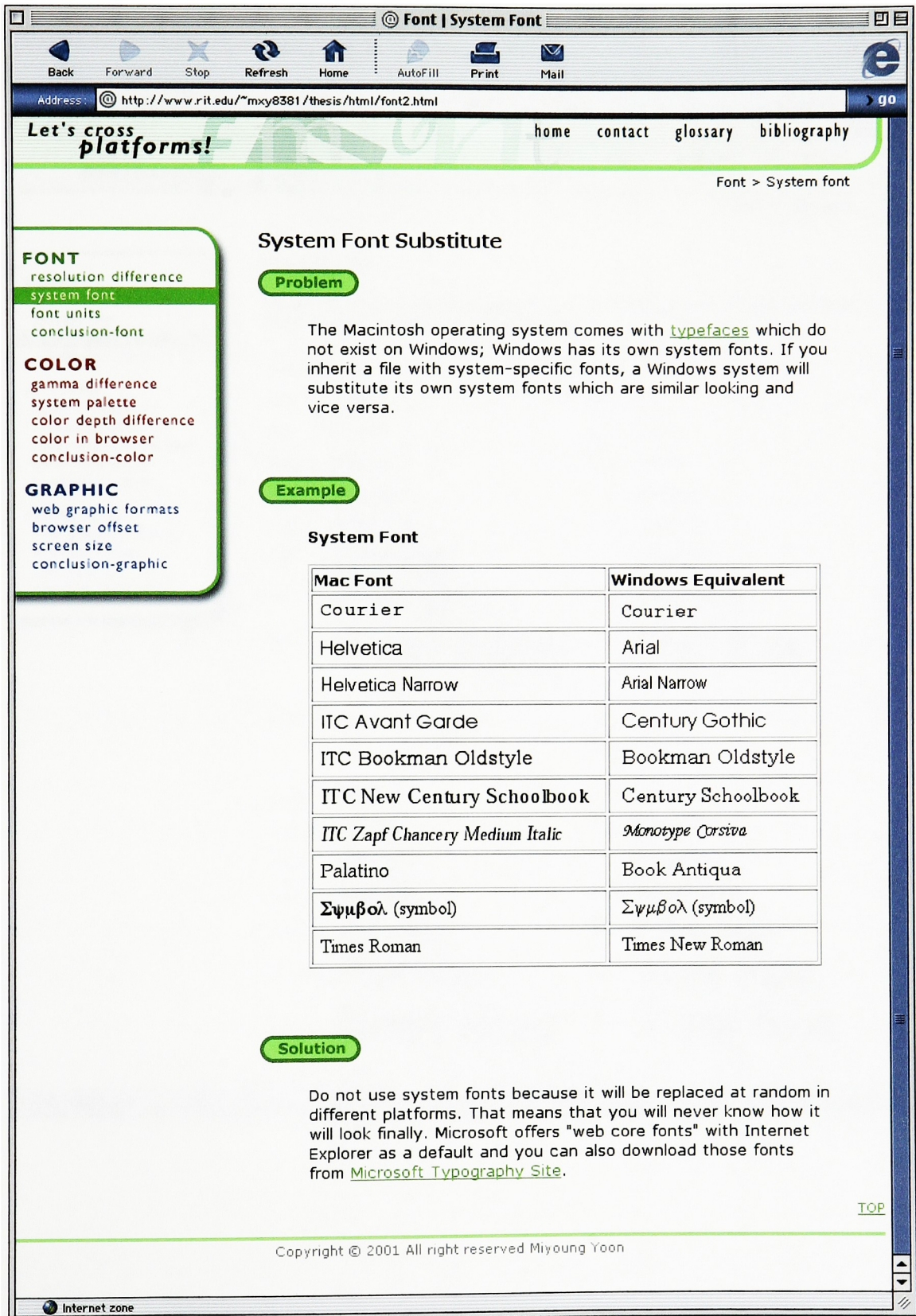
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System Font Substitute

Problem

The Macintosh operating system comes with typefaces which do not exist on Windows; Windows has its own system fonts. If you inherit a file with system-specific fonts, a Windows system will substitute its own system fonts which are similar looking and vice versa.

Example

System Font

Mac Font	Windows Equivalent
Courier	Courier
Helvetica	Arial
Helvetica Narrow	Arial Narrow
ITC Avant Garde	Century Gothic
ITC Bookman Oldstyle	Bookman Oldstyle
ITC New Century Schoolbook	Century Schoolbook
ITC Zapf Chancery Medium Italic	Monotype Corsiva
Palatino	Book Antiqua
Σψμβολ (symbol)	Σψμβολ (symbol)
Times Roman	Times New Roman

Solution

Do not use system fonts because it will be replaced at random in different platforms. That means that you will never know how it will look finally. Microsoft offers "web core fonts" with Internet Explorer as a default and you can also download those fonts from Microsoft Typography Site.

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Address: http://www.rit.edu/~mxy8381/thesis/html/font3.html

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Font > Font units

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Font Units

There is a diverse selection of font units in HTML. Below are common font units showing a different sense of size.

Point

6pt Font Size
8pt Font Size
10pt Font Size
12pt Font Size
14pt Font Size
18pt Font Size
24pt Font Size
36pt Font Size

Pixel

6px Font Size
8px Font Size
10px Font Size
12px Font Size
14px Font Size
18px Font Size
24px Font Size
36px Font Size

Font-size

xx-small Font Size
x-small Font Size
small   Font Size
medium   Font Size
large   Font Size
x-large Font Size
xx-large Font Size

cm

0.2cm Font Size
0.3cm Font Size
0.4cm Font Size
0.5cm Font Size
0.6cm Font Size
0.8cm Font Size
1.0cm Font Size
1.2cm Font Size

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CSS Units

Unit	Description
%	a percentage of something
in	inch
cm	centimeter
mm	millimeter
em	one em is equal to the font size of current element
ex	one ex is the x-height of a font, the x-height is usually about half the font-size
pt	point (1pt is the same as 1.72 inch)
pc	pica (1pc is the same as 12 points)
px	pixels (a dot on the computer screen)

More Info

Font Tag or CSS?

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The <font> Tag Should NOT be Used

The <font> tag is deprecated in the latest versions of HTML (HTML 4 and XHTML).

