

CREATING A HOME PAGE ON THE WWW FOR YOUR LOCAL USER GROUP AN UNLIMITED RESOURCE FOR LOCAL USER GROUP RECRUITMENT STRATEGIES

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INTRODUCTION

THE INTERNET - WHAT IS IT? AND WHERE DID IT COME FROM?

The Internet simply put, is a vast network of computers that spans the globe. Vast seems to be an understatement when describing the Internet, in that there are estimated to be 20 to 30 million users around the world populating this electronic global village.¹ Estimates by the computer industry are that World Wide Web traffic is growing at an annual rate of 341,000% and is being used by 159 countries around the globe.²

HISTORY OF THE INTERNET

In the early 1960's a group of scientists at the US Department of Defense's Advanced Research Project Agency (ARPA) wanted to see if computers in different locations could be linked to develop an efficient way of sharing information. Initially the goal was not the creation of what we know today as the Internet, but rather simply a data network that could survive a nuclear attack.

ARPAnet was launched when it was discovered that networking could link large research computers to each other. Use of ARPAnet grew throughout research organizations and major universities. In 1969 private industry joined the network of computers and CompuServe was launched as the 1st commercially available online service. In 1986 the National Science Foundation created NSFnet to connect supercomputers around the United States and within two years this network replaced ARPAnet.

In the 1990's the Internet has grown at exponential rates. Vice-President Al Gore proposed to offer access to students in kindergarten through grade 12 in 1991. The Internet has continued in unparalleled growth. Over the years it has become the most widely

used information retrieval system, giving access to a global network of multimedia resources to anyone with a computer. What began as a government experiment is now largely a private commercial enterprise, with the ability to tap into thousands of information databases and libraries worldwide, retrieve millions of documents, journals, books and computer codes, and stay in touch with friends and colleagues around the world at a fraction of the cost of a long-distance phone call.

ACCESSING THE INTERNET FROM YOUR OWN COMPUTER

In essence the Internet is only a phone call away. In order to access the Internet you must have a software package referred to as a browser, such as Netscape Navigator or MicroSoft's Internet Explorer, to name the two most popular, and a direct connection to the Internet via phone line, a network connection or a commercially available on-line service.

Specifically, to use one of browsers there are four ways to access the Internet. You must have a Macintosh computer or PC running Windows with at least a 386 machine, with a minimum 14,400 baud modem, and 1) a permanent Port-to-Point Protocol (PPP) attached to a network, 2) a commercially available on-line Service, such as AOL (AmericaOnLine), or any of literally hundreds of Internet Service Providers (ISP's), 3) a BITNET connection to a network on the Internet, (usually a university connection) or lastly, 4) a SLIP (Serial Line Internet Protocol) connection., which allows you to use a modem from a remote site to access the server and the Internet.

Commercial Internet Service Providers now offer a number of technologies that make selecting your ISP more challenging. In order to make a wise decision it is necessary to understand fully how information is transmitted through the Internet. Your modem acts as a sort of translator between your computer and the phone system. Because computers transmit information differently than phone systems, i.e. digitally, modems translate this information. The phone transmits analog signals. Think of an oscilloscope: analog signals would look

wavy and digital signals would look like numbers and would sound "screechy" on an oscilloscope. The modem takes the data coming into your modem and converts it into numbers that the computer can understand.

Modem speeds also affect transmission. Modem speeds are referred to as "bps" or bits per second. One bps means the modem can transfer roughly one bit (a bit is equal to eight characters) or eight characters per second. A 9600-bps modem will transfer 9600 bits (9600 x 8 characters) per second, 28,800 (28,800 x 8 characters) per second, and 56,600-bps modems (you do the math...) can therefore transfer exponentially faster than the minimum 9600 baud modems. The faster the transfer the less time your computer will be tied up transferring or downloading data. And if you are paying for your IPS service by the hour, the less costly your service will be.

