



## Common LMS Accessibility Issues and Tips

### What is Accessibility?: “Usability for People with Disability”

We commonly hear companies announce that they comply with “Federal 508.” They are referring to Section 508 of the Federal Rehabilitation Act, as amended in 1998, and which refers to web-based software. Companies that make web-based products tend to be primarily interested in one key section of that long legal document—Section 508, Subpart B, § 1194.22, which gives a list of 16 things you must do to make a web page or application accessible.

If you do all of the things in that list, your web site will likely be better than it was before. But § 1194.22 was intended as a simple checklist, a starting point for Federal agencies when buying an off-the-shelf piece of software or developing something internally. The problem is often, “how do I interpret the items in this list?” For example the first item says “a text equivalent for any non-text element shall be provided.” It says nothing about the quality or applicability of that “text equivalent.”

What our goal should be is buying (or creating) web-based products and filling them with content that allows a person with a disability to *use* the product effectively and efficiently. And 508 speaks to that, as well. Subpart C, § 1194.31 gives us “**Functional Performance Criteria.**” Here they are:

- (a) At least one mode of operation and information retrieval that **does not require user vision** shall be provided, or support for assistive technology used by people who are blind or visually impaired shall be provided.
- (b) At least one mode of operation and information retrieval that **does not require visual acuity** greater than 20/70 shall be provided in audio and enlarged print output working together or independently, or support for assistive technology used by people who are visually impaired shall be provided.
- (c) At least one mode of operation and information retrieval that **does not require user hearing** shall be provided, or support for assistive technology used by people who are deaf or hard of hearing shall be provided.
- (d) Where audio information is important for the use of a product, at least one mode of operation and information retrieval shall be **provided in an enhanced auditory fashion**, or support for assistive hearing devices shall be provided.
- (e) At least one mode of operation and information retrieval that **does not require user speech** shall be provided, or support for assistive technology used by people with disabilities shall be provided.
- (f) At least one mode of operation and information retrieval that **does not require fine motor control** or simultaneous actions and that is **operable with limited reach and strength** shall be provided.

These functional criteria do not always translate simply into a checklist of things we code or content we put into our LMS’s. What they tell us, instead, is what it takes for people with disabilities to *use* a system: **Usability for people with disability.**

# Learning Management System Product Accessibility

## What are the Common LMS Interface Issues?

- Sheer complexity of the interface. Rule should be “less is more.”
- Nothing or little to navigate by: no heading structure, navigational elements simple links instead of styled unordered lists.
- Images/icons/buttons that have no alternate text descriptions (a.k.a., “mystery meat”)
- Multiple images/icons/buttons that all have the *same* text descriptions: What do I do with icon links that all say “edit?”
- Untitled, poorly titled, or over-abundant (sometimes empty) “frames.” (Should we be using frames for LMSs *at all* anymore?)

## What can a school do?

### If an Open Source LMS

- Hack it locally – a problem when updates are released
- Contribute local fixes/enhancements back to the core – potentially a problem with acceptance of your work
- Submit bug reports -- very little control over whether they get priority
- Collaborate in a Working/Interest Group – good both for consensus and awareness building. See [Resources and Tools](#) for a link to the Sakai Accessibility Working Group.

### If a Commercial LMS

- Collaborate with the vendor in an Accessibility Working/Interest Group. See [Resources and Tools](#) at the end of this document for how to get involved in Accessibility Interest Groups for a number of LMS vendors.

## LMS Content Creation Tips

### What can LMS administrators do?

- Prior to purchase, test with local accessibility experts and users with disabilities. You might start by looking at the LMS’s Voluntary Product Accessibility Template (VPAT) (A link to a model VPAT (from Desire2Learn) is in the [Resources and Tools](#))
- Incorporate accessibility training into mainstream LMS training
- Develop “off-the-shelf” accessible content templates and house them in the LMS learning object repository
- Establish local standards for inclusion of multimedia (HTML, video, audio, PDF, PowerPoint)

## What can instructors do?

- Write your content in HTML
- Ensure your uploaded multimedia (PDF, PowerPoint, video, audio) is accessible

### HTML

**HTML is the most accessible form of content**, so long as you structure it well. For help on the basics of accessible HTML see [Resources and Tools](#).

- Do not export HTML from MS Word—results are rarely adequately accessible
- Use the LMS WYSIWYG editor (If you know it creates accessible content!)
- Learn to write HTML (it's not hard, really) or learn to use a good commercial WYSIWYG editor, such as Dreamweaver.