The World Wide Web Consortium (W3C) has removed the <font> tag from its recommendations.
In future versions of HTML, style sheets (CSS) will be used to define the layout and display properties of HTML elements.

The Right Way to Do It - With Styles

```
<html>
<body>
<h1 style="font-family:verdana;font-size:18pt;color:blue">A heading</h1>
<p style="font-family:courier;font-size:12pt;color:red>A paragraph</p>
</body>
</html>
```

Display Result
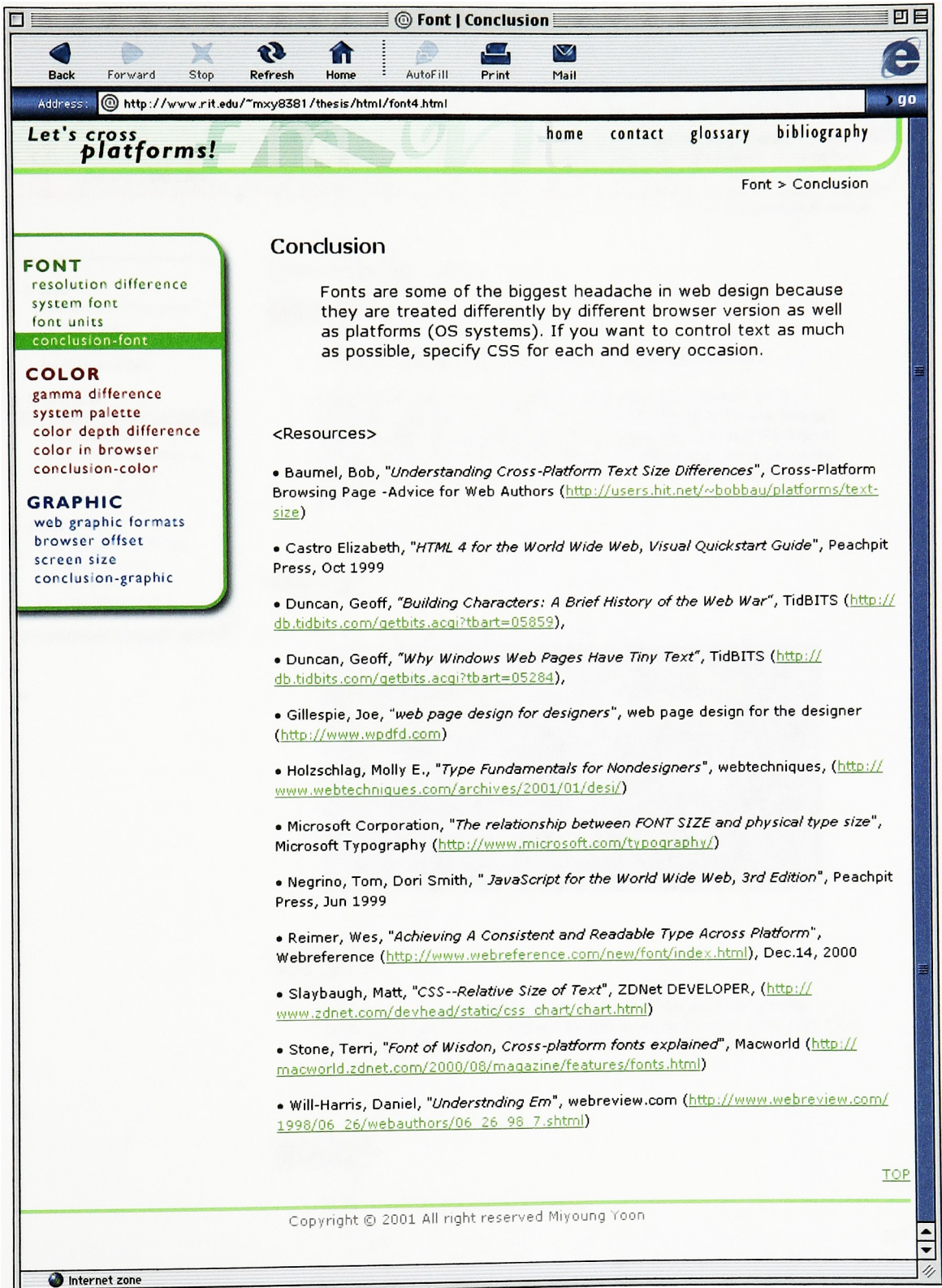
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Address: http://www.rit.edu/~mxy8381/thesis/html/font4.html

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Font > Conclusion

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Conclusion

Fonts are some of the biggest headache in web design because they are treated differently by different browser version as well as platforms (OS systems). If you want to control text as much as possible, specify CSS for each and every occasion.

<Resources>

• Baumel, Bob, *"Understanding Cross-Platform Text Size Differences"*, Cross-Platform Browsing Page -Advice for Web Authors (http://users.hit.net/~bobbau/platforms/text-size)

• Castro Elizabeth, *"HTML 4 for the World Wide Web, Visual Quickstart Guide"*, Peachpit Press, Oct 1999

• Duncan, Geoff, *"Building Characters: A Brief History of the Web War"*, TidBITS (http://db.tidbits.com/getbits.acgi?tbart=05859),

• Duncan, Geoff, *"Why Windows Web Pages Have Tiny Text"*, TidBITS (http://db.tidbits.com/getbits.acgi?tbart=05284),

• Gillespie, Joe, *"web page design for designers"*, web page design for the designer (http://www.wpdfd.com)

• Holzschlag, Molly E., *"Type Fundamentals for Nondesigners"*, webtechniques, (http://www.webtechniques.com/archives/2001/01/desi/)

• Microsoft Corporation, *"The relationship between FONT SIZE and physical type size"*, Microsoft Typography (http://www.microsoft.com/typography/)

• Negrino, Tom, Dori Smith, *" JavaScript for the World Wide Web, 3rd Edition"*, Peachpit Press, Jun 1999

• Reimer, Wes, *"Achieving A Consistent and Readable Type Across Platform"*, Webreference (http://www.webreference.com/new/font/index.html), Dec.14, 2000

• Slaybaugh, Matt, *"CSS--Relative Size of Text"*, ZDNet DEVELOPER, (http://www.zdnet.com/devhead/static/css_chart/chart.html)

• Stone, Terri, *"Font of Wisdon, Cross-platform fonts explained"*, Macworld (http://macworld.zdnet.com/2000/08/magazine/features/fonts.html)

• Will-Harris, Daniel, *"Understnding Em"*, webreview.com (http://www.webreview.com/1998/06_26/webauthors/06_26_98_7.shtml)

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Gamma Difference

Problem

Images look darker or brighter in different systems.

