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About this Manual

What is this publication?
This document covers the development of World Wide Web pages with an emphasis on accessibility for people with disabilities. It is a very basic introduction, covering only the minimum amount of information necessary to get started. There is a wealth of information about the World Wide Web available on the World Wide Web which will help you further develop your skills. References to additional documentation are included at the end of this document.

The files used for the World Wide Web (WWW) are simple text files which use a system called "Hypertext Markup Language" (HTML) to indicate how the text should be displayed on the browser (e.g., Netscape™, Microsoft Internet Explorer™) that the user has on the local computer.

What is Hypertext Markup Language?
A markup language indicates the author's intent but does not specify exact typographical details. For example, in a word processor or desktop publisher you might set up a chapter title as Helvetica, bold, 18 point type but in HTML you would simply indicate that this is a level 2 heading. The setup of the user's browser would dictate how this is displayed. Similarly you do not need to indicate margins, page width, etc.

It is important to note that the user may have the browser set up in a very different manner than yours. For example a person with low vision may use 18 point type on a screen set up for 640 by 480 graphics. Another person may use 10 point type on a screen set up for 1068 by 740 graphics because they use a 21 inch monitor. Among other things, the number of characters printed on a line will vary greatly.

"Hypertext" indicates that the documents created with the markup may have links to other documents. Links are the highlighted text displayed by the browser to indicate that you may click on the link to view another document.

What kind of editor is needed?
HTML files can be created and maintained with a simple text editor (e.g., Windows Notepad). When used on a WWW server, the HTML files generally should have an .htm or .html extension.

Aren't there HTML editors available?
Yes, there are a number of HTML editors (e.g., Microsoft FrontPage™, DreamWeaver™, Net Objects Fusion™) available. And most word processors have options to allow documents to be converted to or saved as HTML.

Why learn HTML instead of using an HTML editor?
HTML editors often have both a "What You See Is What You Get" (WHSIWYG) interface and an HTML interface. While you will be able to do most tasks in the WHSIWYG screen, the HTML option allows you to check and fine tune your pages.
Also, the WHSIWYG system may not support all HTML commands, especially as new versions of HTML are developed. If you understand HTML, you can add these immediately.

**Can't I have greater control over the appearance of my pages?**
Yes! There are ways to control fonts, layout, and other attributes to provide the appearance of a typeset document. Remember that this manual is a very basic introduction to the concept of HTML. As you develop your skills, look into Cascading Style Sheets (CSS) and other more advanced tools.
A Basic HTML Page

Suppose we want a World Wide Web page that looks like:

The Job Accommodation Network
Training Resources

The Job Accommodation Network provides live training and training materials. Materials are generally available as Web pages, text, and PDF (requires Adobe Acrobat Reader).

Resource materials include:

- Handouts from training sessions
- Printed manuals
- Contact information

The actual HTML document would look like:

```html
<html>
<head>
<title>JAN Training Resources</title>
</head>

<body>

<p align="center">
<img src="Jan_Logo.gif" alt="JAN Logo">
</p>

<h2 align="center">The Job Accommodation Network<br>Training Resources</h2>
```
The <em>Job Accommodation Network</em> provides live training and training materials. Materials are generally available as Web pages, text, and PDF (requires Adobe Acrobat Reader).

Resource materials include:

- <a href="HANDOUTS.HTM">Handouts</a> from training sessions
- Printed manuals
- Contact information

In the next section we'll take a look at each piece of the HTML in the document and learn how they work together to provide the much more pleasant presentation of information that appears in the browser.
How HTML Works

At a glance, there seems to be little similarity between the page displayed in the browser and the HTML file. However, if we look at the various elements that HTML uses to tell the browser how to display the document, we will begin to see the building blocks fit together. Let's look at these one-at-a-time.

Tags
The cryptic looking entries with the < > markers are called "tags" and are the primary HTML markup tool. <HTML> on the first line identifies the file as an HTML document. At the bottom of the document </HTML> marks the end. In most cases, text within tags can be in upper or lower case. (Upper case is used in the discussion to make the tags stand out a bit from the surrounding text.) Note that putting a "/" in front of most tags means "end the command."

