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Accessibility Standards Document

Exponetic White Paper

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Contents

Accessibility Standards Document	1
Contents	2
Introduction	4
Issues affecting the ability to access a web site	5
General principles	6
Aims of accessible site building	6
Testing techniques	6
Formal standards	7
Information architecture	8
If more than one medium of information is used at a time then make sure they are synchronised	8
Keep wording simple	8
Use menus and text searches for direct navigation	8
Make the user's position within a navigation structure clear	8
Provide clear and consistent navigation mechanisms	8
Provide context and orientation information	8
Structure information clearly	9
Allow for different user skills	9
Design	10
Consider how colour is used on the page	10
Base designs on an existing mental model such as a metaphor or analogy	10
Be consistent	10
Provide feedback to users actions	10
Don't include large amounts of movement	10
Design forms with ease of completion in mind	11
Programming	12
Do not use techniques which change the browser content out of the users control	12
Specify the DOCTYPE	12
Use CSS rather than HTML for presentation formatting	12
Descriptive Link Text	13
Use text descriptions in image and multimedia elements	13
Group links structurally that are together visually	13
Avoid using frames	13

Order forms in an easy-to-navigate manner	13
Use appropriate HTML tags	14
Consider browsers without scripting capabilities	14
Contact details.....	15

Introduction

Accessibility is an increasingly important issue within the field of internet design and development. Not only is there now legislation in place in the form of the Disability Discrimination Act, which has been shown to apply to web sites, but companies and other organisations are seeing the benefit of making their services and products available to the widest possible audience.

The most commonly known accessibility problem is that encountered by blind and partially sighted web users. Although these form a large group there are a number of other factors which affect a person's ability to interact with a web site which can be improved by knowledgeable design and development teams. These are discussed in section 2 whilst general principles and an outline of how to approach a project in order to maximise accessibility is contained in section 3.

There are a number of standard documents already in existence on the web. The best known are those produced by the Web Accessibility Initiative so an outline of their standards are detailed in section 4. Although their recommendations are quite extensive (especially in terms of coding standards) they are intended for general reference and cannot always take account of the circumstances of a site and its target audience. For example, recommendations to use CSS for layout will improve accessibility for one group of people to the detriment of those with older browsers unless approached carefully. Sections 5, 6 and 7 contain the main points of the WAI recommendations which we believe to be the most important based on our experience.

Using this document as a basis for project-specific standards it is possible to make an informed judgement about an appropriate approach to accessibility armed with an understanding of the wider issues that require consideration.

Issues affecting the ability to access a web site

There are a number of issues which need to be considered when discussing web site accessibility. Factors affecting site visitors include:

- They may not be able to see, hear, move, or may not be able to process some types of information easily or at all.
- They may have difficulty reading or comprehending text.
- They may not speak or understand fluently the language in which the document is written.
- They may not have or be able to use a keyboard or mouse.
- They may have a text-only screen, a small screen, or a slow Internet connection.
- They may have an early version of a browser, a different browser entirely, a voice browser, or a different operating system.

A number of elements can contribute to lowering the level of accessibility of a site, including an over-reliance on images or colour to convey information, time-sensitive animation or other elements outside of the user's control, as well as straightforward bad coding practices.

As can be seen from the list above, visual impairment is not the only concern that those wishing to tackle accessibility issues must consider. Physical or cognitive problems are also common, as may be a lack of familiarity with computers in general or a particular web browser interface or operating system in particular. This is especially important to consider when browser and device manufacturers are beginning to address the problems of interpreting graphical content through screen readers, the needs of which can be relatively easily addressed by following good coding practices such as those based on W3C standards. For this reason special attention needs to be given to a wider range of issues such as those affecting content and information architecture decisions as detailed in the following sections of this document.