Internet service providers include commercial providers such as Prodigy and AOL (AmericaOnLine) to any number of phone companies, and cable companies. They now offer a number of different services. Some offer POTS (or plain old telephone service) for your analog modem. This service is available virtually anywhere and is the least expensive way to access the Internet. ISDN's (Internet Service Digital Networks) offer two high-speed (64-kbs) data lines for a 128-kbps connection. ISDN routers are necessary and the cost of this service is usually much higher than POTS service. Satellite technology allows data to be beamed up to a satellite then retransmitted back down to you anywhere on earth. You still need a phone line to transmit the data, and the cost of this service is again higher than POTS or ISDN service. There are now Cable providers that make use of the same cable that transmits your cable service into your house. This service has the look and feel of a direct Ethernet connection. The cost of this service is around \$40 per month, but this type of service is still limited to large metropolitan areas. DSL service or digital subscriber lines are the local phone company's response to cable service. DSL offers a high download speed (8 mbps) but is still only available in a small number of cities and is very expensive. And lastly, ION service will soon be offered by Sprint. ION or Integrated On-Demand Network allows customers to simultaneously hold a phone conversation, send a fax, watch a video and log on to the Internet over a single line. ION was offered to businesses in 1998 and is expected to be offered to consumers

in the second half of 1999. Expect service to range from \$110 to \$150. The success of this pricey technology depends on local phone companies having high speed digital phone lines. At present there are 100 million regular copper phone lines, but only 355,000 high speed digital phone lines nationwide⁵. This number must increase before ION technology can be available in most markets.

ABOUT BROWSERS

A browser is the software that allows you to access the Internet using your modem. According to a U.S. News and Work Report, June 17 1996 article Netscape is the most popular browsers.³ It reported that 85% of all web surfers are using Netscape or Netscape Navigator. Microsoft's Explorer, Netscape's closest competitor, has only a 10% share of the market. This percentage is expected however to climb as Explorer is offered and preloaded onto new computers as part of Windows95 and later versions by Microsoft.

Browsers allows us to use search engines to find information that resides on any server that is connected to the Internet, or "cruise the World Wide Web" (to coin a popular phrase) and enjoy and sometimes even animate the exciting information encountered there.

THE UBIQUITOUS WWW HIT RATE

Network computing is everywhere, and any company who has not networked its computers is the rare exception. Gerstner, IBM's CEO has described "Web sites" as "little places where you can get information about somebody's store."⁴ Our "store" so to speak is our local user group and users of the Internet can get information about our group by surfing the net and visiting our web site. All businesses now have well-established internet presences, and estimates of business conducted on the internet reach well into the billions of dollars and can be expected to reach the trillions in the near future.

INTERNETS, INTRANETS AND EXTRANETS

Intranets and Extranets are produced by the same technology that brought us the Internet. The difference between intranets and extranets is determined by which side of the firewall the application resides. Firewalls are the gatekeepers of data for an organization. When a web-based application resides behind a firewall, and is kept within an organization, it is an intranet application.

Open the gate and allow access by outside users and the application becomes an extranet application. How an organization defines its network – who can access the information and to what degree this information is available determines the final format.

Most often confidential information about an organization, such as human resource information or information of a confidential nature, will reside behind the firewall and be available as an intranet application. Information that is more general such as the kind of information that is released by a public relations department, for instance, will be available to users via an extranet application. Intranets are, simply by nature of the data, more concerned with security while extranet applications are not as secure and usually allow more generic access for users.

HTML - THE LANGUAGE OF THE WEB

Whether creating an intranet, or an extranet application, HTML is the formatting language that is used. HTML stands for Hypertext Markup Language. HTML is actually a subset of a language Standard Generalized Markup Language (SGML), which was designed as a typesetting language. The "Markup" part of the language comes from the days when editors used specialized markings to instruct typesetters how to format the text. HTML evolved from this language to be used specifically for WWW applications and for creating hyperlinks to other WWW documents, video, sound or animation files. With HTML you use HTML commands to mark headings, normal paragraphs, lists, and URL addresses (hyperlinks).