Sometimes, web sites designed on a Mac look darker on a
Windows system and vice versa. What's wrong with the image?
Nothing. Mac has a default Gamma setting of 1.8 and PC has a
gamma of 2.5, which is the same as a television. So if you bring
an image to a Mac which looks good on Windows, it will look
pale.

Example

Mac   PC

Solution

Simulate the other platform by changing the system gamma
setting. There is no standard target gamma for the web, but The
World Wide Web Consortium (W3C) recommends a gamma of 2.2
for the web.

More Info

How to change Gamma settings?

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Color > Gamma Difference > System Gamma Setting

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How to change Gamma Setting

1. Before You Begin
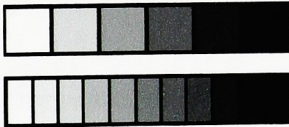
(This information is taken from adobe.com)

- Make sure your monitor has been turned on for at least half an hour so its display has stabilized.

- Set the room lighting at the level you plan to maintain.

- Turn off any desktop patterns and change the background color on your monitor to a light gray. This prevents the background color from interfering with your color perception and helps you adjust the display to a neutral gray. (For more on how to do this, refer to the manual for your operating system.)

- Set the white point of your monitor. 6500K (D65) is a good choice. This is a hardware adjustment, and how you do it depends on the monitor you are using. Most monitors have a control panel. Most monitors default to a white point at 9300K, which is too bright for accurate color work. Unless the white point of your monitor matches what you set it to in Adobe Gamma, you will not get good results from your color-managed workflow.

2. Setting Adobe Gamma Step by Step

3. Final Check

(This information is taken from 'Web Page Design for Designer' by Joe Gillespie)

As a final check that your monitor gamma is correct, here are two gray scale wedges. The upper one contains just the 6 neutrals from the Web safe palette. If you can't distinguish each square clearly, then you have serious problems.

The second scale has an intermediate step added between each of the Websafe neutrals, so they increase in 10% steps instead of 20%. You should be able to see each of the grays distinctly and they should be evenly spaced in tone. If the dark grays all look black or the light ones all look the same, your monitor needs to be calibrated.

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Address: ◎ http://www.rit.edu/~mxy8381/thesis/html/websafe.html   ▸ go

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Color > System palette > Web safe color

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Web Safe Color

The 216-color palette for the Web is a combination of 6 red, 6 green, and 6 blue values. Those values are 0, 51, 102, 153, 204, and 255 or may be given in 'hexadecimal' form which is for the HTML (00, 33, 66, 99, CC, and FF). In HTML, you can refer to color with combination of each root color (RG and B) value.

#0033FF
↗ ↑ ↖
red green blue

These values are picked out of an array of 256 values of each color by mathematical way which has consistent spacing. The remaining 40 colors vary on Macs and PCs.

It is the actual palette that browsers use whth in their browser, but they are a little different on Macs and PCs.

* The above color palette was taken from "Web Page Design for Designer by Joe Gillespie"

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Is Web Safe Color really safe

Problem

Yes and No. It is safe only in 256 color or 24-bit (millions of colors) color depth. It is not safe in 16-bit (thousands color) setting.

The Web Safe Color is a subset of 256 color which is a subset of 24-bit color. Web Safe Color and 16-bit color do not have any overlapped colors. That means if you have an HTML coded background color and same color image in 16-bit, the system automatically will shift background color to the closest color in its palette.

Example

The following images are made by bringing a square colored with #000033 in Photoshop into an HTML file which has #000033 as a background color. I took screen shots of the image in 8-bit, 16-bit and 24-bit. Can you see a ghost square inside in 16-bit image?

8bit   16bit   24bit

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Address: http://www.rit.edu/~mxy8381/thesis/html/color3.html　› go

Solution

This is a tradeoff. You should decide who will be your audience.
By Websnapshot.com, more than half (56.6%) of the web users are in a 16-bit setting.

- If you are targeting these people, make a one by one pixel image with same color and use as a background image instead of HTML background color tag. But it takes some time to load in Netscape Navigator 4.0 and 6.0 on a Mac.
- Or if you do not think the ghost color above will bother you at all, just never mind.

- 65,536 (16-bit) 56.6%
- 16 million (32-bit) 24.0%
- 16 million (24-bit) 10.2%
- 256 (8-bit) 8.9%
- 16 (4-bit) 0.2%
- Everything else 0.0%

* by WebsSnapshot.com, Nov. 2000

More Info

What is color depth (bit depth)?

Related article :"Death of the Websafe Color Palette?"

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Address: http://www.rit.edu/~mxy8381/thesis/html/colordepth.html   › go

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Color > Color Depth Difference > Color Depth

What is Color Depth?

Usually, color depth and bit depth mean the same because color depth is expressed in 'bits.' Bit depth can refer to the number of colors in an image or the number of colors a computer system is capable of displaying. The lower the bit depth, the lower the quality and the lower the file size.