Header
After <HTML> is <HEAD>. This section contains header information that is not displayed by the browser. While a number of pieces of information can be put in the heading, the only one we'll use is <TITLE>. This is what the browser shows at the top of the screen when the document is displayed and, when the address of a document is saved by a user, the title identifies it in the Bookmark or Favorite list. The title will quite often be the same as the heading at the top of the page, but there may be times when it is different. Try to keep the title short, but descriptive and unique to each document. Note the </TITLE> at the end of the title. </HEAD> marks the end of the header information.

Body
Information contained between <BODY> and </BODY> is displayed by the browser. The first item is a heading (sometimes called "headline") for the document.

Headings
The <H2 ALIGN="CENTER"> indicates that the heading is level 2 and centered between the left and right margins. Levels 1 through 6 are supported by HTML with 1 having the strongest emphasis. Some browsers may not discriminate between the higher numbered levels and it is generally best not to go beyond 4. LEFT and RIGHT are also supported for justification with LEFT being assumed if nothing is indicated.

Headings are put on a separate line, so you cannot use this command to emphasize a section of text within a larger block. You must indicate the end of the heading with </H2> (with the number changing according to the level of heading used).
Including text
The next section of the document contains text information, links to other documents or other sections of the same document, images, etc. Simply type in text that you want to be displayed.

Paragraphs and line breaks
The browser will automatically reformat paragraphs depending on its line length setting, so you must indicate line breaks (hard returns) and paragraphs. A line break is `<BR>` and a paragraph is `<P>`. A paragraph break is typically represented as a blank line (double space) while a line break simply moves to a new line (single space).

The `<P>` tag, like `<H?>`, supports ALIGN commands. Thus, `<P ALIGN="RIGHT">` will right justify the paragraph. CENTER and LEFT are supported and LEFT is the default if nothing is specified. You should end the paragraph with a `</P>`. There is no end tag for `<BR>`.

Blank lines are ignored, so you must create them with `<P>&NBSP;</P>`.

Spaces
Multiple spaces between characters within a document are normally compressed to a single space but a "hard space" can be created by "&nbsp;" (non-breaking space). Browsers will not break a line on a non-breaking space, a normal space is needed for this.

It is a good idea to put "&NBSP;" between "<P>" and "</P>" when creating blank lines and in empty table cells (below) as some browsers may ignore "empty" tag sets.

Fonts
There are several ways to emphasize blocks of text. `<STRONG>` starts text that is typically displayed as bold and `<EM>` is typically displayed as italic. These commands allow the user to specify how the enclosed text will be display. This is a preferred method.

However you can specify `<B>` for bold, `<I>` for italic, and `<U>` for underline. `<CODE>` is fixed width and often used to represent computer information. (In fixed width type all characters have the same width so that alignment on different lines is easier.)

To show a block of text just as it is typed in, including line endings, blank lines, and spaces, use `<PRE>` to mark the preformatted text. This uses fixed width type and may be useful for tables until you get comfortable with the markup for these.

Remember to mark the end of the font change with the "/" tag.

Hypertext links
The term "hypertext" indicates the ability to link one document to another or to a different section in the same document. This is done by indicating "links" in the document, then providing the address or reference for the link. The statement:

```
<A HREF="HANDOUTS.HTM">Handouts</A>
```
contains all the information needed to go to another document in the same directory as the current document. The "<A" indicates the start of a link. HREF="HANDOUTS.HTM" gives the name of the document (Hypertext REFerence) and the following ">" indicates the end of the link information.

The word "Handouts" is outside the link tags, so it will be displayed and highlighted by the browser. When the user clicks on it, it will call and display the next document. It is helpful to make the highlighted link information fairly self-explanatory as many screen readers allow the user to tab through documents and only read the highlighted link information.

The "</A>" indicates the end of the words to be highlighted as a link by the browser.

In the above example the file was in the same directory on the same WWW server. If it were in a different directory at the same level, the entry might look like:

   <A HREF="../OVERVIEW.HTM">Overview</A>

The "../" means to go back up a level and use another directory.

Note that forward slashes (/) are used instead of backslashes (\).