While HTML is a variant of Standard Generalized Markup Language (SGML), it differs from other SGML variants in its simplicity. HTML is simple enough to type without using an HTML editor. HTML is standardized across platforms and environments, so that no matter what environment, HTML documents will look the same. Keep in mind, however, that while HTML is standard across platforms, browsers differ in their support of various HTML commands. That is to say, the look of your document is dependent on the pre-set preferences of the browser that is accessing the information.

All HTML files consist of text and HTML tags that describe how the text should be displayed. Extra white space within your document is ignored and text is displayed with a single space between each

word. Text is always wrapped to fit within a browser's window in the reader's choice of fonts. Therefore a document that looks great using Netscape may look completely different (and not so great!) on another browser, such as AOL (AmericaOnLine), or a Prodigy browser. But by sticking with some simple HTML commands, you can be assured that your document will look as good as possible in just about any Web browser.

To convert an existing document into a Web document there are a few things that are essential. All HTML commands are enclosed in a left angle bracket "<" followed by some kind of directive then followed by a right angle bracket ">" i.e. <like this> which are called "tags". Most commands come in pairs that mark the beginning and the end of text. The end command or container tag is identical to the beginning tag except that it includes a forward slash "/" between the opening bracket and the command name. An example is the bold tag beginning with and ending with .

Every HTML document must declare itself to be an HTML document. In order to do this <html> must appear first in every document. The very last line should end with </html>, thus ending or closing the html text. And most importantly, the file that you create and save, must end with an html or .htm extension (filename.html). For example, the Pittsburgh SAS User Group Home page is called psug.html.

Most HTML documents will contain a header section beginning with the <head> tag and ends with a </head> container tag. In addition there should be a title surrounded by the <title> and </title> commands. The "body" of the document should be marked off with the <body> and </body> commands.

Most browsers recognize at least six heading levels, <h1> through <h6>. Each is given a distinct size and style. Heading commands need a corresponding </h1> container, unlike paragraph containers which do not require a closing </p> container. These tags that do not require a closing tag are referred to as empty tags.

Normal paragraphs are separated with the <p> command and while at this time the closing </p> is optional, the next version of HTML may require the </p> container. Therefore it is at present up to your discretion as to whether to use the closing </p> .

The following are the simple steps to convert a document to HTML.

1. Convert the document to plain text or ASCII format.
2. Begin the document with <html>.
3. Identify the heading with <head>.
4. Next type <title>. Type your title.
End with </title>
5. Headers begin with <h1> and ends with </h1>.
6. Subheadings begin with <h2> and end with </h2>
(or <h3> <h3> ... <hn> etc. and end with </hn>
7. Paragraphs begin with <p>.
8. Name the file you have created and save with an html or htm extension. filename.html.

A simple HTML document would like this:

```
<html>
<head>
<title> ----- </title>
</head>
<body>
<h1> ---- </h1>
<p>
<p>
<p>
<h2> --- </h2>
<p>
<p>
<p>
</body>
</html>
```

By following these guidelines your document can be read by most browsers.

COMMON CONTAINER COMMANDS

The following are a listing of some of the most common HTML container commands.

command	end command	description
<html>	</html>	HTML document
<head>	</head>	begins a heading
<body>	</body>	body of text

<h1>	</h1>	level 1 heading
<h2 to h6>	</h2 to /h6>	level 2 to 6 heading
<l1>	</l1>	a bulleted list
		underlined item
<p>		paragraph
		bolded text
<u>	</u>	underlined text
<i>	</i>	italicized text
		emphasized text
		either
		italicized,underlined, or
		bold or displayed in color
		depending on server)
 	</br>	inserts a line break
<nobr>		keeps text from breaking
<blink>	</blink>	text will blink
<center>	</center>	text will be centered
		between right and left
		margin
		changes the size of font
		1 is smallest, 7 is largest
		(default is 3)
<basefont>	</basefont>	font from 1 smallest to 7
		used as basefont
<hr>	</hr>	horizontal rule

LISTS

There are different kinds of lists in HTML: a simple list, numbered or ordered list, bullet or unordered list and definition lists. Ordered lists are numbered. Unordered lists use bullets to mark each item. Lastly definition lists are unique in that you can define whatever text preceded it

TYPES

Netscape has added a feature called TYPE that can be included with unordered and ordered lists that allow you to specify the type of bullet or number that you use in a list.

