



Realize Your Ideas

Creating Accessible and Usable Websites

- WCAG and ATAG Explained

Prepared by:

David Gardiner – Calsoft Enterprise Solutions

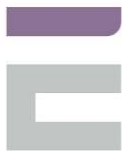
Simon Bartolo – Sitecore (UK)

John Morse – Information Architect, Eduserv

Mike Ellis – Solution Architect, Eduserv

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Abstract

Accessibility and usability should be part of the structural design process of your web site, part of the technical development process and a continuous process owned by the business once the service has gone live. A standards compliant site however is not necessarily accessible or usable.

Building accessibility and usability was once regarded as a desirable add-on to your web project, something you do after the graphics and technical development has been completed. It was seen as either extra effort, with limited benefit to the organisation or as simple tick box activity with a few automated checks to comply with the rules.

The effort involved in ensuring accessibility and usability is easily manageable however, by using the resources available online, which will guide you through the processes, and software solutions which are designed to ensure accessibility and usability is an integral part of your web site development and maintenance process.

Understanding the roles of the WAI, the aims of the WCAG and the ATAG will lead you towards accessible, and therefore usable, web solutions which will not only meet the legal requirements, but more beneficially increase your organisation's profile, and improve the experience for all your site visitors.

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Introduction

Increasingly web site owners, companies and organisations are becoming aware that building and deploying your website does not guarantee exposure or use. The ‘if you build it they will come’ ethos, in this instance, does not work. Your website has to work the way the user expects. It has to be engaging, offer useful and up-to-date information, and have a user interface (UI) that is not challenging but intuitive. It also needs to be findable, usable and accessible. All of this takes time, effort and understanding, but is easily achievable with a little planning and commitment.

The World Wide Web Consortium (W3C) is the guiding force in providing standards for developing websites that work. The W3C mission is:

“To lead the World Wide Web to its full potential by developing protocols and guidelines that ensures long-term growth for the Web”

One of the activities that the W3C focuses on is accessibility, and it produces a number of resources to assist and guide you in your efforts to produce accessible web services.

This initiative, called the Web Accessibility Initiative (WAI)¹ is defined as developing:

- ***“..guidelines widely regarded as the international standard for Web accessibility”***,
- ***“...support materials to help understand and implement Web accessibility”***,
- ***“...resources, through international collaboration”***.

These guideline are described as...

“Documents that explain how to make Web content accessible to people with disabilities. Web ‘content’ generally refers to the information in a Web page or Web application, including text, images, forms, sounds, and such. (More specific definitions are available in the WCAG documents.)

WCAG is part of a series of accessibility guidelines, including the Authoring Tool Accessibility Guidelines (ATAG) and the User Agent Accessibility Guidelines (UAAG). [Essential Components of Web Accessibility](#) explains the relationship between the different guidelines.”

The WCAG includes a series of checkpoints, guidelines and techniques to make this process as simple as possible. WCAG identifies three levels of ‘compliance’, **A**, **Double A** and **Triple A**, each of which correspond to increased levels of compliance. Following these techniques, checklists and guidelines makes the process of developing accessible sites less painful. Being compliant with these recognised standards (which are followed by developers of accessible software, sites and services), also aids interoperability between devices and across different browsers.

¹ <http://www.w3.org/WAI/>

The Art of Communication

As graphic design students, (far too many years ago), we carried out an exercise in communication. The aim was to show how difficult it was to communicate even the simplest message when your point of view is (even slightly) different from your audience.

Two people sitting back to back would take the roles of leader and follower. The leader would build a structure using a number of building blocks and relay instructions to their partner on how to reproduce the structure. Neither were able to see what the other was doing. They both had an identical set of building blocks.

Describing which block to place where and how to someone who is using the same language as you and has no limitations in choice and movement should be relatively easy.

Not one attempt succeeded in producing a like-for-like structure. Many were so dramatically different that the only way to fix the difference was to strip one down and start again.

In a web context, how we communicate to our users is as important as how they communicate to us. In other words;

“If your site is difficult to work with then the user will assume your company is also”²

For many people, your website will be the first point of contact that they have with your organisation. If the user cannot find what they need quickly and easily then you, the provider, have a problem.

Making a site accessible, usable and findable is a simple case of ‘plan, execute, respond and repeat’. Ultimately, the effort that you make to keep the information you have in the public eye should be invisible unless called on. This is often called “graceful degradation”: If you have **functionality** which is available to able-bodied users with fully-functioning modern browsers, then removing that functionality should make no difference to the **content** available. A beautifully styled site, for example, should render all content even with CSS, and JavaScript turned off.