32 bit	16.7 + million colors + 8bit (256color) grayscale mask	**6 bit**	64 colors
24 bit	16.7 + million colors	**5 bit**	32 colors
16 bit	65.5 thousand colors	**4 bit**	16 colors
15 bit	32.8 thousand colors	**3 bit**	8 colors
8 bit	256 colors	**2 bit**	4 colors
7 bit	128 colors	**1 bit**	2 colors

8bit (27KB)
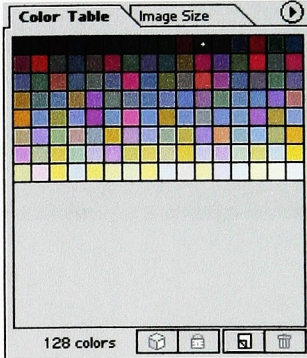
Color Table \ Image Size

256 colors

7bit (21KB)

Color Table \ Image Size

128 colors
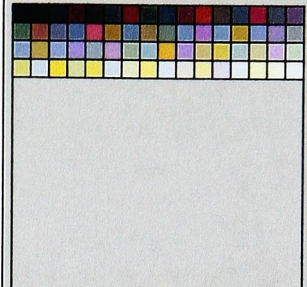
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6bit (16KB)

Color Table | Image Size
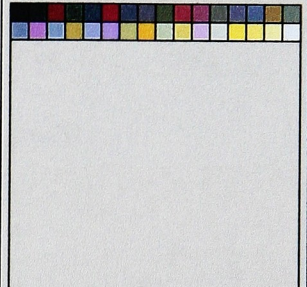
64 colors

5bit (12KB)

Color Table | Image Size
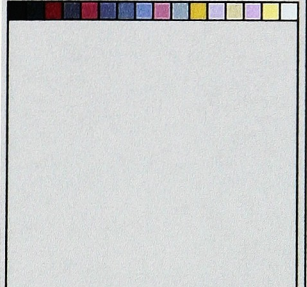
32 colors

4bit (11KB)

Color Table | Image Size

16 colors

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3bit (7KB)

Color Table \ Image Size

8 colors

2bit (6KB)

Color Table \ Image Size

4 colors

1bit(4KB)

Color Table \ Image Size

2 colors

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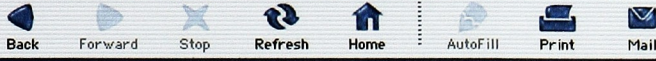
Address: @ http://www.rit.edu/~mxy8381/thesis/html/color4.html › go

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Color Difference between Photoshop and Browser

Problem

Images look different in Photoshop and in Browser.

Images in Photoshop look darker(on Mac) or brighter(on PC) in browser. That is because Photoshop has a default gamma setting of 2.2 which is recommended for the cross-platform web by W3C (World Wide Web Consortium) but different browsers use their own system Gamma setting.

Example

Mac - Browser
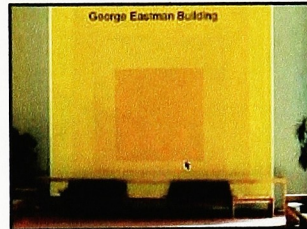
Mac - Photoshop
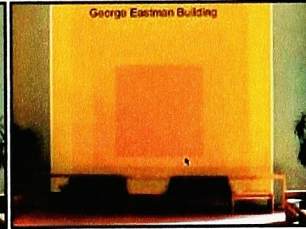
PC - Browser
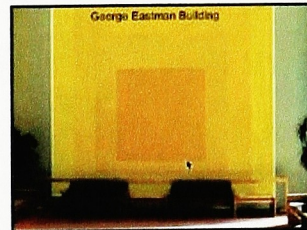
PC - Photoshop
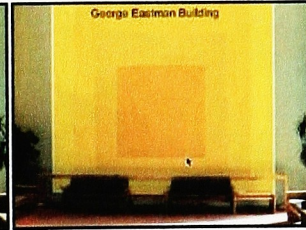
Solution

Play with color settings in Photoshop, then you will know how your images look on other platforms.

More Info

Photoshop Color Settings

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Color > Color in Browser > Photoshop color setting

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Photoshop Color Settings

There are a couple of RGB color setting options that you should be interested in. In Photoshop 5.0 or higher, The default RGB profile is sRGB (Photoshop 3.0 and 4.0 use Apple RGB as their default color space). This should be sufficient for most of your needs on either platform, but may be altered if the final output color space will be video or film, or you intend to convert to CMYK in Photoshop (Both require a wider gamut than sRGB)

RGB Setup

RGB: Adobe RGB (1998)

Gamma: 2.20

White Point: 6500°K (D65)
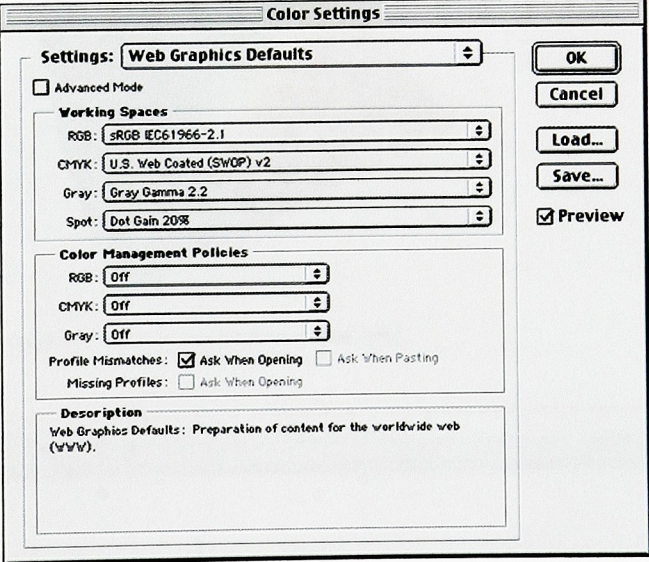
Primaries: Adobe RGB (1998)

Monitor: StudioDsply17
☑ Display Using Monitor Compensation

OK
Cancel
Load...
Save...
☐ Preview

Photoshop 5.5 (File > Color Settings)

Color Settings

Settings: Web Graphics Defaults

☐ Advanced Mode

Working Spaces
RGB: sRGB IEC61966-2.1
CMYK: U.S. Web Coated (SWOP) v2
Gray: Gray Gamma 2.2
Spot: Dot Gain 20%

Color Management Policies
RGB: Off
CMYK: Off
Gray: Off

Profile Mismatches: ☑ Ask When Opening ☐ Ask When Pasting
Missing Profiles: ☐ Ask When Opening

Description
Web Graphics Defaults: Preparation of content for the worldwide web (WWW).

OK
Cancel
Load...
Save...
☑ Preview

Photoshop 6.0 (Edit > Color Settings)

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sRGB : Reflects the characteristic of the average PC monitor. This standard space is endorsed by many hardware and software manufacturs, and is becoming the default space for many scanners, low-end printers, and software applications. Ideal space for Web work, but not recommened for prepress work because of its limited color gamut.

ColorMatch RGB : Matched the negative color space of Radius pressview monitors. This space provides a smaller gamut alternative to adobe RGB(1998) for print production work.

