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How to Test a Web Site for Accessibility

***A step-by-step guide for determining whether
your nonprofit's Web site is accessible to
people with disabilities.***

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I. Introduction to Web Accessibility

In May 1999, the World Wide Web Consortium (W3C) introduced its Web Content Accessibility Guidelines (WCAG) 1.0. The WCAG outlines steps that Web-site owners can take in order to make their sites usable by persons with disabilities such as low vision, color-blindness, and limited mobility. If a Web site fails to conform to the WCAG, a portion of your constituents and visitors may not be able to understand the site's content.

This tutorial explains how to test your Web site for a number of common, high-level accessibility problems. Section II describes six visual tests Webmasters can use to check their sites for accessibility and explains how to download, install, and use Job Access With Speech (JAWS), a screen reader used by visitors who are blind or partially sighted. Section III explains how to use and understand the Web Accessibility Versatile Evaluator (WAVE), a Web site that tests HTML code for accessibility errors.

While the testing tools used in this tutorial cost nothing, the following equipment and materials are necessary:

- A computer that runs Windows XP or 2000 operating systems with at least 200 MB of free hard-drive space. The computer should also have either audio outputs for connecting speakers **or** a headphone jack.
- Microsoft Internet Explorer version 6.0.
- Computer speakers **or** a pair of headphones.
- A means of documenting test results.

Note that while this tutorial explains how to perform accessibility testing, it does not cover methods to fix all detected problems. To fix detected accessibility problems, your organization should consult with a professional Web developer or conduct additional research.

Editor's Note 1: This tutorial provides instructions for accessibility testing using Internet Explorer. Mozilla Firefox users can also use this tutorial to test their sites, although some of the menu items will be different.

II. Front-End Web Accessibility Testing

When testing a Web site for accessibility, start by checking the site's front-end elements, those items that users can see or hear. This section provides step-by-step instructions for performing six visual tests and one audio test.

A. Visual Accessibility Tests

To evaluate a Web site's content and design for accessibility, perform the following six visual tests.

Test #1: Ensure that link text is descriptive.

To ensure that links are meaningful to visitors who are using a screen-reading program, Web designers should make all link text as descriptive as possible. To do this:

Step 1. Open Internet Explorer.

Step 2. Enter the URL of the Web page you wish to test.

Step 3. Visually scan the site for links, which appear as underlined text, and read the sentences in which they appear. Example 1 demonstrates the type of language that fails to comply with accessibility guidelines, while Example 2 corrects the problem.

- *Example 1:* To learn more about Web accessibility, [click here](#).
- *Example 2:* To learn more about Web accessibility, read the article "[How to Test a Web Site For Accessibility](#)."

Step 4. Repeat Steps 2 and 3 for each page on the Web site.

Test #2: Ensure that all images contain alt text.

Alternate text (often abbreviated "alt text") describes images or graphics on a Web page. To help visitors who are blind or have low vision understand which images appear on your Web page, ensure that all graphics contain alt text. To do this:

Step 1. Open Internet Explorer.

Step 2. Click the **Tools** menu item, located in the upper-left corner of the browser window. A drop-down menu appears.

- Step 3.** From the drop-down menu, click the **Internet Options** menu item. A small window appears.
- Step 4.** Click the **Advanced** tab and scroll to the Multimedia subheading. Uncheck the box labeled **Show Pictures**.
- Step 5.** Close Internet Explorer and reopen it.
- Step 6.** Type the URL of the Web site you wish to test.
- Step 7.** Image placeholders will now appear in the place of actual images, along with alt text. Note any placeholders that do not contain alt text.
- Step 8.** Repeat Steps 6 and 7 for each page on the Web site.

Test #3: Ensure that text is readable at larger sizes.

Web surfers with low vision often set their Web browsers to display online text at larger sizes. To ensure that these visitors can read all site copy, enlarge text on a page to **Larger** and **Largest** sizes to check for inconsistencies or problems. To do this:

- Step 1.** Open Internet Explorer.
- Step 2.** Type the URL of the Web page you wish to test.
- Step 3.** Click the **View** menu item. A drop-down menu appears.
- Step 4.** From the drop-down menu, select the **Text Size** menu item. A small window appears, listing five text-size options.
- Step 5.** Click the **Larger** menu item. Scan the site to ensure that all text is readable and is not obscured by images or misaligned. Note any problems.
- Step 6.** Click the **Largest** menu item. Scan the site to ensure that all text is readable and is not obscured by images or misaligned. Note any problems.
- Step 7.** Repeat Steps 5 and 6 for each page on the Web site.

Test #4: Ensure that site does not scroll horizontally.

