Managing an Accessible Website with a CMS
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Background

**What is a Content Management System?**

A Content Management System, or CMS, is a program designed to help develop and maintain shared information, primarily websites. A CMS typically uses an XML format separating content from design elements, thereby allowing numerous combinations with minimal work. CMS’s are designed to allow multiple users to edit and publish shared information in a variety of formats.

XML’s flexibility makes having a CMS a huge asset for businesses and organizations, particularly those which need to publish content that meets preset criteria, such as the Web Accessibility Initiative (WAI), or, in the US, Section 508 of the Rehabilitation Act.

**What is the WAI?**

The Web Accessibility Initiative (WAI) was developed by the World Wide Web Consortium (W3C) in an effort to improve the accessibility of the World Wide Web especially, but not only, for people with disabilities.

The W3C was founded in 1994 to advance the Web. It is responsible for the development of uniform protocols to assure the interoperability of the Web. The WAI, part of the W3C, has developed a number of guidelines that can help to make Web sites more accessible, especially from the view of physically disabled people.

**Who Needs to Comply?**

Although the WAI simply offers guidelines and encouragement for organizations and businesses that wish to make their sites accessible, many government organizations throughout the world have established similar guidelines that must be adhered to.

When the US Federal Rehabilitation Act was amended in 1998, Congress declared that Federal agencies must give disabled employees and members of the public access to information that is comparable to the access available to others.

In the US, the law officially applies to all Federal agencies and any organizations receiving Federal funds. There’s another reason to comply, however, and that is that it just makes sense. Making your site accessible, whether legally required or not, opens your company up to all visitors, regardless of disabilities.

**What Does Compliance Entail?**

To be accessible, websites must follow certain protocol. Here are some of the issues laid out by both WAI and the Federal Rehabilitation Act:

- Images and tables must have ‘alt’ attributes (abbreviation for alternate and used to supply a text representation of the item), and pages must be readable by electronic means.
- Any information conveyed by color must also be available without color.
- Scripted display elements and server-side image maps must offer text alternatives.
• Documents must be organized so they are readable without a style sheet.
• For sites that use frames, each frame must be titled in a way that facilitates electronic navigation from frame to frame.
• For web pages that require specific plug-in, the page must provide a link to the required plug-in or applet.
• Forms must allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form (typically done with ‘label’ elements).

What do these guidelines accomplish?

To understand how these guidelines aid accessibility, it’s important to understand how individuals with disabilities might interact with the web. People with little or no sight must rely on electronic readers to read pages to them. Those with severe myopia may use screen magnifiers or text enlarging browser settings. Color defected individuals will miss the nuances communicated by color and must look for other indications which convey the same meaning. And finally, people with decreased motor skills generally rely on keyboard shortcuts for navigation.

What all these individuals have in common is that they must rely on assistive technology to help them navigate the web and find the information they need. To a large degree, improving your website’s accessibility is not geared toward directly assisting the disabled visitor, but toward helping these various technologies better read your site. Conveniently, many of the techniques that make your website easier to access for assistive technologies, are the same techniques that make your website more attractive to search engines, and therefore improve your rating.

Using a CMS to Ensure Accessibility

A CMS is designed to make managing websites easier for everyone involved, and this includes those responsible for ensuring accessibility. When done by hand, it can be all too easy to miss steps, and forget certain details that must be taken care of. Fortunately, Cascade Server is designed to take the guesswork out of accessibility.

Automatic Compliance Checking

The easiest way to ensure that your site complies with the standards set forth by WAI is to select a CMS that handles it for you. With the click of a button on the system options page, Cascade Server can check all content for compliance, and alert users to any potential errors.
Just like the spell checker and link checker, the Content Accessibility checker looks for errors any time an asset or page is created or edited. If there are any elements that do not comply, a message pops up explaining the error.

With the compliance checker turned on, ALT attributes become required fields for tables and images, form fields must have labels, and scripted display elements and server-side image maps must offer text alternatives.
Compliance through Multiple Outputs

For designers with complex sites that take advantage of all the latest scripting languages and multimedia capability, WAI Compliance may seem extraordinarily limiting. There is, however, another way to ensure accessibility while maintaining the ‘look’ designers work so hard to achieve.

The guidelines suggest that where a single site version cannot satisfactorily be made accessible, a text-only version may be provided. This text-only version must be maintained in line with the primary site version, and must provide exactly the same content, without the graphics and multimedia.

To achieve this, Cascade Server offers the ability to output the same page content in different formats. Different templates can be used to pull in the appropriate content blocks, and a stripped down version of the exact same content can be created.