AppleRGB : Reflects the characteristics of the average Mac OS monitor, and is used by a variety of desktop publishing applications including Adobe Photoshop 4.0 and eailier. Use this space for files that you plan to display on Mac OS monitors or for working with older desktop publishing files.

AdobeRGB(1998) : Provides a fairly large gamut of RBG color and is well-suited for documents that will be coverted to CMYK. Use this space if you need to do print production work with a broad range of colors.

WIDE GAMUT RGB

ADOBE RGB (1998)

sRGB
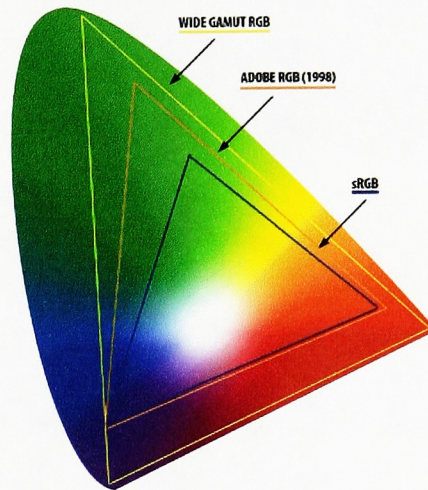
(Text and image was taken from Adobe.com)

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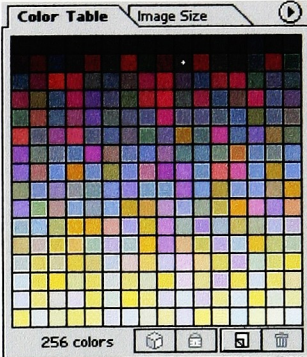browser offset
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Web Graphic Formats

Acceptable graphics for the Web : GIF (flat color), JPEG (continuous tone images), PNG (flat color)

1. GIF (Graphics Interchange Format)

- Up to 8 bits(2^8=256 colors) per pixel
- 4-pass interlacing
- Transparency
- Horizontally oriented bands of color compress better than vertically oriented bands.

123 bytes   223 bytes   118 bytes   163 bytes   183 bytes

- GIF files can be saved in two ways
1) consecutive (top to bottom)
2) interlaced (8th row, 4th row, 2nd...). Interlacing displays a low-resolution image quickly, which gradually comes into focus, at the expense of additional file size.

GIF (123bytes)   JPEG 50% (805 bytes)

- Animated GIF
Good way to add animations to the web site since GIF is a format supported by most browsers.
1) an uncompressed format : takes memory
2) begins to play after 40% of file has loaded.

2. JPEG (Joint Photographic Experts Group)

- Full-color or gray-scale images of natural, real-world scenes
- Work well on continuous tone images like photographs or natural artwork
- Support 24-bits of color depth or 16.7 million colors (2^{24}= 16,777,216 colors).
- Progressive JPEGs (p-JPEGs) are typically a couple of percent smaller than baseline JPEGs; but their main advantage is that they appear in stages, similar to interlaced GIFs.

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JPEG 50% (10.3kbytes)   GIF 8bit 100% dither (26kbytes)

3. PNG (Portable Network Graphic)

- Even though PNG file is known as an ideal web graphic format, it has not been adopted by every browser yet. (supported mainly through plug-ins)
- Supports all GIF's features except multiple images(animated GIFs)
- Compresses both horizontally and vertically, so solid blocks of color generally compress best.
- Gamma storage
- Full alpha channel
- True color support : Good for those truecolor images which are unsuited to JPEG compression, such as raytraced images.
- Error detection
- Can contain keywords and text strings, which can be extracted by Web search tools.
- Indexed color PNG files average about 30% smaller than the equivalent GIF.

- Screenshot from Internet Explorer 5.0 for Mac

(More Info)

Browser with PNG support

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Browser Offset

Problem

By default, browsers shift the object slightly from the top-left edge.

Example

Internet Explorer 5.0 Mac   Netscape Navigator 4.0 Mac

Browser	Hoz.offset	Ver.offset
Netscape Navigator 6.x (Win)	8	8
Netscape Navigator 6.x (Mac)	8	8
Internet Explorer 5.x (Win)	10	15
Internet Explorer 5.x (Mac)	10	15
Netscape Navigator 4.x (Win)	8	8
Netscape Navigator 4.x (Mac)	8	8
Internet Explorer 4.x (Win)	10	15
Internet Explorer 4.x (Mac)	8	8

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Solution

Whatever it is we can override the default browser offset.

1) In HTML

for NN and IE 5.x <BODY leftmargin=0 topmargin=0 marginwidth= 0 margin height=0>
for IE 4.x or lower <BODY leftmargin=0 topmargin=0>

2) In DREAMWEAVER 3.0

a. Go to "Modify / Page Properties."

b. Set the marginHeight, marginWidth, leftMargin, and topMargin value to 0.

Page Properties	
Title:	Untitled Document	OK
Background Image:		Choose...	Apply

Left Margin: 0	**Margin Width:** 0
Top Margin: 0	**Margin Height:** 0

| Left Margin: 0 | Margin Width: 0 |
| Top Margin: 0 | Margin Height: 0 |

Document Encoding: Western (Latin1) Reload
Tracing Image: Choose...
Image 100%
Transparent   Opaque
Document Folder:
Site Folder: CGD 25:Users:Miryoung:Desktop Folder:2000_spring:thesis: Help

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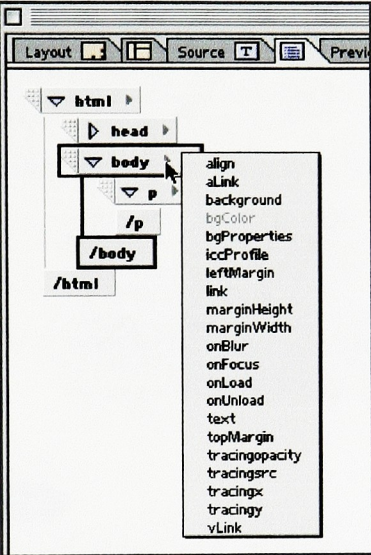
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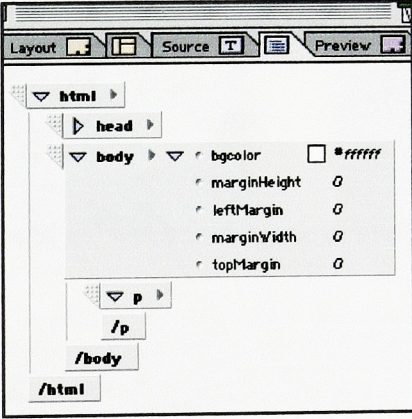
3) In GoLIVE 5.0

a. Click on HTML Outline Editor tab in Document Window.

b. Choose marginHeight, marginWidth, leftMargin, and topMargin under '**body**' tab.