General principles

Aims of accessible site building

The guiding principle behind accessibility is to enable the maximum number of people to engage with a site and its content. An understanding of accessibility issues and their application to new sites is beneficial to all web users, not just those with specific disabilities as the issues in the previous section highlighted. This may be something relatively straightforward such as using existing metaphors and navigation models or may require additional time and thought in the case of how to deliver complex information.

Techniques to deal with accessibility issues relate to all aspects of the web site build process including information architecture, content writing, design and coding. Since each field makes its own contribution to raising the accessibility level of a site no one area of expertise can be brought to bear to make an inaccessible site accessible if it has not been planned as such from the outset.

Testing techniques

As well as following the guidelines described here and by a general adherence to good coding standards there are a number of other things that can be done to assess whether the final product is accessible. This can range from undertaking specific testing with user groups (it is essential that if screen-reader testing is to be undertaken that it be done by people experienced with the use of such software) to testing a site with the full range of accessibility options that modern browsers offer. For example:

- Test with stylesheets enabled.
- Changing font size.
- Using black and white settings on the monitor to check contrast
- Disabling scripting languages
- Testing in a variety of browsers and operating systems (including those not specifically supported by the site requirements, such as old versions of Netscape)
- Testing with a text only browser such as Lynx
- Uninstalling plug-ins

As can be seen, many of these techniques are readily available to most designers and developers and any problems ascertained relatively easily.

Formal standards

The World Wide Web Consortium (W3C) has produced a set of standards designed to improve web site accessibility. These have been brought under the name of the Web Accessibility Initiative. Detailed information on the Web Accessibility Initiative's standards can be found at <http://www.w3.org/wai/>. The guidelines are divided into three priority areas:

Priority 1:

A Web content developer **must** satisfy this checkpoint. Otherwise, one or more groups will find it impossible to access information in the document. Satisfying this checkpoint is a basic requirement for some groups to be able to use Web documents.

Priority 2:

A Web content developer **should** satisfy this checkpoint. Otherwise, one or more groups will find it difficult to access information in the document. Satisfying this checkpoint will remove significant barriers to accessing Web documents.

Priority 3:

A Web content developer **may** address this checkpoint. Otherwise, one or more groups will find it somewhat difficult to access information in the document. Satisfying this checkpoint will improve access to Web documents.

Web sites which conform to these standards are divided into three categories:

Conformance Level "A": all Priority 1 checkpoints are satisfied;

Conformance Level "Double-A": all Priority 1 and 2 checkpoints are satisfied;

Conformance Level "Triple-A": all Priority 1, 2, and 3 checkpoints are satisfied;

It is Exponetic's view that, rather than choosing one of the predefined accessibility levels, it is often better if the target audience is assessed and a range of accessibility options are selected tailored specifically for the site in question. For example, in building a site for a youth audience it is common to allow for a high level of computer literacy whereas sites that may be accessed often through public libraries and other shared systems are less likely to be viewed using fast computers or the latest browsers.

The sections that follow detail various accessibility techniques according to Information Architecture, Design and Programming which may be adopted as a project warrants.

Information architecture

If more than one medium of information is used at a time then make sure they are synchronised.

Where several output modes are to be used simultaneously, they must be well synchronised so as not to interfere with (and detract from) each other. If the information provided by each mode is complementary to the others, then the quantity must be kept down, again to prevent undue interference. If these points are achieved, then multi-modal presentation can enhance the display message.

Keep wording simple.

Wording should be simple and affirmative, and include questions and commands if the user is expected to respond. Use the clearest and simplest language appropriate for a site's content.

[Priority 1]

Supplement text with graphic or auditory presentations where they will facilitate comprehension of the page.

[Priority 3]

Use menus and text searches for direct navigation.

Provide several routes to the same goal and include prompts. Reduce the load on the user's memory to a minimum. Include advanced 'skip through' navigation for more experienced users.

[Priority 3]

Provide navigation bars to highlight and give access to the navigation mechanism.

[Priority 3]

Make the user's position within a navigation structure clear.