ORDERED LISTS

Ordered lists begin with a tag and elements of the list are numbered using a numeric sequence -- 1,2,3, etc.

An ordered list looks like this:

```
<ol>
<li> first item
<li> second item
<li> third item
</ol>
```

You can change the default by using the TYPE modified with the tag. This feature is used with numbered lists:

```
<ol TYPE= A | a | I | i | 1>
```

where TYPE can be assigned in any one of these values:

- A Mark list items with capital letters
- a Mark list items with lowercase letters
- I Mark list items with large roman numerals
- i Mark list items with small roman numerals
- 1 Mark list items with numbers (default)

You can get even more creative: You can start numbering list items with a number other than 1. To do this, you use the START modifier as shown:

```
<ol START=starting number >
```

where starting number specifies the first number used. You can combine the two features, START and TYPE

```
<ol TYPE=A START=4>
```

would start the numbered list with the roman numeral IV.

UNORDERED LISTS

Unordered lists use the tag and end the list with the container tag.

An unordered list would look like this:

```
<ul>
  <li> first item
  <li> second item
</ul>
```

You can use TYPE along with to override the default bullet. This takes the format:

```
<ul TYPE = Disk | circle | square>
```

For example, here's a list defined to use circles as the bullet symbol:

```
<ul TYPE = circle>
<li> This is item 1
<li> This is item 2
<li> This is item 3
</ul>
```

DEFINITION LISTS

Definition lists are very useful when explanation is necessary. Each item in the definition list contains two parts, a term (indicated with the <dt> tag) and a definition (which uses the <dd> tag). The list begins with a <dl> command and ends with a </dl> command.

Here's a sample of a definition list:

```
<dl>
  <dt> first item
  <dd> first item definition

  <dt> second term (or title)
  <dd> explanation
```

And this is what you would see in the browser:

```
First Term
  First terms definition.
Second Term
  Second term explanation
```

URL's

A Universal Resource Link is the address that allows servers to find your document. For example because the Pittsburgh SAS® User Group home page resides on my Unix account on the University of Pittsburgh Unix server, the address of PSUG's home page is: <http://www.pitt.edu/~jmatthew/psug.html>. However, because the Pittsburgh SAS® User Group home page has been hyperlinked to the SAS® Institute home page, you can find our home page by accessing the SAS® Institute's home page <http://www.SAS.com> and then looking under "User Groups", then "Local User Groups", then "Pennsylvania", and then finally "Pittsburgh". While in keystrokes this may not seem simpler, in actuality it is simpler than trying to remember where the "tilde" key is for some users.

LINKS IN HTML DOCUMENTS

Links are what make Web documents so exciting. Linking your home page to other affiliated User Groups websites is easy. For instance, the Pittsburgh SAS® User Group home page is linked to both the SUGI home page and the NESUG home page so that someone could access both the SUGI and NESUG home page without leaving the PSUG web site. A URL (Universal Resource Link)

is the address of the document or resource we link to. It takes the form:

protocol:
//machine.name{:port}/directory/document.name

The protocol is the Internet protocol used to reach the document or resource. On the Web it is typically "http", but it can be any of a number of other things, such as ftp, gopher, telnet, etc. The machine.name is just what you think it is: the name of the host where the document resides (such as www.pitt.edu/ or www.sas.com). The ":port" portion of the address is optional and only necessary when a resource is accessible through a non-standard TCP port number. The directory and document name are self explanatory, i.e. ~jmatthew/psug.html.