² Quote taken Jesse James Garrett, - The Elements of User Experience

Technical Compliance

It is important to note that a site can be **compliant** to W3C web content accessibility guidelines, and even be by definition 'accessible' **without being usable or 'functionally accessible' to the end user**. In other words, it ticks all the boxes, but still isn't human friendly. The difference between being functionally accessible and passing the compliancy checks for a specific accessibility checker is a key consideration in all cases. Why would you endeavour to build a compliant website which adheres to guidelines, only to leave the user with an interface or content which fails to deliver?

To be truly accessible your web services must be **accessible and useable to all**, not just disabled users and those perceived to directly benefit from W3C³ compliance. Users may attempt to access your service from any number of devices, for example phone, PDA, games console, TV, kiosk etc., and to achieve true compliance you should cater as much as possible for all usage scenarios and user groups. In doing so, you increase your audience coverage and convey your message to those that need and want it, wherever and whenever they choose to access it.

By creating an accessible site and following all the guidelines published by the WAI⁴ then you are already on the way to developing a usable service. Just don't forget the users!

Site Design

Graphically, the presentation of the site needs to be capable of accommodating all users and all platforms. A keen understanding of the limitations and opportunities of the WAI guidelines pertaining to animation and content presentation need to be considered at an early stage.

That does not, however, mean that a site needs to be dull, lifeless or boring. Too often the word "accessible" is equated with uninspiring graphics and featureless design. Good, usable, accessible and engaging sites require planning and design at both the UI and architectural level to make sure that the structure and presentation of the site allow for an excellent user experience. At the same time these sites should accommodate users who cannot make use of some of the more involving technologies.

The simple message here **is not** "don't use feature-rich elements on your site". It is instead "when you use these elements, make sure that they are used **appropriately**, and don't create a barrier". An example might be the use of Flash. An **appropriate** use of Flash would be for a game or interactive which couldn't be rendered in any other way. If the Flash was simply

³ World Wide Web Consortium – www.w3c.org

⁴ Web Accessibility Initiative, the working area of the W3c site responsible for the various accessibility initiatives - <http://www.w3.org/WAI/>

presenting text and imagery but without interactivity then it is **inappropriate** use: this can be done better simply using XHTML.

There is a subtle path to be followed here. It is unrealistic to expect all users to have the same wholly engaging experience at all times and from all browsers. It is wholly realistic, and also possible, however, to present alternative views of content so that users are not confronted with unacceptable barriers.

What are the limitations and opportunities for the WAI guidelines?

The message here is the same as with usability and information architecture: its place within your programme of work is at the beginning, before the design or development phases.

However, sites can be designed to be usable, or even accessible, but technically still have fundamental flaws in the build which render them unreadable by assistive software. It is easy, in other words, for designers to create views that **appear** accessible without being technically accessible.

Designers have to take the limitations and idiosyncrasies of various browsers into account when designing sites. The different approaches taken by major browsers such as IE, Netscape Navigator and Firefox have caused problems in the past. Now that (potentially) hundreds of browser variants are starting to be used on mobile devices, the issue has become seemingly much more complex. In fact, delivery of content using CSS and XHTML is radically simplifying the ways in which rich, beautifully presented sites can also be rendered on low-end mobile devices provided some simple rules are followed.

Site Content

Possibly the most overlooked item when producing and maintaining an accessible/usable service is the single most important: the **content** of your site.

Once your organisation attains compliance it needs to keep it. The key here is delivering well written, up-to-date content on top of a stable accessibility-compliant platform. Simple rules can and should be put in place to ensure that the site editors do not add content that then makes the service non compliant or difficult to use. Content needs (in accordance to the WAI guidelines) to be well structured, clear, consistent and well formed. Whilst this is something that cannot be automated (the contributors to your site are still human), you can help alleviate potential problems using a Content Management System (CMS). Separating **content** from **presentation** by using an editing interface that makes it difficult (impossible) for editors to format content in ways that can break your site, helps to maintain compliance and brand identity and satisfies some of the ATAG (Authoring Tools Accessibility Guidelines) guidelines.

But you still need to make sure that the people whose job it is to regularly add and amend content on the site understand how to structure it so that it makes sense to all users on all

platforms and browsers. The ATAG require all content authors to be supported in this process. The solution you use needs to guide, assist and if necessary limit the author to create accessible, well structured and compliant content.