Visitors with limited mobility or ergonomic issues must be able to view a Web site with minimal movement. To ensure all text and images fit on the screen, check to see that the site scrolls vertically instead of horizontally. To do this:

Step 1. Open Internet Explorer.

Step 2. Type the URL of the Web page you wish to test.

Step 3. Look across the bottom of the browser window; no horizontal scrollbar should appear. If you see one, make a note of it.

Step 4. Resize the browser window by clicking the **Maximize/Restore Down** icon, located in the browser's extreme upper-right corner. (This icon looks like two boxes, one superimposed over the other.) Look across the bottom of the browser window; again, no horizontal scrollbar should appear. If you see one, make a note of it.

Step 5. Repeat Steps 3 and 4 for each page on the Web site.

Test #5: Ensure that site is navigable with keyboard.

Visitors with limited mobility or ergonomic issues may use the keyboard instead of a mouse to navigate a Web site. To ensure that all links and forms are accessible using a keyboard, try navigating the site using the Tab key. To do this:

Step 1. Open Internet Explorer.

Step 2. Enter the URL of the Web site you wish to test.

Step 3. Starting at the upper-left corner of the page, navigate the site using the keyboard's Tab key. Each time you press the Tab key, the browser should highlight a link or a form field. Navigate through the page with the Tab key, making sure that all forms and links are accessible in the proper sequence. Note any problems.

Step 4. Repeat Step 3 for each page on the Web site.

Test #6: Ensure that site has proper color contrast.

Visitors who are color-blind may not be able to view all colors on your site. To ensure that such visitors can view all text and images, test your site in grayscale (black-and-white) mode. To do this:

Step 1. Open Internet Explorer.

Step 2. Enter **http://graybit.com/main.php** into Internet Explorer's address bar. A Web page named GrayBit v1.0 appears.

Step 3. On the left side of the screen, the following text appears: GrayBit v1.0 Input Form Enter a Web Page URL. Immediately below it, a gray input form containing the text <http://accesssites.org> appears. Delete this text and enter the URL of your organization's Web site.

Step 4. Click the button labeled **Make It gray**. Your site appears in grayscale in the browser window.

Step 5. Check to make sure that all text on your site is legible and that all images are visible. Note any problems.

Step 6. Repeat Steps 2 through 5 for each page on the Web site.

B. Audio Accessibility Test

To ensure that screen readers properly convey your Web site's text in audio form, test your site using Freedom Scientific's Job Access With Speech (JAWS), one of the most popular screen readers on the market.

Note that while a full version of JAWS starts at \$895, this tutorial focuses on testing with the trial version, which lasts for six months and can only be used for 40 minutes at a time. Also note that this tutorial focuses on downloading, installing, and using JAWS version 8.0 or later; instructions may vary if using an older or future version of the software.

Editor's Note 2: In the future, version numbers and dates listed in the following instructions are likely to change.

1. Download JAWS

First, download JAWS.

Step 1. Open Internet Explorer.

Step 2. Type http://www.freedomscientific.com/fs_downloads/jaws.asp into Internet Explorer's address bar. The JAWS For Windows Software Download Page appears.

Step 3. Scroll to the Demonstration Versions Of Jaws subheading. Click the link labeled Free DEMO of JAWS 8.0 for Windows XP/2000 (50 MB - HTTP download).

Step 4. Scroll to the Demonstration Versions Of Jaws subheading. Click the link labeled Free DEMO of JAWS 8.0.422 for Windows XP/2000 – November 2006 (50 MB – HTTP Download). A dialog box appears prompting you to save the file.

Step 5. Click the **Save** icon. A window titled Save As appears.

Step 6. In the Save As window's left navigation area, click the **Desktop** icon. Click the **Save** icon in the window's lower-right corner. A window appears, and JAWS begins to download. Since the file consumes a large 50 MB, completing the download may take a significant amount of time, depending on the speed of your Internet connection.

Step 7. After JAWS downloads, the message Download Complete appears. Click the **Close** icon.

2. Install JAWS

Next, install JAWS.

- Step 1.** Display the computer's Desktop view.
- Step 2.** Double-click the icon labeled **J8.0.423U_ILM.exe**. A screen titled JAWS Setup Package appears.
- Step 3.** Click the **Next** icon. A message appears stating that JAWS is configuring your system.
- Step 4.** A window appears stating that JAWS has made changes that require you to start your computer. Close all open windows, and click the **OK** icon.
- Step 5.** Your computer will automatically shut down and restart. Upon restart JAWS prompts you to wait for several minutes while it makes changes to your system.
- Step 6.** A window labeled Welcome to the JAWS 8.0 Setup Wizard appears. Click the **Next** icon.
- Step 7.** A window labeled End User License Agreement appears. Carefully read the text in the window and click the box labeled I accept the terms found in the License Agreement. Click the **Next** icon.
- Step 8.** A window labeled Choose Setup Type appears. Click the **Typical** icon.
- Step 9.** A window labeled Ready To Install appears. Click the **Install** icon.
- Step 10.** After JAWS finishes installing, a window labeled JAWS 8.0 has been successfully installed appears. Click the **Finish** icon. JAWS will immediately launch.