Layout　| Source [T] | Previ

▽ **html** ▸
　▷ **head** ▸
　▽ **body** ▸
　　▽ **p** ▸
　　/p
　/body
/html

align
aLink
background
bgColor
bgProperties
iccProfile
leftMargin
link
marginHeight
marginWidth
onBlur
onFocus
onLoad
onUnload
text
topMargin
tracingopacity
tracingsrc
tracingx
tracingy
vLink

c. Set the marginHeight, marginWidth, leftMargin, and topMargin value to 0.

Layout　| Source [T] | Preview

▽ **html** ▸
　▷ **head** ▸
　▽ **body** ▸ ▽ ⌐ bgcolor　□ #ffffff
　　　　　　　⌐ marginHeight　0
　　　　　　　⌐ leftMargin　0
　　　　　　　⌐ marginWidth　0
　　　　　　　⌐ topMargin　0
　　▽ **p** ▸
　　/p
　/body
/html

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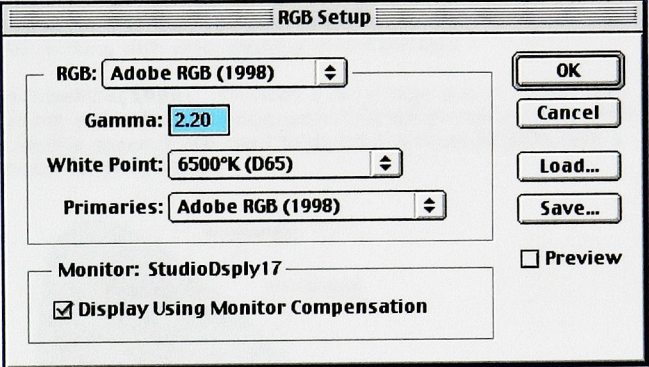resolution difference
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Designing for Different Resolution

Problem

It is important to know how big the target screen size is and how much of the page content will be viewed in the web browser with or without toolbars.

I designed my page size for two reasons.

- First, since my target audiences are web designers, I assumed that they are in high resolution which is 1024X768 dpi and they have set up their own browser settings.
- Second, because I wanted this site to be a reference for designers, I thought they might want to print these pages. So I chose a size which keeps the page looking same when it is printed.

Example

These examples show how much the users can view depending on their monitor resolution.

1024 X 768   800 X 600

* http://www.netscape.com in Netscape 6.01

The browser companies have added bells and whistles to their products. If you turn on every toolbar in browser, you will have only about half of the screen for the actual contents. That means that common users, who are more than likely using default setting of browsers, might have to scroll to see everything on your site and probably decide to leave your site unless they really want to see it.
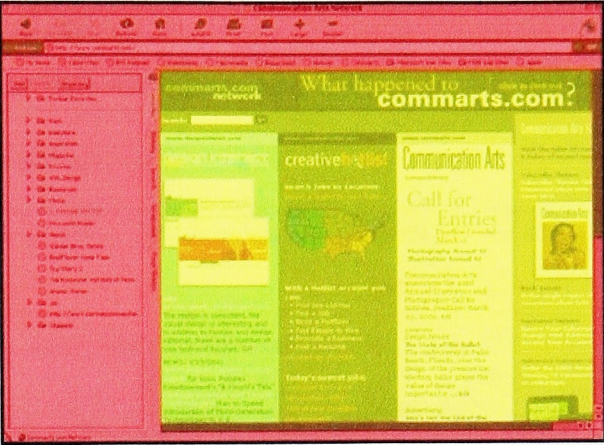
Link: http://www.rit.edu/~mxy8381/thesis/html/graphic4.html

Address: http://www.rit.edu/~mxy8381/thesis/html/graphic3.html

This is a screenshot of the latest version of Internet Explorer 5.0. When you turn on every toolbar, the contents are viewed in only 57% of the browser window (in a yellow box).

Solution

If you are working on a general web site, since more than half of the web users are in 800 X 600 dpi, it will be safer to design for them. But if you are targeting specific users in higher or lower resolution, you might want to specify for them.

More Info

Browser Size reference

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Address: http://www.rit.edu/~mxy8381/thesis/html/browSize.html

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Browser Size

I took a part of article 'Sizing Up the Browsers" by Steve Mulder and Micheal Brandt from Webmonkey.

Recommendations

After analyzing the numbers and taking the Office taskbar into account, we have a few recommendations based on different scenarios.

Scenario designed for	640x480 width	640x480 height	800x600 width	800x600 height
All browsers, both platforms (with MS Office taskbar)				
	557	270	717	390
All browsers, both platforms (with MS Office taskbar) — ugly horizontal scrollbar showing or no right-hand offset in NN & IE				
	567	270	727	390
All browsers, both platforms (no MS Office taskbar)				
	563	270	723	390
All browsers, both platforms (no MS Office taskbar) — ugly horizontal scrollbar and no right-hand offset in Mac IE 4.5				
	574	270	734	390
4.0+ browsers, PC platform (no MS Office taskbar)				
	600	275	760	395

Measurements in pixels

Playing it safe with the first recommendation means a relatively small canvas, but at least you'll be sure everyone can see your content!

Notes:

> * Focusing on browser versions 4.0 and higher (with MS Office taskbar) doesn't gain anything over designing for all versions.
> * Focusing on all browser versions just on the Windows side doesn't gain anything either.

In summary, there are no easy answers about canvas size. But we hope that the recommendations above will give you a place to start.