Training authors to use clear and concise language that will make sense to the audience is vitally important to the usability of the site. Whether the subject is communicated using simple or complex language depends on the audience being addressed, but authors need to be mindful of the limitations of the screen over printed medium. A CMS product usually allows, amongst other things, the addition of a **workflow process** which will hopefully enable a trained eye to quality check the content being delivered for inaccessibility errors or language use prior to it being published.

You can further assist the authors in creating useful, findable and meaningful content by creating a generic structure for site content using hierarchical page templates defining the site structure. Language should be consistent, as should the navigation and placement of content; Thinking **as a user would think** rather than as your organisation would think is one key skill which often helps. You can extend this by testing your site navigation and content with external users from the primary audience you are trying to attract. They are usually better at spotting errors from a distance than you are with the familiarity you bring!

Position important information at the top of the page so that users don't have to read through, or listen to, the entire page before getting to the section they need. For example, put the primary address and telephone number for your organisation at the top of the contacts page not the middle or bottom of the page after company information.

Using content to entice, inform and give simple, clear, up to date information to the user as they expect to find it will add to the authority that a user will associate with the service you are supplying. In turn, this will develop the trust relationship that you desire, encouraging use and reuse as well as exposure and increased traffic.

Site Accessibility

Accessibility goes beyond disability rights and beyond websites. An accessible solution should, by definition be usable, and visa versa. If a user cannot access a site then they cannot use it; if they cannot use it, then all the work put towards attaining accessibility compliance as well as creating a functionally accessible experience is wasted.

Therefore, when creating a website/web service which is both accessible and usable the audience you are aiming to communicate with should always be the main consideration throughout the planning, design and development activities for the site, through to the creation of content. If the site is designed and written for your organisation rather than the target audience then the messaging may not be clear. The site structure may reflect your internal corporate structures and not the publicly understood and expected vision. The result, a

confusing, garbled message of difficult to comprehend and un-findable content, will not achieve the aims that you have for the site.

The ATAG

The ATAG⁵ (Authoring Tool Accessibility Guide) comprises of a list of requirements, checkpoints and guidelines to support users by making sure that they have all the tools they need to create accessible content that conforms to the WCAG in an environment that is also, in itself, accessible.

The guidelines for the ATAG refer to how a specific AT (Authoring Tool) will support the author in the production of accessible content and provide an accessible solution with which to do so. Further to that, it defines the functions, features and methods that an AT should, must or could support in order to aid and assist the author to create accessible websites.

The ATAG define an "authoring tool" as:

“Any software, or collection of software components, that authors use to create or modify Web content for publication, where a "collection of software components" are any software products used together (e.g., base tool and plug-in) or separately (e.g., mark-up editor, image editor, and validation tool), regardless of whether there has been any formal collaboration between the developers of the products”

“Everyone should have the ability to create and access Web content.”

The principles set forth in these guidelines will benefit people who have a disability and those that are concerned with the development of content in an accessible format as well as users who cannot use traditional interaction tools. This includes people who work in noisy or quiet environments where the use of sound is not practical, people who need to use their eyes for another task and are unable to view a screen, and people who use mobile devices that have a small screen, no keyboard, and no mouse.

The ATAG principles are not just about the authoring tool being in itself accessible, but also that the tool will support and promote the creation of accessible content and sites that conform to the WCAG.

The guidelines are supported by checkpoints which (depending on the WCAG checkpoints that need to be met) have a priority level which has been chosen based on the assumption that the author is a competent, but not necessarily expert, user of the authoring tool, and that the author has little or no knowledge of accessibility.

⁵ [Note. The ATAG 2.0 draft is due for release in 2008 and these guideline and the related checkpoints may well change in the final specification]

- **Guideline 1. Support accessible authoring practices**

Any code generated by the tool either by the authoring tool itself or by transforming other document formats, must conform to the target accessibility guidelines.

This means that if the tool generates (x)HTML (or any other mark up) or converts a document, image (or any other resource) into web content then the mark-up generated MUST be compliant, well formed and accessible code.

- **Guideline 2. Generate standard mark-up**

The tool MUST promote standards compliant mark-up, or in other words, make sure that the mark-up created is compliant with W3C recommendations, if you cannot do this then you need to inform the user that this is the case. W3C recommendations are being developed all the time, allowing for the modular development of the AT means that you can update the mark-up engine to keep up with these changes and limit the impact on the user and the developers.

