Accessibility Testing: The Role of Tools, ATs, and Manual Methods

Westat®

Karen Brenner, Westat Testing Unit

Section 508 Checkpoints (16)

- **(a) A text equivalent for every non-text element shall be provided**: a text equivalent conveys the same information to the user as the original non-text element, such as a button, image, or checkbox.

- **(b) Equivalent alternative for any multimedia presentation shall be synchronized with the presentation**: Visual presentations require captioning, a text transcript, and/or alternative text representations. Manual Test

- **(c) Web pages shall be designed so that all information conveyed with color is also available without color**: do not use color to indicate action or meaning ("press the green button," "fill out fields marked in red", etc.). Manual Test

- **(d) Documents shall be organized so they are readable without requiring an associated style sheet**: page design should not interfere with user defined style sheets.

- **(e) Redundant text links shall be provided for each active region of a server-side image map**: present user with a list of links so the map is made accessible.

- **(f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape**: this allows assistive technology to easily activate regions of the image map.

- **(g) Row and column headers shall be identified for data tables**: users who cannot view the data with its visual reference points can easily navigate them.

- **(h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers**: a screen reader should be able to utilize this table structure.

- **(i) Frames shall be titled with text that facilitates frame identification and navigation**: use the title attribute to distinguish between frames in the frameset.

- **(j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower then 55 Hz**: prevent screen that could trigger seizure in users with photosensitive epilepsy.

- **(k) A text-only page, with equivalent information or functionality, shall be provided to make a website comply with provisions of these standards when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes**: this alternative provides a failsafe measure for pages or content that cannot be made accessible, but should be avoided due to maintenance and testing costs.

- **(l) When pages utilize scripting languages display content, or create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology**: JavaScript URLs should have meaningful text; avoid event handlers as the only method for navigating or completing a page. Automated Test

- **(m) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with a) through l)**

- **(n) When electronic forms are designed to be completed online, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues**: all forms should work with all screen readers.

- **(o) A method shall be provided that permits users to skip repetitive navigation**: users should be able to skip directly to content without skipping over and relative navigation. Manual Test.

- **(p) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required**: allow for when completion of action in allotted time is difficult for the user.

Web Content Accessibility Guidelines (WCAG)

1. Provide equivalent alternatives to auditory and visual content.

2. Don't rely on color alone.

3. Use markup and style sheets and do so 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.

Section 508 – Checklist*

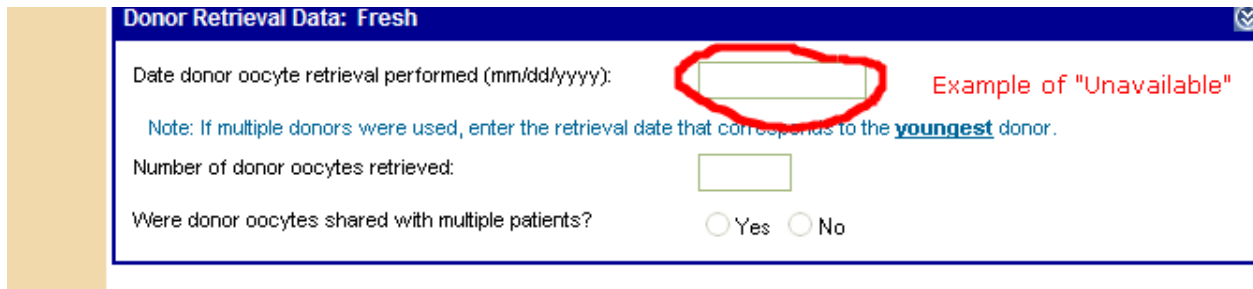| SEC. 508 STANDARD	PASS	FAIL
(a) A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).	Every image, Java applet, Flash file, video file, audio file, plug-in, etc. has an *alt* description.	A non-text element has no *alt* description.
	Complex graphics (graphs, charts, etc.) are accompanied by detailed text descriptions.	Complex graphics have no alternative text, or the alternative does not fully convey the meaning of the graphic.
	The *alt* descriptions succinctly describe the *purpose* of the objects, without being too verbose (for simple objects) or too vague (for complex objects).	*Alt* descriptions are verbose, vague, misleading, inaccurate or redundant to the context (e.g. the alt text is the same as the text immediately preceding or following it in the document).
	Alt descriptions for images used as links are descriptive of the link destination.	*Alt* descriptions for images used as links are not descriptive of the link destination.
	Decorative graphics with no other function have <u>empty</u> *alt* descriptions (alt= ""), but they never have <u>missing</u> alt descriptions.	Purely decorative graphics have *alt* descriptions that say "spacer", "decorative graphic," or other titles that only increase the time that it takes to listen to a page when using a screen reader.