Because the content exists as one page inside the system, and is simply output as different versions, pages need only be updated once. All changes are replicated onto the text-only version automatically.
When the site is published, it is automatically published in both formats simultaneously. Links at the top of each page allow users to easily navigate between the default html version and the text-only version depending on their needs.

**Going Beyond**

While these automated methods are a great way to ensure your site adheres to the guidelines set forth, accessibility is about much more than compliance. Making your website truly user friendly means taking extra steps to ensure the site is built clearly and cleanly, and this is where the real value of using a CMS shows through.

**Well-Organized Templates**

In order for electronic readers to correctly translate a webpage, it must know what type of page it’s reading. To facilitate this, sites should have a `doctype` declaration at the top of each page. In addition, pages should include a language declaration to ensure the reader pronounces words properly. Using a CMS, templates are stored separately from page content, making it easy to update one or two templates as needed, including the appropriate `doctype`, and have those changes replicate throughout the site to any pages based on those templates.

Templates should also be laid out in a clean and organized way. Because the use of Cascading Style Sheets (CSS) makes it possible to design the layout separate from the content of a page, it is possible to rearrange HTML elements on the template without changing the actual look of the page. This enables you to actually put the content part of the HTML in front of the navigation links and visual elements. When content is placed first, site visitors using electronic readers do not have to listen to half a page of links being read before getting to the content s/he is trying to hear.

**Meaningful Page Titles**

Having descriptive or meaningful titles for each page is a great help for all visitors to your site, but especially those with disabilities and those who rely on assistive technology. In some electronic readers, the first line for each page read is the title. If the title accurately describes the contents of the page, it makes comprehension that much easier for the listener.

Page titles also act as a visual anchor for individuals who tend to lose their place. Because internet users often have multiple windows or tabs open to different sites, a clearly labeled page is much easier to keep track of.

In Cascade Server, page titles are added by simply typing it into the title metadata field. These page titles may be enforced to make sure no one using the system accidentally forgets to include a title when creating a new page.

**Navigation**

To facilitate navigation through your site, it’s best to include a couple of different options in addition to the main menu. One important navigation feature is the breadcrumbs. This enables users – whether sighted or not – to know where they are and how they got there. Another useful feature is including Back, Next, and
Home buttons. These types of relational navigation aids are extremely helpful for those relying on audio who cannot actually see the navigational hierarchy of your menus.

Using Cascade Server, navigation is dynamic and automatically updated throughout your site any time you make a change or add a page. Special pieces of content called “Index Blocks” automatically query pages in your site, and stylesheets determine which links are displayed and how they look. Once your indices are set up, the system keeps them accurate and functional on every page in the site. Having extra navigation options does not mean extra work.

**CSS classes**

One can’t say too much about accessibility without discussion Cascading Style Sheets, or CSS. Although there are many ways to style a website, the cleanest and most accessibility friendly way is through the use of CSS classes. These are styles that are listed in your CSS document to automatically define how elements will appear on your page. The advantage for those using assistive technology is that these classes not only visually style the page, but they help determine how each element should be read.

For example, a defined heading on a page is treated with the appropriate weight by the site reader. Rather than reading through from one paragraph to the next, the reader will pause to indicate the new heading, and then continue to the next paragraph.

CSS is also important for enforcing style rules throughout a website, regardless of the number of site editors and contributors. Administrators can predefine various styles that will help disabled viewers, including:

- **Relative font size**: by choosing to size text based on percentages rather than pixels, you enable visitors with low sight to view your pages as a large print version based on their own browser settings. If your percentages are calibrated on normal browser settings, most viewers won’t know the difference, but your site will remain fully accessible to those requiring large print.

- **Color**: you can predetermine the appropriate colors for your site to ensure that text and background contrast enough for visitors with low vision or color defected vision. You must also ensure that any information conveyed by color is also conveyed in another way. For example, if links are indicated with the color blue, they should also be indicated in some other way – perhaps an underline, or bold type. A CSS class is the best and most efficient way to define these styles so that they remain consistent throughout the site, without complications for your site editors.

- **Images in layout**: sometimes a web design will lend itself to using special images as bullet points or horizontal rules. If these are added into the HTML without setting up a CSS class, the electronic reader will faithfully read out every bullet point as an image rather than a list of items. If the special bullet point images are designated as such in the CSS file, however, the reader understands their purpose and reads the list appropriately. Horizontal rules and other design elements function the same way.