#### Basics of accessible HTML:

- Use a properly nested heading structure
- Use HTML lists instead of simple text "bullets"/glyphs or hand numbered "lists"
- For informational graphics (charts, images, etc.) provide an alternative text description (either in the text or as "alt text" for the image)
- For decorative graphics make sure the image tag has alt=""
- Tables should have row and/or column headers, and avoid complex tables (LMS WYSIWYG editors don't have the chops for complex tables, so get an expert to help you if you need to include a complex table)
- All form elements should have properly associated label elements. Groups of related radio or checkbox elements should be contained in a fieldset with a legend

## Video

#### What to do:

- Ensure keyboard and screen reader accessible controls
- Provide synchronized captions

#### Examples:

- OSU Web Accessibility Center's JW Player Controls (<http://wac.osu.edu/examples/jwplayercontrols/>)
- NCAM's CCPlayerforFlash ( <http://ncam.wgbh.org/webaccess/ccforflash/ccplayermain.html>)
- OSU Web Accessibility Center's Captioning YouTube and Providing Accessible Controls (<http://wac.osu.edu/examples/youtube-player-controls/>)
- Christian Heilmann's accessible Easy YouTube (<http://icant.co.uk/easy-youtube/>)

## Audio

### What to do:

- Ensure keyboard and screen reader accessible controls
- Provide an easy to find link to a full text transcript

## PDF

Here are the basic characteristics of accessible PDF.

- A PDF **must contain text**—not just images or vector outlines of text. Only text is accessible to screen reading technologies. These technologies will not read vector outlines of text, and images and other graphics are only accessible if they are described in text.
- PDF text **must be “tagged.”** That is, it must have structure applied to it: Text must be “marked up” using tags that tell a screen reader that a piece of text is a heading instead of a paragraph, a list instead of data in a table, etc. (In fact, the tag names in PDF resemble those you might be familiar with from HTML web pages.) In particular, a solid **structure of headings is extremely important** for navigating and understanding the content of PDF documents.
- **Informational images, charts, and other graphics must have alternative text descriptions.** For example, say you have a photograph of the Washington Monument next to a drawing of an obelisk in an article about important Washington D.C. landmarks and their architectural significance. You might embed within the image an alternative text description: “Photograph of Washington Monument next to a drawing of an Egyptian obelisk, showing similarities in the shapes.” InDesign allows you to associate an “Alt” attribute and value with any graphical element. For a chart, a full description of the data and relations it depicts and/or an associated data table should be included. Crucial figures and images in documents should have a caption below them. (The [Resources and Tools](#) section of this document points to an article discussing writing alternative text—an art in itself.)
- PDF **data tables must have row and/or column headers with “scope” set.** Though data tables in PDF are currently less easily navigable for screen reader users than HTML data tables, a developer/author can do some things to ensure at least baseline accessibility. In particular, you can use the TouchUp Reading Order tool (Advanced > Accessibility > TouchUp Reading Order...): Select the table. Click the Table Editor. Right-click a cell: Table Cell Properties. Set header and scope.
- A PDF **must have adequate foreground-background contrast.** That is, font color must contrast adequately with background colors. (Note: We do not discuss contrast in this document, but at the end of this document there is a link to a tool that will allow you simply and effectively to test foreground-background contrast. See Contrast Analyser, in the [Resources and Tools](#) section.)

- A PDF **must “reflow”** to allow the user to enlarge the font sizes within Acrobat or Adobe Reader. When set to “reflow” in Adobe Reader or Acrobat (View > Zoom > Reflow), the document reading order should be correct and text alignment within the document should facilitate easy reading. As the user enlarges the text size (Ctrl + +, or through the size percentage control) all text should remain readable and properly ordered—not cropped off, overly cramped, out of order, or misaligned.
- **Purely decorative images, charts, and other graphics should be marked as “artifact” or have no alternative text.** As a general rule, if the page text provides information that makes the information that the image conveys redundant or if the image is purely decorative, you should ensure that the image gets no alternative description (so-called “null alt”) or is made an “artifact.” An artifact is text or a graphic that is intentionally excluded from the document tag structure. A screen reader or other program that speaks a document aloud will ignore items not in the document structure. InDesign allows you to designate parts of your document content as artifacts.
- Any **non-informational or superfluous text should be marked as an “artifact,”** so that the screen reader ignores it. Page numbers and repeating footer or header information are good examples of text that might be marked as “artifact.”
- A PDF **should have a bookmark structure** that mirrors its heading structure to allow for easy means of document navigation.
- A PDF **should open as “single-page continuous”** for optimal reading and navigation.
- The **title bar should show the document title** not the file name. In the title bar at the top of the PDF window, you should see the title of the document. By default, PDF shows the file name. Because the screen reader user can read the title bar to determine if she has opened the correct document, it is best to have the title bar present the document title rather than the file name.

## PowerPoint

Here are basic tips for creating accessible Microsoft PowerPoint

- Use the Slide Layout pane for creating new slides. It will help guarantee content is formatted in a way that ensures basic accessibility.
- Use the Notes pane for elaborations of graphics (diagrams, charts, complex tables)
- If you use “text boxes” in your PowerPoint, know that these get read by screen readers out of visual order (either first or last on any particular slide). So plan accordingly.
- Watch out for cluttered pages and poor background-foreground contrast
- Use concise, non-figurative, and accurate language
- Provide “alternative text” for non-decorative images, none for decorative images. (Note that you must check to see if there is alternative text. By default PowerPoint will use the file name of the image as alternative text—usually not what you want.)
- Embedded movies must be captioned and audio described, when appropriate. Only QuickTime and Flash can embed captioning

