

## **Web Accessibility – Does Your Web Site Make the Grade?**

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### **Abstract**

Web sites today should meet Web accessibility guidelines to comply with a host of regulations and guidelines for people with disabilities. Recent estimates state that 20% of the U.S. population has a disability and that 10% of the on-line population is disabled. Our aging population also experiences similar issues. This session will help you assure your Web site is in compliance with current regulations and guidelines by reviewing the Web Accessibility Initiative (WAI), the Web Content Accessibility Guidelines (WCAG), and the U.S. Section 508 requirements. Software to evaluate Web accessibility will be reviewed and demonstrated. Best practices, recent initiatives and current developments in Web accessibility will be discussed. This session will benefit faculty, staff, and administration in teaching and evaluating Web accessibility.

### **Introduction**

What do you use the Web for? Getting the news, shopping, entertainment, classroom education, searching the library or other resources for information, job searching, government services, and civic participation? As these methods become more prevalent, they may become the only way to access the information or service. For example, can you find information in a library without using a computer, and in many cases, a Web site? What if you had a disability that prevented you from seeing the Web site, or hearing the video/audio on a Web site? Could you still function?

The Internet has facilitated the use of many great tools for the disabled, such as text to speech synthesizer software programs used by the blind. However, many challenges still exist for the disabled in using the Web, such as the use of a mouse, the use of graphics and video, etc.

The percentage of people with disabilities in most populations is 20%. Not all of this group would be hampered by their disability in using the Web (for example, if their legs were paralyzed). However, we are still dealing with a significant number, estimated at 10% of the population, who may have difficulty using the Web. This translates to 750 million people worldwide, and 55 million Americans.

iCan states that people with disabilities have a discretionary income of more than \$188 billion. On-line businesses could be overlooking a large percentage of their customer base if they ignore the disabled. Government agencies, schools and universities may be breaking the law if they do not provide ways for this segment of the population to access their Web site. As our population ages, they will need accommodations similar to those with disabilities to use the Web effectively.

The disabilities we are concerned with fall into four categories: Visual (blindness, low vision, color-blindness), Hearing, Motor or Physical (inability to use a mouse, slow response time, limited fine motor control), and Cognitive (learning disabilities, distractibility, inability to remember or focus).

## Guidelines

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect." – Tim Berners-Lee, W3C Director and inventor of the World Wide Web.

W3C, or World Wide Web Consortium, is an international, vendor-neutral consortium with over 400 members. Their goal is to promote the evolution, interoperability, and universality of the Web. W3C has three host sites: MIT (North America), ERCIM (Europe) and Keio University (Asia). They have outreach offices in eleven countries and function with four domains: Architecture, Interaction, Technology and Society, and the Web Accessibility Initiative (WAI).

The WAI domain operates in all three host sites and is sponsored by government agencies (including the U.S. Department of Education) and business (including Microsoft, IBM, SAP, and others). They also work with disability organizations, accessibility research centers, and schools and universities. Representatives from these constituencies have worked together to:

1. Ensure Web technologies support accessibility.
2. Develop accessibility guidelines.
3. Improve tools to evaluate and repair Web accessibility.
4. Develop material for education and outreach.
5. Coordinate with research and development.

WAI has developed four different guidelines to address needs 1 – 5 above. They are:

1. Web Content Accessibility Guidelines 1.0 (WCAG 1.) Note that WCAG 2.0 is in working draft 11 as of March 2004; W3C/WAI advises to continue to use the 1.0 version as it finishes its public comment and review work.
2. Authoring Tool Accessibility Guidelines 1.0 (ATAG 1.0).
3. User Agent Accessibility Guidelines 1.0 (UAAG 1.0).
4. XML Accessibility Guidelines (XAG).

WCAG 1.0 explains how to create accessible Web sites, offers general guidelines, lists three priority levels, and provides extensive supporting resources (checklist, techniques, FAQ, fact sheet, curriculum, quick tips, etc.).

The WCAG 1.0 guideline provides three priority levels and corresponding conformance levels as listed in the table below. Sites which comply with these levels may use WAI logos on the site to show conformance.

Priority	Description	Conformance Level	Logo
One	Developer <b>must</b> satisfy or some groups of people will be unable to access information.	Single A	
Two	Developer <b>should</b> satisfy or it will be difficult to access information.	Double A	
Three	Developer <b>may</b> satisfy or some people will find it difficult to access information.	Triple A	

### Quick Tips for Accessibility

The complete list of Web accessibility guidelines and checklist can be found at [www.w2.org/wai](http://www.w2.org/wai). This is a summary list of what you can do to make your site accessible.