*Excerpt from Web Accessibility in Mind (WebAIM) site (http://www.webaim.org/standards/508/checklist)

Tool Testing

- Free downloads and online page validators (unit testing)

  - ⊙ **WAVE - *wave.webaim.org***

  - ⊙ CynthiaSays - *www.cynthiasays.com*

  - ⊙ Total Validator - *www.totalvalidator.com*

- Desktop solutions (~$250-$2000)

  - ⊙ **SortSite – Electrum www.powermapper.com**

  - ⊙ AccVerify and AccRepair – www.hisoftware.com

  - ⊙ Ramp - www.deque.com

- Enterprise solutions (~$30K-$100K)

  - ⊙ Compliance Sheriff (HiSoftware), Policy Tester (IBM Rational), AMP (SSB BART Group), Worldspace (Deque)

Screen Reader Testing
JAWS, NVDA (NonVisual Desktop Access*)

Cannot enter data into fields in expandable tables. JAWS indicates there are form fields, but says they're "unavailable."
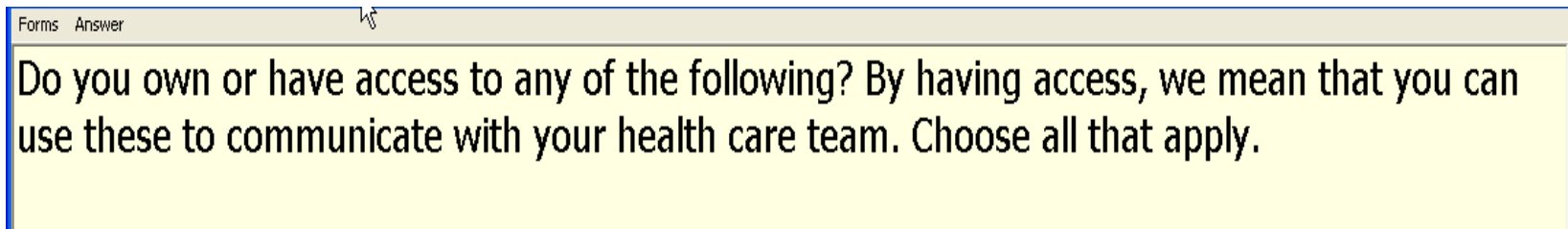
Text starts reading on the second line.

If you do not know an answer or are unsure of the answer you can press F6 to enter Don't Know or Unsure.

Do you own or have access to any of the following? By having access, we mean that you can use these to communicate with your health care team. Choose all that apply.

* www.nvda-project.org

Manual Testing

1194.22 (c) Web pages shall be designed so that all information conveyed with color is also available without color.

Question 1 = Active Question.

Question 2 = Question has been answered.

Question 3 = Question has not been reached.

Question 4 = Question has been skipped base

Question 5 = Question is incomplete

Lessons Learned

- Tools cover the most ground the fastest (if you're short on testing time)

- Train developers to design and develop accessible sites and use the free tools for unit testing.

- Don't rely on any one testing method.

More Resources

- Checklists
  - ◉ Section 508 http://webaim.org/standards/508/checklist
  - ◉ WCAG 2.0 http://webaim.org/standards/wcag/checklist

- Internet
  - ◉ Web Accessibility in Mind - http://webaim.org/
  - ◉ Keeping Web Accessibility in Mind Video http://webaim.org/intro/#types
  - ◉ Web Accessibility Toolbar http://www.visionaustralia.org/info.aspx?page=577
  - ◉ Developing Accessible Software Tutorial http://www.access-board.gov/508.htm

- Books
  - ◉ *Web Accessibility – Web Standards and Regulatory Compliance*, Thatcher, Burks, et al., 2006
  - ◉ *Designing with Web Standards*, Jeffrey Zeldman, 2009
  - ◉ *Constructing Accessible Web Sites*, Thatcher, Bohman, et al., 2003
  - ◉ *Building Accessible Websites*, Joe Clark, 2002
  - ◉ *Maximum Accessibility: Making Your Web Site More Usable for Everyone: Making Your Web Site More Usable for Everyone*, John Slatin, Ph.D., Sharon Rush, 2002