A user's position in the system should be clear, and transitions from one part to another made obvious. Judicious use of screen layout, colours, sound etc can all help in this respect.

Provide clear and consistent navigation mechanisms

Provide orientation information, navigation bars, a site map, etc. to increase the likelihood that a person will find what they are looking for at a site. Clear and consistent navigation mechanisms are important to people with cognitive disabilities or blindness, and benefit all users.

[Priority 2]

Provide context and orientation information.

Grouping elements and providing contextual information about the relationships between elements can be useful for all users. Complex relationships between parts of a page may be difficult for people with cognitive disabilities and people with visual disabilities to interpret.

Provide information about the general layout of a site (e.g., a site map or table of contents).

[Priorities 1 and 2]

Structure information clearly

Divide large blocks of information into more manageable groups where natural and appropriate.

[Priority 2]

Place distinguishing information at the beginning of headings, paragraphs, lists, etc.

[Priority 3]

Allow for different user skills

Supplement text with graphic or auditory presentations where they will facilitate comprehension of the page.

[Priority 3]

If search functions are provided, enable different types of searches for different skill levels and preferences.

[Priority 3]

Design

Consider how colour is used on the page

If color alone is used to convey information, people who cannot differentiate between certain colors and users with devices that have non-color or non-visual displays will not receive the information. When foreground and background colors are too close to the same hue, they may not provide sufficient contrast when viewed using monochrome displays or by people with different types of color deficits.

[Priority 1]

Ensure that all information conveyed with colour is also available without colour, for example from context or markup.

[Priority 1]

Ensure that colours used do not inhibit the use of a site by partially sighted users. Use high contrast combinations for text on plain backgrounds. Ensure that foreground and background colour combinations provide sufficient contrast when viewed by someone having colour deficits or when viewed on a black and white screen.

[Priority 2]

Base designs on an existing mental model such as a metaphor or analogy

Reduce the load placed on the user's processing ability and memory by basing navigation structures on known systems.

Be consistent

A consistent page layout, recognizable graphics, and easy to understand language will benefit all users. In particular, they help people with cognitive disabilities or who have difficulty reading. Create a style of presentation that is consistent across pages.

[Priorities 2 and 3]

Provide feedback to users actions.

Provide feedback especially where an action will have relatively enduring consequences, like ordering an item which is for sale. Tailor the amount and immediacy of the feedback to the complexity and importance of the interaction.

Don't include large amounts of movement.

Some people with cognitive or visual disabilities are unable to read moving text quickly enough or at all. Movement can also cause such a distraction that the rest of the page becomes unreadable for people with cognitive disabilities. Screen readers are unable to read moving text. People with physical disabilities might not be able to move quickly or accurately enough to interact with moving objects.

When a page includes moving content, provide a mechanism within a script or applet to allow users to freeze motion or updates. Using style sheets with scripting to create movement allows users to turn off or override the effect more easily.

[Priority 2]

Design forms with ease of completion in mind

For all form controls with implicitly associated labels, ensure that the label is properly positioned.

[Priority 2]

Programming

Do not use techniques which change the browser content out of the users control

Currently browsers do not have the facility to turn off the meta refresh command in the head of a document. As it is impossible to judge how long a user may take to read a page then anything that automatically changes the document location should be avoided.

[Priority 2]

Until user agents provide the ability to stop auto-redirect, do not use markup to redirect pages automatically. Instead, configure the server to perform redirects.

[Priority 2]

Until user agents allow users to control blinking, avoid causing content to blink (i.e., change presentation at a regular rate, such as turning on and off).

[Priority 2]

Until user agents allow users to turn off spawned windows, do not cause pop-ups or other windows to appear and do not change the current window without informing the user.

[Priority 2]

Specify the DOCTYPE

Specify the document type at the top of the page to ensure that it is rendered correctly in browsers which support the specification of document types.

e.g. <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"> or <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/1999/PR-xhtml1-19991210/DTD/xhtml1-strict.dtd">

[Priority 2]

Use CSS rather than HTML for presentation formatting.