Web Page Feature	Accessibility Tip
Images and animations	Use the <b>alt</b> attribute to describe the function of each visual.
Image maps	Use the client-side <b>map</b> and text for hotspots.
Multimedia	Provide captioning and transcripts of audio, and descriptions of video.
Hypertext links	Use text that makes sense when read out of context. Avoid "Click here".
Page organization.	Use headings, lists, and consistent structure. Use <b>cascading style sheets</b> for layout and style whenever possible.
Graphs and charts	Summarize or use the longdesc attribute.
Scripts, applets, and plug-ins.	Provide alternative content in case active features are inaccessible or unsupported.
Frames.	Use the noframes element and meaningful titles.
Tables.	Make line-by-line reading easy. Summarize.
Check your work.	Validate.

### Regulations

Regulations in the U.S. are guided by four legislative acts:

Act	Section	Agency Responsible
Telecommunications Act of 1996	255	FCC
Rehabilitation Act	504	Department of Justice and Department of Education
Rehabilitation Act	508	Department of Justice Access Board General Services Administration
Americans with Disabilities Act		U.S. Department of Justice

The regulations dealing with Web accessibility are usually referred to as Section 508, which refers to the Electronic and Information Technology Accessibility Standards, as amended to the Rehabilitation Act in December of 2000. The standards apply to Federal Web sites but not to private sector Web sites, unless a site is provided under contract to a Federal agency.

The criteria set forth in the standards are based on the WAI Guidelines (see above). Verbal tags, identification of graphics and format devices (like frames) are necessary so that they can be translated or provided to disabled users. This table relates the Section 508 guidelines to W3C's WCAG Checkpoints, and HTML coding techniques.

Section 1194.22 Paragraph (508)	WCAG 1.0 Checkpoint	WAI Coding Technique
a	1.1	Text Equivalents.
b	1.4	Multimedia equivalents.
c	2.1	Content not color dependent.
d	6.1	Content readable without CSS.
e	1.2	Text links for server-side maps.
f	9.1	Use client-side image maps.
g	5.1	Identify columns and rows in data tables.
h	5.2	Identify columns and rows in multilevel tables.
i	12.1	Identify frames with titles.
j	7.1	Avoid screen flicker.
k	11.4	Create alternative pages.
l	6.3, 6.4, 6.5	Functional text for scripts.
m	11.1 and 11.3	Provide links to accessible plug-ins and applets.
n	9.4, 9.5, 12.3, and 12.4	Make forms accessible.
o	6.2	Skip repetitive navigation links.
p		Provide alerts for times responses.

Guideline k suggests an alternative page be developed if the page cannot be made accessible. Most organizations would try to avoid this option, and comply by addressing items a – j on their Web sites.

## Software

Software is available to help you determine if your Web site is accessible. Many products are now available. One of the initial products is Bobby™ which was developed by the Center for Applied Special Technology (CAST) and then acquired by Watchfire Corporation in 2002. Bobby 5.0 is a “comprehensive Web accessibility desktop testing tool designed to help expose barriers to accessibility and encourage compliance with existing accessibility guidelines, including Section 508 of the U.S. Rehabilitation Act and the W3C’s WCAG.” (Watchfire Corporation, 2004).

The Bobby client performs over 90 accessibility checks as it spiders though a Web site. It can test local Web pages, as well as pages behind your company’s firewall. The Bobby client is sold for \$299. An Online Bobby free evaluation tool is available at <http://bobby.watchfire.com/bobby/html/en/index.jsp> . It is limited in that only one page at a time can be evaluated, and the page must be published on the Web.

Bobby cannot evaluate all of the guidelines automatically, so some Priority 1 items must be reviewed manually. For example, reviewing scripts to be sure the information and links in a script are available by other means to users with browsers that do not handle scripts.

Web pages/sites that have been reviewed and conform to the Priority 1 items may use the Bobby 508 approved logo. This status is equivalent to Conformance Level A for W3C’s WCAG. Bobby provides 14 guidelines, which are summarized below.



Guideline	Description
1	Provide equivalent alternatives to auditory and visual content.
2	Don't rely on color alone.
3	Use markup and style sheets properly.
4	Clarify natural language usage.
5	Create tables that transform gracefully
6	Ensure that pages featuring new technologies transform gracefully
7	Ensure user control of time sensitive content changes.
8	Ensure direct accessibility of embedded user interfaces.
9	Design for device independence.
10	Use interim solutions.
11	Use W3C technologies and guidelines.
12	Provide context and orientation information.
13.	Provide clear navigation mechanisms.
14.	Ensure that documents are clear and simple.

## Current Developments

W3C's WAI group is working on Release 2.0 of the Web Content Accessibility Guidelines. In addition, other organizations are developing software that will analyze Web sites for accessibility, and help correct the HTML code to make the site meet the accessibility guidelines.

## Conclusion

Access to Web sites that are published and open to all should be available to all, including disabled users, senior citizens, users with slow modems, and others who struggle to use the Web. Consistent and focused criteria are apparent in the WAI's recommendations via the WCAG, the Section 508 requirements, the recommendations of vendors such as Bobby's parent Watchfire, and IBM.

Many tools and resources are available to test your Web site's accessibility. Complying with the Web Accessibility guidelines set forth by W3C's WAI group will help assure that your site is accessible.

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