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Address: http://www.rit.edu/~mxy8381/thesis/html/browSize.html

Photoshop mock-ups

When designing Web pages, we always do mock-ups in Photoshop. Design first, code later. What this means is that our Photoshop mock-ups need to look exactly like what the pages will ultimately look like in the browser. Well, because of browser inconsistencies, they'll never look exactly the same, but it's important to get them as close as possible.

For that reason, we always include the browser "chrome" (the buttons, scrollbar, and other parts of the browser software that frames the page) in the Photoshop mock-up. We thought we'd provide these Photoshop files for download here:

- 640-by-480-dpi browsers – stuffed Photoshop file with the chrome of all the major browsers
- 800-by-600-dpi browsers – stuffed Photoshop file with the chrome of all the major browsers
- 640-by-480-dpi browsers – zipped Photoshop file with the chrome of all the major browsers
- 800-by-600-dpi browsers– zipped Photoshop file with the chrome of all the major browsers

Enjoy.

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Conclusion

GIF (flat solid colored image) and JPEG (pictured image) file formats are acceptable graphics for the web. Since PNG format is an answer for cross-platform web graphics, many browsers are supporting PNG format without plug-ins.

< Resources >

• Gillespie, Joe, *"web page design for designers"*, web page design for the designer (http://www.wpdfd.com)

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• King, Andrew, *"Optimizing Animated GIFs"*, Webreference.com, June 1997 (http://www.webreference.com/dev/gifanim/)

• Lynch, Patrick J, Sarah Horton, *"Multimedia-GIF Animation"*, Web Style Guide, January 1997 (http://info.med.yale.edu/caim/manual/multimedia/gif_animation.html)

• *"Optimizing Web Graphics"*, Webreference.com (http://www.webreference.com/dev/graphics/intro.html)

• The web group, W3C, *"PNG Fact Sheet"*, World Wide Web Consortium (http://www.w3.org/Press/PNG-fact.html)

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Address: http://www.rit.edu/~mxy8381/thesis/html/contact.html

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Adobe Gamma The utility created by Adobe Systems, Incorporated for calibrating and characterizing your monitor, resulting in the creation of an ICC device profile for use in Adobe Photoshop, Adobe InDesign, Adobe Illustrator, and all other ICC-aware applications. For more information on Adobe Gamma, see the technical guide, "Using Adobe Gamma." < learn more >

Adobe PostScript An object-oriented page description language developed by Adobe Systems, Incorporated. PostScript is widely used for pixel-based output devices (e.g., imagesetters).

Adobe RGB (1998) The RGB working space created by Adobe Systems, Incorporated that provides a fairly large gamut of colors and is well-suited for documents that will be converted to CMYK.

Animated GIF A GIF graphic file, which consists of two or more images shown in a timed sequence to give the effect of motion.

Bandwidth The capacity of a network to transmit data over a particular connection at a particular time, based on the weakest connection

Browser A software program that retrieves and displays Internet documents

Bitmap Image A graphic image stored as a specific arrangement of screen dots, or pixels. Web graphics are bitmap images. A graphic which is defined by specifying the colors of dots or pixels which make up the picture. Also known as raster graphics. Common types of bitmap graphics are GIF, JPEG, Photoshop, PCX, TIFF, Macintosh Paint, Microsoft Paint, BMP, PNG, FAX formats, and TGA.

Brightness (1) The amount of light reflected by a surface. (2) The intensity of a light source. (3) The luminance of a color.

CMYK Abbreviation for cyan, magenta, yellow, and black; the inks used in process printing. They represent the subtractive color model, where a combination of 100% of each component yields black and 0% of each yields white. Cyan, magenta, and yellow are the subtractive complements of red, green, and blue respectively.

Color depth The number of distinct colors that can be represented by a piece of hardware or software. Color depth is sometimes referred to as bit depth because it is directly related to the number of bits used for each pixel. A 24-bit video adapter, for example, has a color depth of 2 to the 24th power (about 16.7 million) colors. One would say that its color depth is 24 bits. < learn more >

Compression A method of packing data in order to save disk storage space or download time. JPEGs are generally compressed graphics files. Compression is a technique to make a file or a data stream smaller for faster transmission or to take up less storage space.

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CSS Stands for Cascading Style Sheet, a new feature of HTML developed by the W3C. With Cascading Style sheets, both web designers and end users can create style templates (sheet) that specifies how different text elements (paragraphs, headings, hyperlinks, etc.) appear on a web page. Currently, not all browsers support CSS. < learn more >

dithering The technique by which the gap between two pixels is filled with another pixel. The color of the added pixel is an average of two on either side of it to visually smooth the result. Dithering is generally used when not enough colors are available.

DNS Stands for Domain Name System. The DNS translates URL text addresses (such as grantasticdesigns.com) into a numeric Internet address (such as 201.214.12.6).

Font A font is a complete set of characters in a particular size and style of type. This includes the letter set, the number set, and all of the special character and diacritical marks you get by pressing the shift, option, or command/control keys. For example, Times NewRoman Bold Italic is one font, and Times NewRoman Bold is another font. Times NewRoman is a single typeface.

Gamma The values produced by a monitor from black to white are nonlinear. If you graph the values, they form a curve, not a straight line. Gamma defines the slope of that curve at halfway between black and white. Gamma adjustment compensates for the nonlinear tonal reproduction of output devices such as monitor tubes. Gray Gamma 1.8 matches the default grayscale display of Mac OS computers. Gray Gamma 2.2 matches the default grayscale display of Windows computers. < learn more >

GIF Acronym for Graphics Interchange Format; a commonly used graphic file format (e.g., for Web pages) developed by Compuserve, Inc. that can be either 1-bit or 8-bit, rendering from 2 to 256 colors or shades of gray. < learn more>

Hexadecimal A numbering system which uses a base of 16. The first ten digits are 0-9 and the next six are A-F. Hexadecimal numbers are used to color web pages. For example, the hexadecimal equivalent for the color white is #FFFFFF.

HTML Stands for Hypertext Markup Language; a cross-platform text-formatting system for creating web pages, including copy, images, sounds, frames, animation and more.

Hyperlink A hyperlink, more commonly called a link, is an electronic connection between one web page to either (1) other web pages on the same website, or (2) web pages located on another website. More specifically, a hyperlink is a connection between one page of a hypertext document to another.