3. Use JAWS

Now you can use JAWS to read your organization's Web site.

- Step 1.** Once JAWS launches a window labeled Activation appears. Since this window applies only to users who have purchased the full version of JAWS, close it by clicking the red **X** in the window's upper-right corner; the demo will still function.
- Step 2.** Open Internet Explorer.
- Step 3.** Enter your site's URL in the address bar.
- Step 4.** JAWS begins speaking the content of your home page, starting by reading its title and disclosing how many headings and links are on the page.
- Step 5.** Allow JAWS to read through the entire page; note any problems the application encounters when reading frames, tables, forms, links, and text.
- Step 6.** Repeat Steps 3 through 5 with each page found on your site.

Editor's Note 3: To get a more complete understanding of all of JAWS' features, you should consult the application's documentation. To access JAWS' documentation, click the **Start** menu, select the **Programs** menu item, then scroll down and select the **JAWS 8.0** option. From the drop-down menu, select the **Explore JAWS** option, then click **Explore The Manuals**. From the window that appears select either the file labeled JAWS Quick Start Guide.doc or the file labeled JAWS Quick Start Guide.pdf (requires Adobe Acrobat Reader).

Editor's Note 4: After 40 minutes, the trial version of JAWS requires you to restart your computer before you can resume testing.

III. Back-End Web Accessibility Testing

After performing the front-end accessibility tests described in Section II of this document, test the site's HTML code to ensure there are no errors that could create accessibility problems. This section provides step-by-step instructions for using the WAVE accessibility tool to locate accessibility errors.

1. Submit the site to WAVE

To submit your site to WAVE:

Step 1. Open Internet Explorer.

Step 2. Type **http://www.wave.webaim.org** into Internet Explorer's address bar. The WAVE home page appears.

Step 3. Type the site's URL in the field labeled **Enter the URL here**. Click the **Submit** icon. Your site appears in the browser window.

Step 4. If your site now displays numbered symbols, save an HTML version of the page for later reference. Create a new folder on your computer's desktop by right-clicking anywhere, choosing **New** from the menu that appears, and clicking **Folder**. Name the folder **WAVE_Testing_HTML_Files**.



Step 5. In Internet Explorer, click the **File** menu item and select **Save As**. In the **Save As** window's left navigation area, click the **Desktop** icon and double-click the **WAVE_Testing_HTML_files** folder. In the **Save As** window's first drop-down menu, type the desired filename. From the second drop-down menu, select **Web page, complete (*.htm, *.html)**. Click the **Save** icon.

Step 6. Repeat Steps 1 through 5 with all pages on your site.

2. Translate WAVE's error symbols

To translate WAVE's error symbols:

Step 1. Numbered symbols on a Web page submitted to WAVE indicate possible errors in the HTML code. The examples below illustrate several accessibility errors detected by WAVE:

| Symbol | Meaning |
|---|--|
|  | Indicates that an HTML frame lacks a title. Therefore, the table will lack meaning to visitors who read the site's content using a screen reader. |
|  | Indicates that the Web site contains a JavaScript-based form that automatically submits itself when a visitor selects an option from a drop-down menu. Since visitors who do not use a mouse may find this type of form difficult to use, you'll need to place a "Submit" icon next to the form. |

Step 2. Enter <http://www.wave.webaim.org/wave/explanation.htm> into Internet Explorer's address bar to bring up the Index of WAVE icons page, which explains the meaning of all the error symbols. Note all detected errors.

IV. Next Steps

The tests covered in this tutorial should help you detect high-level accessibility issues found on your organization's Web site. After completing these tests, contact a professional Web-development consultant or volunteer to help your organization fix the problems you find.

Once you fix the site's major accessibility problems, you may choose to delve a little deeper into the world of accessibility. To read the full text of the WCAG 1.0, open Internet Explorer and enter **<http://www.w3.org/TR/WCAG10/>** into the address bar.

Making your Web site accessible to everyone who visits increases your organization's online reach, giving you the opportunity to attract more volunteers, donors, and members. Because no matter what cause your organization supports, gaining more resources is always a good thing.