## Resources and Tools

- **WebAIM’s Introduction to Web Accessibility** (<http://webaim.org/intro/>): Offers a gentle and well-written introduction to web accessibility issues and links off to articles on web accessibility techniques.
- **Illinois Information Technology Accessibility Act Implementation Guidelines** (<http://www.dhs.state.il.us/IITAA/IITAAWebImplementationGuidelines.html>) Guidelines for satisfying the excellent, comprehensive Illinois state standard—and a very good reference, supported by the iCITA HTML Best Practices (<http://html.cita.uiuc.edu/>)
- **W3C Web Accessibility Initiative** (<http://www.w3.org/WAI/>): The mothership for of international standards related to web accessibility and home of the dominant world standard, the Web Content Accessibility Guidelines 2.0.
- **AcrobatUsers.com Topics on Accessibility** (<http://www.acrobatusers.com/topics/accessibility>): Contains some very good articles, videos, and tutorials on accessible PDF, including how to make accessible PDF forms and tables.
- **Acrobat and Accessibility** (<http://www.webaim.org/techniques/acrobat/acrobat.php>): WebAIM reference of the accessibility features of PDF and document structure editing tools in Acrobat.
- **Appropriate Use of Alternative Text** (<http://www.webaim.org/techniques/alttext/>): Excellent article from WebAIM on how to write proper alternative text descriptions for images and other graphics.
- **Contrast Analyser** (<http://www.paciellogroup.com/resources/contrast-analyser.html>): From the Paciello Group, a tool that allows you to sample foreground and background colors from any document and check to see if the contrast ratio is high enough for users with low vision and other vision disabilities.
- **WebAIM’s WAVE Toolbar** (<http://wave.webaim.org/toolbar>): An add-on for Firefox that helps provide an understanding of the accessibility of any web page.
- **Functional Accessibility Evaluator** (<http://fae.cita.uiuc.edu/>): Provides a free, full-site accessibility report for your web site, benchmarked against the iCITA HTML Best Practices (referenced above).
- **Desire2Learn’s Voluntary Product Accessibility Template (VPAT)** (<http://desire2learn.com/products/accessibility/>): This page links to more than the VPAT, but the VPAT itself is a model of accuracy, honesty, and completeness—what you should look for when research an LMS vendor’s accessibility claims.
- **ATHEN Collaboration Groups** (<http://collaborate.athenpro.org/>): The Access Technology In Higher Education Network (ATHEN) and the Illinois Center for Information Technology Accessibility sponsor a series of active collaborations on accessibility. Many have strong vendor participation. This is the best way to get your vendor to work on accessibility issues.
- **Sakai Accessibility Working Group** (<http://confluence.sakaiproject.org/display/2ACC/Home>): Holds regular teleconferences to address accessibility within the Sakai LMS Project.

# Original Learning Management System Course Content Page

OHIO STATE UNIVERSITY

Email | Chat | LiveRoom

My Home | Logout

Web Accessibility Center

Course Home | Content | Discussions | Dropbox | Grades

Edit Course | Classlist

### Updates

There are no current updates for Web Accessibility Center

### Events

Today

No events

Tomorrow

No events

Upcoming

No events

### Bookmarks

#### My Bookmarks



No bookmarks have been added.

### Role Switch

Current Role: -- My Role (Instructor) --

### News

**News Item** Actions

**New News Item**  


This is a new news item created in the editor.

This is another paragraph. Let's bold this **word**.


**Here is heading level 1.**

**Here is a similar sized thing that is not a heading.**

Below is an image that has alt text:



Here is another image with alt text set to null/set as a decorative image (which I have to do if I don't give alt text):



### Instructor Tips

#### Autumn 2009: Focus on Quizzing Strategies

Encourage students to engage with material and master key facts by using short weekly [quizzes](#) that students can take more than once. [Random sections](#) ensure each attempt is unique.

---

*Students in this course will not see this informational widget. Instructors may remove it from their own courses. See [homepage layout](#) for more information.*

# WebAIM WAVE Toolbar Output. A Way to Check Basic Page Access.

WAVE has detected no accessibility errors, but you must still check your page to ensure it is actually accessible.

Navigation doesn't use lists and the titles are entirely superfluous. Good try, but shows lack of accessibility knowledge

WAVE sees no obvious problems

Skip navigation link is present, but is non-functional! Keep working on it!

Major content sections (in both LMS and instructor content) use headings to facilitate easy navigation for assistive technologies. Great!!

Content disappears behind top "frame." Enlarging text will make some content vanish! Oops!

Dynamic button images show state of control (collapsed or open). Excellent!

Do we really need a table here. CSS would be simpler and better for assistive technologies to navigate. And is this a data table at all??

Labels associated with form controls. Check-plus!!

Instructor is using alternative text for informative images. Bravo!

Here is heading level 1. Here is a similar sized thing that is not a heading.

Below is an image that has alt text:

orbitron low mobility

h1 Updates

h1 Events

h2 Today

h2 Tomorrow

h2 Upcoming

h1 Bookmarks

h2 My Bookmarks

h1 Role Switch

h1 Instructor Tips

Autumn 2009: Focus on Quizzing Strategies

Students in this course will not see this informational widget. Instructors may remove it from their own homepage layout.