If the document is on a totally different server, the entire address must be given:

   <A HREF="HTTP://WWW.ICDI.WVU.EDU/WELCOME.HTM">

(The "HTTP://" indicates that the action is to call another hypertext document using HyperText Transfer Protocol.)

You can link to a different point (called an "anchor") in the same document. First put a "#" in front of the anchor name when setting up the link.

   <A HREF="#Personnel">Personnel</A>

then go to the anchor point and put in a name for it to find.

   <A NAME="Personnel"> Our Personnel </A> include . . .

Note that the case of the letters for the name must match in both places.

Including E-mail addresses
A mail address may be included as an anchor. If the user's browser is correctly set up, a click on the anchor will start the mail system and allow mail to be sent to the address. The format of this is:
<A HREF="mailto:whipp@rtc2.icdi.wvu.edu">E-mail Dave Whipp</A> at whipp@rtc2.icdi.wvu.edu.

The information after the Mailto: is the actual email address that is used, "E-mail Dave Whipp" will be highlighted as the link. It is helpful to give the actual E-mail address as part of the displayed text as well to allow users to write it down or print the page to save it.

**Including images**

Graphic files in gif and jpeg format can be included in files. Use this format:

```html
<IMG SRC="JAN_Logo.GIF" ALT="JAN Logo" ALIGN="LEFT">
```

<IMG indicates a graphic image is to be displayed.

SRC= "JAN_Logo.GIF" gives the name of the graphic to display. Path information may be included if necessary.

ALT= provides a text description of the graphic. This is quite important as people using speech or Braille output will have graphics turned off. Also, many other users turn graphics off as they take a long time to load through slow connections and some browsers (such as Lynx) don't display graphics. If you need a great deal of text to describe the information covered in the graphic, an alternative is to put the description in a separate HTML file and provide a link to it.

ALIGN="LEFT" indicates that the graphic should be at the left margin and that text should wrap around the right side of it. RIGHT is also available.

It is a good idea to keep graphics as small as possible. 100 pixels (dots) wide is usually adequate for a photo of a person or a logo. This will speed up the transfer of the file to the user. Remember that many people access the Internet through a modem which can take much longer than a direct connection to transfer a file. If your graphic does not need a full range of colors (i.e., it is line art rather than a photograph), gif format will usually make a smaller file than jpg.

**Lines:**

A horizontal line or rule may be placed across the page with <HR>. Some speech output systems pronounce the line so these should be used sparingly.

**Lists**

HTML supports several types of lists. An "unordered" list typically puts bullets in front of items:

```html
<UL>
  <LI>Item 1</LI>
  <LI>Item 2</LI>
</UL>
```
This creates a list that looks like:

- Item 1
- Item 2

Note that the list starts with <UL> and ends with </UL>.

An "ordered" list typically uses numbers rather than bullets. Start with <OL>, end with </OL>, and put <LI> </LI> around each list item.

Other types of lists are available. You may have lists within lists (nested). Just be careful to end each list in the proper place.

<OL>
  <LI>Ordered List Item 1 </LI>
  <LI>Ordered List Item 2 </LI>
  <UL>
    <LI>Unordered List Item 1 </LI>
    <LI>Unordered List Item 2 </LI>
  </UL>
  <LI>Ordered List Item 3 </LI>
</OL>

The resulting WWW page will look like:

1. Ordered List Item 1
2. Ordered List Item 2
   - Unordered List Item 1
   - Unordered List Item 2
3. Ordered List Item 3

Some people who use screen readers say that it is helpful to them if lists use numbers and the list is preceded with a note indicating "The following list has three items which . . . ."

**Special characters**

As you have noticed, the characters "<" and ">" are used to mark tags. They also may need to be included in the document as "less than" and "greater than" symbols. To include "<" in a document, use &lt; and use &gt; for ">." Also, use &amp; for "&" and &quot; for the double quotation mark. Note that these entries are ended with a semicolon.
Tables take a bit of concentration, but a nice looking one can be done with only a handful of commands. To do a simple table that looks like:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$155,000</td>
<td>$157,000</td>
<td>$157,500</td>
</tr>
<tr>
<td>Travel</td>
<td>$12,324</td>
<td>$10,800</td>
<td>$11,857</td>
</tr>
<tr>
<td>Office Supplies</td>
<td>$2,432</td>
<td>$1,876</td>
<td>$2,267</td>
</tr>
</tbody>
</table>

- Start the table and define the setup.