Hypertext Hypertext is any text that can be chosen by a reader and which causes another document to be retrieved and displayed.

Interlace Storing partial data from a single graphic image in multiple sequences. The purpose of interlacing is to have a partial image initially appear on screen rather than having to wait for the image to appear in its entirety. With interlacing, equally spaced sets of lines from the original image are stored together, and these sets appear one on top of the other in sequence.

JavaScript Javascript is a scripting language developed by Netscape. Javascript can make web pages more animated and dynamic in terms of graphics and navigation. One of the most common graphic Javascript effects is called a mouseover, and Javascript navigation is commonly created using drop-down menus. < learn more >

JPEG Acronym for Joint Photographic Experts Group. Commonly used to indicate a pixel-based graphic file format, JPEG is actually a compression method used mostly for continuous tone images. < learn more>

Lossless Compression In graphic design, lossless compression refers to a data compression technique where the file quality is preserved and no data is lost. Lossless compression is commonly used on GIF images, but can only reduce file size to about half of its original size. Lossy compression, by contrast, eliminates some data can further decrease file size.

Lossy Compression A term coined by graphics programmers to refer to a technique of shrinking file sizes by giving away some precision of detail. JPEG is an example of a file that is compressed this way. By reducing the so-called quality of a picture when you save it, you can make the file size smaller. Many photos can take of loss of fine detail before it becomes noticeable on a web page.

Meta-tag Meta-tags are HTML tags that can be used to identify the creator of a web page, what HTML specifications a web page follows, the keywords and description of the page, etc. The most common use of a meta-tag in online marketing is the keyword and description tags, which tell the search engines that index meta-tags what description to use in their search query results.

Pica: A unit of measurement traditionally equal to about 1/6 inch. (In some modern typesetting systems, a pica is treated as exactly 1/6 inch.) There are 12 points to a pica. < learn more >

Plung-ins Additions to a software program that are installed at a later date to provide more functions

PNG Sands for Portable Network Graphics format. PNG is used for lossless compression and displaying images on the web. The advantages of PNG is that it supports images with millions of colors and produces background transparency without jagged edges. The disadvantages are that PNG images will not show up on older browsers, and still can be comparatively larger in file size than GIFs. < learn more >

Point: A unit of measurement, often used to measure type size, equal to 0.013837 inch. Some modern typesetting systems consider the point to be 1/72 of an inch, or 0.013888... inch. < learn more >

Address: http://www.rit.edu/~mxy8381/thesis/html/glossary.html

Ray Tracing a method that allows you to create stunning photo-realistic images on a computer.

RGB Abbreviation for red, green, blue; the colors used in displays and input devices. They represents the additive color model, where 0% of each component yields black and 100% of each component yields white. Red, green and blue are the additive complements of cyan, magenta, and yellow respectively.

Sans Serif A style of typeface that means "without feet." Common serif typefaces include Arial, Helvetica, AvantGarde and Verdana. The following graphic image shows sans serif typefacesthe color intensity of an image. An image high in saturation will appear to be very bright. An image low in saturation will appear to be duller and more neutral. An image without any saturation is also referred to as a grayscale image.:

Saturation The color intensity of an image. An image high in saturation will appear to be very bright. An image low in saturation will appear to be duller and more neutral. An image without any saturation is also referred to as a grayscale image.

Screen Font A part of the font suitcase (of Adobe Type 1 fonts), describes the shape of each character to the operating system so that the font can be seen onscreen.

Search Engine A search engines is a program that searches documents (i.e. web pages, which are HTML-documents) for specified keywords and returns the list of documents. A search engine has two parts, a spider and an indexer. The spider is the program that fetches the documents, and the indexer reads the documents and creates an index based on the words or ideas contained in each document.

Serif A style of typeface that has "little feet." Common serif typefaces include Times Roman, Garamond, and Palatino. The following graphic image shows serif typefaces.

TIFF Acronym for Tag Image File Format; the graphics file format first released by Aldus Corporation in 1986. TIFF is the standard file format used for most digital imaging programs. TIFF is a highly extensible format that allows image data to be tagged with additional information through an image file directory (IFD) which contains header-type information without actually being a part of the file's header. TIFF can be used for black-and-white, grayscale, RGB, and CMYK images. TIFF can be uncompressed or may use any of a variety of compression methods, though TIFF most commonly uses LZW compression.

Typeface A typeface contains a series of fonts. For example, the typeface Arial contains the fonts Arial, Arial Bold, Arial Italic and Arial Bold Italic.

URL URL stands for Uniform Resource Locator and is an address referring to an HTML document on the Internet. In other words, it is the address of your website on the Internet. The syntax of a URL consists of three elements:
* the protocol, or the communication language, that the URL uses;
* the domain name, or the exclusive name that identifies a website; and
* the pathname of the file to be retrieved, usually an HTML document.

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Vector Graphic A graphic image drawn in shapes and lines, called paths. Images created in Illustrator and Freehand (graphic design software) are vector graphics. They are usually exported to be bitmap images.

Web site or Website A website is a collection of electronic pages formatted in HTML (Hypertext Markup Language) that can contain text, graphic images, and multimedia effects such as sound files, video and/or animation files, and other programming elements such as Java and Javascript.

white point How the color white is reproduced. On a monitor, the white point is the combination of all three red, green, and blue phosphors at full intensity as measured by its color temperature in Kelvin. It is necessary as a reference point in calibration and characterization.

WYSIWYG Those who remember "The Flip Wilson Show" will remember one of the actor's personas, Geraldine, who frequently spouted the line, "What you see is what you get!" Apparently, "she" said that line often enough for it to become ingrained in the minds of early Windows programmers. Pronounced "whiz-zee-wig," the phrase's use in computers refers to the ability of a program to display fonts and other document formatting exactly as they will look when printed. In early Windows-based software, "WYSIWYG" programs were the exception rather than the rule.

< Resources >

Adobe Systems Incorporated, "*Glossary of color management terms*" (http://www.adobe.com:82/support/techguides/color/cms_glossary/main.html)

Grantastic Design, "*Glossary of graphics design and web page design terms*" (http://www.grantasticdesigns.com/glossary.html)

Weisblatt, Adam, "*Grossary surfing*" Art of Ideas (http://www.artofideas.com)

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