To link your home page to another site's home page you would type:

```
<a href = "URL">text of link</a>
```

Always put the URL in quotes following the "href=" and put the text of the link after the > and before the .

for example to link to the SAS® User Group International home page, type

```
<a href="http://www.sas.com/usergroups/sugi/intro.html"> SUGI </a>
```

Four of the regional user groups have created home pages. The following URLs are the html code to link is provided:

```
<a href="http://www.pace.edu/nesug/index.html"> your desired text for NESUG here</a>
```

To link to South Central User Group home page, type:

```
<a href="http://ourworld.compuserve.com/homepage/sesug.html" South Central Home Page> </a>
```

To link to Western Users of SAS Software (WUSS) home page, type:

```
<a href="http://webworldinc.com/wuss/index.html"> WUSS </a>
```

Or, if you would like SAS Institute to link your document to their home page, you can complete the online form found via the Institute's Home Page. Go to www.sas.com and choose "Users Groups", then "Other SAS® Users Groups", then "request a link" to access the electronic form.

DEVELOPING DYNAMIC WEB PAGES WITH JAVA

HTML is a cross platform language that enables computer systems anywhere in the world connected to the Internet to view webpages via a browser using a www protocol. But these HTML based webpages are static. To improve functionality, it became quickly apparent that something was needed to create more "dynamic", executable graphics and content. Java was developed by Sun Microsystems and has transformed the look of browsers worldwide. Java is a programming language that adds user interaction to websites, displays multimedia information, and allows users to access databases on any network.

Java is a network-oriented programming language invented by Sun Microsystems® that works on any platform; that is to say. Java is platform independent. JAVA is secure; it is specifically designed to write programs that can be safely downloaded to your computer through the internet and run without fear of viruses or harmful code. Using small Java programs called applets, your web page can include animation, calculations, user defined information and other exciting features. A JAVA developer can write Java programs that can do almost anything, and include this within a web page.

While HTML defines how documents appear, JAVA enhances the site dramatically. JAVA is a simplified version of C++, but eliminates some of the often confusing features of the language, such as low level tasks, i.e. allocation and deallocation of memory. Java applets can be viewed on any platform, from UNIX to Windows, on PC's, Mac's and web servers. The code can be executed on any platform without having to be recompiled. Java creates secure virus-free, tamper free programs. Java supports multi-tasking or "multi-threading". Java has an extensive library of subroutines to interact with TCP/IP based protocols to incorporate objects across networks via an HTTP protocol. And best of all Java works locally on the user's PC, unlike PERL and other scripting languages that are

server based. This means that the application is not affected by loads on the server or on the internet.

Java code is embedded within HTML and unlike HTML documents that are "static" Java is dynamic: Java adds the ability to have active, real-time data feeds that make the site user interactive and allows animation or audio capabilities to be added to the website. This added dimension makes websites more user engaging and appealing.

JAVA APPLETS

JAVA applets are small programs that are embedded in an HTML page. Applets look similar to HTML, in that they are written within tags, i.e. left angle bracket "<" and right angle bracket ">" - <applet> - and require an ending </applet> tag. The <applet> tag embeds a Java applet or Java executable program within an HTML document. Java applets use Code, Width and Height to define 1) the applet file (the code that is written in the applet), 2) the width, and 3) height of the window size of the text to be displayed.

Other Java Code Parameters

- CodeBase = specifies the base URL if the applet does not reside in the directory or folder where the HTML resides
- Code = name of the file that contains the applet compiled subclass i.e. HelloWorld.class
- Alt = any text that should be displayed if browser does not understand Java applet
- Name = optional attribute specified name for applet
- Width = required attribute in pixels
- Height = required attribute in pixels
- <param > specific defined parameters

Adding applets to your Web page is like adding images. You need to define the applet code with width and height. Here is an example of a simple APPLET tag:

```
<applet: code="MyApplet.class" width=100 height=140> </applet>
```

Let's compare the look of a predefined applet: HelloWorld.class is an applet that resides in the folder where the HTML document resides. .