  <TABLE BORDER ALIGN="CENTER">

This sets up a table with a border and centers it between the left and right margins. You may leave out the border command and use LEFT or RIGHT alignments.

- Provide the theadings for the columns.


  The <TR></TR> tags designate a table row which consists of table headings for the columns. The example leaves a blank heading above the first column as that will have the headers for the rows in it. The second column will be "1994" and so on.

You do not have to define widths of the cells, the browser will do that automatically.

- Put in the information for each row.

  <TR> <TH ALIGN="LEFT">Personnel</TH> <TD ALIGN="RIGHT">$155,000</TD> <TD ALIGN="RIGHT">$157,000</TD> <TD ALIGN="RIGHT">$157,500</TD> </TR>

  <TR> <TH ALIGN="LEFT">Travel</TH> <TD ALIGN="RIGHT">$12,324</TD> <TD ALIGN="RIGHT">$10,800</TD> <TD ALIGN="RIGHT">$11,857</TD> </TR>

  <TR><TH ALIGN="LEFT">Office Supplies</TH> <TD ALIGN="RIGHT">$2,432</TD> <TD ALIGN="RIGHT">$1,876</TD> <TD ALIGN="RIGHT">$2,267</TD> <BR> </TR>

Note that the first entry is for a table header (<TH>) aligned to the left of the column, the next three entries are for table data and are aligned to the right of the column. </TR> defines the end of the row.

Table data (<TD>) is included for each cell in the row.

You can have many rows.
• End the table with </TABLE>.

Remember that you can use the <H?> commands to put headings above the table to identify and describe it.

Note: Tables are a problem for many of the screen reader software systems. Avoid using tables to format text and graphics.

If you use tables, it is a good idea to allow an option to access the same material in text form using the <PRE> (preformatted) tag. Select a fixed width font (e.g., Courier New), then simply type in the text in columns using spaces, not tabs, to align the information. Put a <PRE> before the text and </PRE> at the end and the text will be displayed as you have typed it.

Some suggestions
Remember that HTML only allows you a system for presenting your information--it is the information itself that is important. Here are a few ideas that may help make your site more useful to users.

• Analyze your audience and develop your site around their needs and abilities.
• Use the medium to communicate your message. Don't let "frills" get in the way.
• People may visit your site the first time to see how it looks, they will return if they find it useful. Provide useful information, make it easy to find, and keep it up-to-date.
• Update and improve frequently. If there is nothing new, there may be no reason to return later.
• Keep graphics to a minimum. Make sure they assist in communication. Keep them as small as possible.
• Use multiple pages rather than long pages whenever possible. Often users only need part of the information and waiting for long files to load, then searching them can be tedious.
• Check out your site using a browser that is connected by modem. Many users do not have high speed connections. Thirty seconds can seem like a very long time to wait when using a computer.
• Check out your site using a variety of browsers. Remember that many people will be using older versions of the browsers. Try a text-based browser such as Lynx to make sure you don't exclude any of your audience.
• Make your system "findable" by the WWW search engines such as Google or Alta Vista. Users who are looking for the information you provide will be searching for words or terms. Make sure you use all appropriate descriptors on your pages. Make certain that the first few lines of each page tell about the page as most search engines present a list of pages found with only a few lines from the page. Post information about your site to the sites running the search systems so that you will be included.

Other HTML guides
This document is intended to provide the minimum amount of information needed to develop basic World Wide Web pages. Many other guides exist on the World Wide Web. A good list is available at: [http://dir.yahoo.com/Computers_and_Internet/Data_Formats/HTML/](http://dir.yahoo.com/Computers_and_Internet/Data_Formats/HTML/)
Accessible HTML
There are a number of excellent resources for developing an accessible Web site. Here are a few very useful ones:

- A guide for developing accessible WWW pages is available at http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505/.
- A Lynx viewer which shows how a text based Web browser will present your site is at http://www.delorie.com/web/lynxview.html.