Cascade Server is designed to support the use of CSS in web design. One change to the CSS file, and changes are replicated throughout the system to all pages based on that CSS file.
**ALT Text**

Adding ALT Text is an easy and extremely helpful way to inform visitors who cannot see the graphics on your site. Cascade Server can be set to enforce the use of ALT text for images, graphs, and tables; however, it is up to the actual user to make that text meaningful. Here are some basics on how to write useful ALT text:

- Remember that the most valuable ALT text communicates the purpose of the graphic, not its appearance. Address not only what the image is, but why it is there and what is important about it.
- Do not repeat the ALT text of an image in the adjacent text.
- For tables and graphs, describe what the graphic represents, and what information visitors are expected to learn from it.
- Do not put important images in the background (these images cannot be detected by electronic readers).

Essentially, you must remember that you are not writing titles for graphics, you are writing descriptions of them. An easy way to check the effectiveness of your ALT text is by simply viewing your website with the graphics turned off.

**Conclusion**

As the Internet becomes more and more integral in people’s daily lives, and as companies rely more and more on their websites to communicate valuable information, having a site that is accessible to persons with disabilities becomes imperative. Whether your company is only just realizing the value of Accessibility, or is already required by law to offer accessible content, the right CMS can revolutionize the quality and accessibility of your site.
About Hannon Hill

Founded in 2001, Hannon Hill is a leading provider of powerful web content management software. The award-winning Cascade Server application provides advanced solutions for online information management and has been a recipient of the ‘Best of Show Award’, from Internet World Magazine. Most recently, Hannon Hill was recognized by Inc. Magazine placing 247th amongst the prestigious Inc. 500, representing the top 500 fastest-growing private companies in the nation. Hannon Hill continues to accelerate its customers’ online success.

Located in the high-tech capital of the South, Atlanta, GA, Hannon Hill continues to deliver high-quality content management solutions. Its products enable users to easily update their websites through an easy-to-use web interface. Hannon Hill's content management solutions allow users to maintain up-to-date, accurate, and meaningful website content while decreasing associated costs.

Hannon Hill’s WCM solutions provide core content management capabilities for management of online information. Our solutions have been implemented in all types of industries, including higher education, health care, real estate, energy, hospitality, and publishing. We provide a comprehensive tool set that provides all the necessary modules to manage the complete content lifecycle.

Hannon Hill is now in its ninth year of operation. Product sales and overall revenue have increased steadily in each year of operation. Currently, approximately 60% of our revenue is generated from software licenses, 10% from maintenance contracts and 30% from professional services associated with integration and training.

Most of our annual revenue is re-invested in product development. The majority of our business is generated through strong client references and by offering numerous informational resources; we do not conduct expensive advertising and marketing campaigns. Our customer acquisition costs remain well below average, enabling us to focus above average resources on research and development.

Hannon Hill is large enough to be completely financially secure, yet small enough to ensure a high degree of personal attention. We pride ourselves on superior customer service and satisfaction, and believe this approach is the best way to ensure our continued long-term viability.
### Partial Client List

#### Education (125+ Higher-Ed Clients)
- Belmont University
- Bowdoin College
- Brandeis University
- Campbell University
- Carnegie Mellon University
- Clemson University
- College of William and Mary
- Cornell College
- CSU- San Marcos
- CSU-Chico
- Duke University
- Earlham College
- Eastern University
- Eckerd College
- Gardner-Webb University
- Gonzaga University
- Harding University
- Heinz School of Public Policy
- Hofstra University
- McMurry University
- Reed College
- The Juilliard School
- UC Hastings College of the Law
- UC-Irvine
- University of Alaska - Southeast
- University of Detroit Mercy
- University of Houston
- University of Maryland – AGNR
- University of Miami School of Business
- University of Missouri (Mizzou)
- University of Richmond
- University of Texas at Arlington
- Vassar College

#### Government and Non-Profits
- City of Irving, TX
- County of Charleston, SC
- Delaware Dept. of Education
- US Department of Justice
- Federation of American Scientists
- Henderson (NV) Libraries
- NV State Office of Employment
- Working Today – Freelancers
- Union
- YMCA

#### Technology
- Adaptive Microsystems
- Beacon Technologies
- China Mobile
- Computer Sciences Corporation
- FileMaker.com
- Iona Technologies
- MediaGrif
- PGP Corporation
- Servigistics, Inc
- Silverpop, Inc
- The North Highland Co.

#### General
- Brand Atlanta
- British Petroleum
- Costco Travel
- Cummins Marine
- European Investment Bank
- IT World Canada
- Milliman
- Okemo Mountain Resort
- Perillo Tours
- SCOREGolf
- Strang Communications
- Universal Air Travel Plan
- Waste Connections

#### Healthcare
- American Thoracic Society
- MCG Health System
- Noland Health
- Emory Healthcare
- ProHealth Care
- St. Joseph's Hospital of Atlanta
- Texas A&M Health Science Center
- University of Utah Healthcare