The HTML document would look like this:

```
<html>
<head> <title> Hello World.class </title>
</head>
```

This Java applet "MyApplet.class" resides within the directory where the HTML document resides.

When a Java capable browser encounters the applet it reserves on line space for it, reads it, and executes it. The compiled code in the file MyApplet.class. The browser looks fo this file in the same directory as the HTML code, and loads it over the network.

Applets make web sites dynamic and exciting. Adding this feature to your website makes it more appealing to your audience. There are applets that are available from Sun. Refer to this site to find all the necessary Java class files, examples of the HTML, and the HTML necessary to use the applet is explained. This URL is <http://java.sun.com/openstudio/index.html>.

Wall Street predicts that web commerce will soon be a multi-trillion dollar business. Dynamic web pages give your site a competitive edge in the marketplace.

There are a variety of different resource files associated with applets:

- .java java source code files
- .gif image files
- .jpeg image files
- .au audio files
- .avi video files
- .mpg video files

For a resource listing of free applets that can be downloaded from MicroSystems® refer to the following URL: <http://java.sun.com/freebies.html>

SOURCE CODE

Once you have accessed a home page that is of particular interest, remember that you can access

the source code from which the page was built. In Netscape click on View and then Source to see the HTML code. In Mosaic use the Document Source option in Mosaic's File menu to call up a window that will show you the HTML for the current document being viewed.

Any HTML document can be studied and clever HTML code and JAVA applets can then be borrowed. Experiment with new tags and see what occurs. Even graphics and pictures can be downloaded by copying to the clipboard and then downloading into your documents. Be daring and get fancy.

BUILDING A USER GROUP HOME PAGE

Michael H. Smith, User Group Liaison for SAS Institute, Inc. has some suggestions about what to include in your web page. He suggests that you consider including a purpose statement about your user group, past and current newsletters; or past meeting agendas, meeting dates, locations and agendas, a list of officers or steering committee members, and bylaws. He also advises making sure that you do not include copyrighted material such as SUGI papers, etc. Once you have determined the content of your web page you are ready to get started building a home page.

This paper will not attempt to describe the how-to's of obtaining server space, but rather assumes that users either have access to a server or can obtain server space.

To create an HTML document that can be accessed by browsers, if you are using a Unix server, you will first need to create a public directory and within that directory an HTML subdirectory. Once you have established this directory then you can create your document in Notepad within Program Manager in Windows, or use an editor program (I use PICO within the Unix platform). And remember that while HTML code is NOT case sensitive, a Unix server is case sensitive, so it is safest to write your HTML code in lower case.

Your document should always begin with an HTML command.

```
<html>
```

Next we should include a heading.

```
<head> Welcome to the YOUR CITY home page. </head>
```

```
<body> <p> A brief description of your User Group mission
```

```
<h1> type a heading in this space </h1>
```

```
<p> type all the text that you would want to see in the body of your home page---
```

```
<p> -- as many paragraphs as you wish --
```

```
<h2> BYLAWS </h2>
```

```
<p> paragraphs containing BYLAWS
```

```
<ul> -- a list of officers and contacts -- </ul>
```

```
end your document with the container for the body
```

```
</body>
```

```
and finally, end the document with the /HTML ending container.
```

```
</html>
```

That is how easy it is to build a home page.

CONCLUSION

The World Wide Web is fast becoming the most popular communication vehicle, and building a home page for your local user group can be fun and very easy. By mastering a small number of simple HTML commands you can build an impressive and informative home page.

This paper is not meant to be a complete overview of HTML, or Java applets, but includes enough HTML code to build an impressive HTML document in a short amount of time. Remember to use the KISS principle (keep it simple, silly), and borrow ideas from other web pages, by accessing their source code and imitating their tags. And have fun with it and be creative.

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