- **Guideline 3. Support the creation of accessible content**

A user may not be aware of the key points for creating accessible content; the tool must therefore promote, enable and guide them into creating content that is accessible. For instance, if an author was creating a content item that included an image the AT would prompt them to fill all the recommended attributes, (alt tags and description fields). If it is possible to automate this process then the AT should offer options for values to be included in the fields, these options MUST be confirmed before inclusion. The AT should, if applicable, promote the separation of content and presentation.

- **Guideline 4. Provide ways of checking and correcting inaccessible content**

As authors create content, the AT should automatically check the mark-up and inform the author of the issues, either as they occur or as part of the content submission processes. *These checks should ideally fit in with the author's existing work practices; some authors may prefer these checks to be done as they work, others may prefer to run a check on the submit action.*

In all circumstances, the tool should allow for the author to override the checker and enforce the entered mark-up. The rationale for this is to take into account the possibility that the mark-up may be imported or entered to enhance site accessibility and the AT checker is not aware of these updates.

- **Guideline 5. Integrate accessibility solutions into the overall "look and feel"**

As an AT is updated the features added need to react in the same way and be presented in a consistent manner, the interaction tools, features and relative positioning and importance need to remain consistent allowing the author to continue to produce accessible content.

- **Guideline 6. Promote accessibility in help and documentation**

You cannot assume that the author is aware of or up to date with issues and methods for producing accessible content, therefore the help functions of the AT should reflect this. The help functions should support the author and help them understand the issues around accessibility, the methods used for producing accessible content and the reasons why the AT behaves the way it does when complying with other requirements of the WCAG and the ATAG.

- **Guideline 7. Ensure that the authoring tool is accessible to authors with disabilities**

This refers to the editing environment which should itself support authors with disabilities to edit and manage accessible content

In simple terms the AT interface must itself be accessible for the creation of accessible content and manage content using standard interface tools and methods, This means that the interface must be useable for users that cannot use a mouse or may have sight limitations. The interface needs to be able to communicate the relative structure of the document and its position in the site to the author, they need to be able to create content and assign styles and add elements in such a way that produces accessible content.

Documentation helper files and installation processes are covered by this guideline and as such need to be accessible and usable for all users.

Making it happen

The following points are among the most important when developing “holistically accessible” content:

- Develop to the needs of the **user**, not the organisation. Identify the key areas that a user needs and make them easily accessible,
- Identify **all** user groups, not just the ones you currently have interaction with. Ask yourself **why** you don’t have an audience in a certain group...
- Approach users and experts to test your site. **Do not rely on automated scripts.** Testing and passing the automated scripts available does not mean your site is accessible; it just makes it compliant with the rules as interpreted by the automated tool.

Summary

Whilst the WCAG outlines the steps that need to be taken when developing and supplying an accessible and usable web service, the methods used to deliver and maintain these services can be difficult to achieve without continued planning and a commitment to support and educate the authors and administrators in their efforts.

The tools available are there to make this task much easier and when they are implemented and used in the correct way they can make compliance a less daunting task.

Legally, your organisation needs to comply with legislation passed to make sure that your service, on- and off-line are accessible, but it's about more than just meeting your legal requirements. A site with intelligent structural design, engaging and intuitive interfaces and well written, up-to-date content will increase your profile in the public eye and encourage users to engage and interact more fully with you and your organisation.

If you wish to comment on this report please contact:

David Gardiner

Solutions Architect

Calsoft Enterprise Solutions

Mobile: 07789 646281

Email: david.gardiner@calsoftes.com



Contact Information:

Eduserv

Queen Anne House

11 Charlotte Street

Bath

BA1 2NE

Tel: +44 (0)1225 474300

Fax: +44 (0)1225 474301

Email: contact@eduserv.org.uk

Web: www.eduserv.org.uk

Calsoft Enterprise Solutions

2 Churchill Court

58 Station Road

North Harrow

Tel: +44 (0) 208 427 9570

Fax: +44 (0) 870 762 8967

Email: info@calsoftes.com

Web: www.calsoftes.com

Sitecore UK Ltd

10 Philpot Lane

London

EC3M 8BR

Tel: +44 (0) 20 000 000 81

Fax: +44 (0) 20 762 119 04

Email: sales-uk@sitecore.net

Web: www.sitecore.net