CSS allows the separation of content and style which ensures that tags reserved for data structure such as <H1> and are not used for purely visual differences. Stylesheet font tags such as font-family, font-size etc should be placed in the head of the document including the setting of document-wide defaults e.g:

```
body,td,div,p {font-family: Arial; font-size: 10pt; color: #000000}
```

Define style classes to perform other font formatting e.g:

```
.titleHeading {font-size: 12pt; font-weight: bold}
```

Avoid using deprecated HTML tags (those which are present in HTML 3.2 but whose use is discouraged in HTML4 and XHTML1) such as and <i>.

Use CSS positioning and <div> tags in preference to tables for page layout.

[Priorities 1 and 2]

If tables are used for data layout make use of THEAD, TBODY as well as TH tags to specify the data structure contained in the table.

[Priority 1]

Avoid using tables for layout only unless the table contents make sense when read in a linear order (i.e. as they appear in the source code).

[Priority 2 and 3]

Where stylesheets are used to format documents then ensure that pages are readable and navigable without them.

[Priority 1]

Descriptive Link Text

Links should clearly describe the target page e.g. avoid phrases like 'click here' either in text links or as alt text. Use TITLE tags in links as an alternative to alt tags e.g.

```
<a href="homepage.html" title="Homepage">Homepage</a>
```

[Priority 2]

Use text descriptions in image and multimedia elements

Images used for links or otherwise must have ALT tags and possibly LONGDESC where necessary. Do the same for multimedia elements.

[Priority 1]

If you use spacer images then use alt="" to make it clear that the image does not convey important information.

[Priority 2]

Client-side image maps should have text descriptions and ALT text within the AREA tags. Avoid server-side image maps or provide alternative links.

[Priority 1]

Group links structurally that are together visually

Collections of links (e.g. for navigation elements) should be grouped on the page so that when rendered in text-only or speech browsers they can be bypassed in a group in the same way as navigation areas are when displayed visually. This can often be achieved by the use of CSS positioning.

[Priority 3]

Avoid using frames

Avoid frames where possible as relationships between content in frames is difficult to convey to non-visual users. This also avoids problems with users being able to open links in new windows.

If frames are used insert a title into the FRAME tag to describe the frame's contents e.g. <frame title="Navigation Bar"...

[Priority 1]

Order forms in an easy-to-navigate manner

Where possible control the tab order through form elements by using the TABINDEX tag. This is more relevant to form elements inside tables where, for instance, the order of form elements as they appear on the rendered page and the order in which it would be preferable to navigate those elements is different from the order in which they appear in the source code.

[Priority 3]

Use appropriate HTML tags

Use header elements to convey document structure and use them according to specification.

[Priority 2]

Mark up lists and list items properly with , and tags as appropriate with CSS formatting rather than using images and table layouts.

[Priority 2]

Mark up quotations. Do not use quotation markup for formatting effects such as indentation.

[Priority 2]

Avoid deprecated features of W3C technologies.

[Priority 2]

Consider browsers without scripting capabilities

Ensure that dynamic content can be accessed by alternative means. Avoid using dynamic (client side) content creation and using JavaScript to control links. Ensure that pages are usable when scripts, applets, or other programmatic objects are turned off or not supported. If this is not possible, provide equivalent information on an alternative accessible page.

[Priority 1]

If images or other page elements are changed dynamically ensure that the alternative text description is updated at the same time. Use the NOSCRIPT tag where appropriate to provide an alternative to scripted content. This may contain links as a substitute for the scripted functionality and the content will not be rendered in browsers which do support scripting.

[Priority 1]

Avoid using page redirections and pop-ups which cannot be controlled by the user. Although browsers may support them they can be disorientating and, as with META refreshes it is impossible to judge how long it will take a user to read a page.

[Priority 2]

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