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| **Department of Homeland Security** |
| **Section 508 Application Test Process** |
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# DHS Section 508 Application Test and Reporting Process

## Introduction

The Section 508 technical standards include two groups of standards, one primarily intended for browser-based information, and the other intended primarily for native applications. Applications often incorporate interface elements for which Section 508 Software, or Web standards apply. It is rare to find an application that only has Web interface elements or software interface elements. Whether a software application includes a Web-based help page or a Web page includes Flash for an enhanced image display, most applications contain both Web and software interface elements. Because clear lines of separation do not exist, all applications require testing for both Section 508 Technical standards 36 CFR 1194.21 Software (SW) and 36 CFR 1194.22 Web.

There are 12 Software standards (a through l) and 16 Web standards (a through p). Some compliance requirements, such as color independence, flicker restrictions, and form labeling appear under both the software and Web technical standards. DHS Office of Accessible Systems & Technology (OAST) has combined both the Software and Web requirements into one application testing process. To further streamline the manual testing process, the DHS Section 508 testing process begins with evaluating the interface elements where both software and Web standards apply. Alphabetical ordering of the standards requires additional repetitive testing effort over the DHS streamlined sequence.

*Please note: This test process was developed for Windows XP and Windows 7 (32-bit) and those operating system accessibility tools. For other operating systems, other testing procedures must be used for evaluating some standards.*

## Testing Tools

Testing tools have been selected to aid the manual testing process. The DHS Section 508 Application Test Process utilizes the following testing tools:

### Software Testing Tools:

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| **Object Inspector** | Active Accessibility Object Inspector |
| **Java Ferret** | Ferret uses the Java Accessibility Utilities to examine accessible information about the objects in the Java Virtual Machine. |

### Web Testing Tools:

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| **Web Accessibility Toolbar (WAT)** | The Web Accessibility Toolbar has been developed to aid manual examination of web pages for a variety of aspects of accessibility. |
| **IE Named Anchor Bookmarklet \*** | These bookmarklets let you see how a web page is coded without digging through the source, debug problems in web pages quickly, and experiment with CSS or JS without editing the actual page. |

## Software vs Web

It is important to identify whether the interface element you are testing is software or Web so that you know which tool to use and what test outcomes are expected. If you try a tool and it doesn’t display the test results properly, try another tool. If Object Inspector does not display the information, try JavaFerret, and vice-versa.

For reference, “software” interface elements are those delivered to the user via native operating system-based processes. Web interface elements are delivered to the user via a Web browser. Browser plug-ins are examples of software interface elements embedded in Web page, while browser-based help is an example of the reverse.

It is important to track all testing results in the Impact Guide.xls file. DHS OAST developed this file to report the test results and identify the disabilities affected by non-compliance of a Section 508 standard. Additional reporting tools may be utilized to show details.

Some standards (such as keyboard access) are listed in more than one test. Through the testing process, ***a test result can change from Compliant to Not Compliant, but do not change from Not Compliant to Compliant*** or your results will become inaccurate.

Please contact DHS Accessibility Help Desk with any questions ([accessibility@dhs.gov](mailto:accessibility@dhs.gov)).

## Which Testing Tool should I use?

No

Yes

Yes

No

* Open the Application
* If it does not open in a browser, (Microsoft Internet Explorer), it is SW. Use the software tools: Object Inspector for Windows applications and Java Ferret for JAVA applications. Always check the other tool if one tool does not display accessibility information.
* If it opens in a browser and the Web Accessibility Toolbar marks up the element, apply the Web standards. Use WAT. (Press F11 to exit full screen browser and reveal WAT, if needed.) If WAT does not work, it is an embedded software element. Use the software tools and apply the SW standards.

# DHS Section 508 Application Testing Script

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| 1. Interactive Interface Elements |
| Interactive elements include menus, forms, navigation, buttons, options, etc. |

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| * 1. Keyboard Access |
| All interface elements and functions that can be accessed by mouse must be keyboard accessible for non-mouse users (blind and mobility impaired). |

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| |  |  | | --- | --- | | How to Test: | | | 1 | **Use the Windows keyboard shortcuts** (Tab, [Shift+Tab], Space bar, Alt, arrow keys, Enter, etc.) and the application’s special keystrokes to move the focus to and activate all menus and functions. Check the application’s Help section for keyboard access instructions if necessary. Shortcut keystrokes (such as [Alt+O] or [Control+P]) are not required for compliance unless they MUST be used to access functions by keyboard, i.e., tabbing or arrow keys will not work. | | 2 | **Navigate through all form fields.** Enter text, arrow to different options from drop down lists, select and unselect (spacebar and arrow keys) checkboxes and radio buttons. Complete a significant sampling of the total form fields on each page incorrectly to inspect the error message(s) and make corrections. | | 3 | **Note any instances of interface elements that cannot be accessed by keyboard.** Check if those interface elements can be accessed by mouse. | | 4 | **Check for the visual focus that moves with keyboard navigation.** This is typically a dotted rectangle that outlines a button or link or a vertical bar in a text field. | | 5 | **Note any instances of a loss of visual focus,** e.g. can’t see the focus. | | |  | | --- | | Keyboard Test Results | | If, at any time, there is no visual indication of the current focus (loss of focus), mark 21 SW (c) as Not Compliant (NC).  If any interactive element or function cannot be accessed by keyboard, mark 21 SW (a) as Not Compliant (NC).  If a visual focus is available on all interface elements that can be accessed by keyboard, mark 21 SW (c) as Compliant (C)  If all mouse activated interactive interface elements and functions are keyboard accessible, either directly or through an alternative menu, mark 21 SW(a) as Compliant (C).  \*\* Keyboard access and Visual focus always apply. 21 SW (a) and 21 SW (c) are never Not Applicable. \*\* | |
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| * 1. Labels for assistive technologies |
| All interface elements and functions that can be accessed by mouse must be keyboard accessible for non-mouse users (blind and mobility impaired). |

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| * + 1. SW: Forms |
| Includes all input fields, buttons, controls, etc. |

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| |  |  | | --- | --- | | How to Test: | | | **Use Object Inspector or Java Ferret.** | | | 1 | **Tab through all interactive interface elements.** Navigate through all form fields. Check Object Inspector/Java Ferret displays the *Name*, *Role*, *Value*, and *State* information for each element. | | 2 | **The *Name* of each element should match the visual label.** If there are multiple functions with the same visual label, check that the Object Inspector/Java Ferret Name is distinct. For example, if there are multiple “Submit” buttons on a screen, the Name for each must be unique – “Submit time of departure”, “Submit time of return”. The identifier must associate the action and the function it is associated with. | | 3 | **The *Role* of an element must accurately reflect its function.** For example, a menu item must not be displayed as a push button. | | 4 | **The *Value* property must be correct for text input form fields in Object Inspector.** In Java Ferret, the Sentence property will display the text in the input field. To test, it may be necessary to type into the form element, [Tab] out of the element, then [Shift+Tab] back to the field. The Value or Sentence field will be updated with the focus change and should contain the text that was typed in. Value/Sentence should be ‘none’ for other form field types. | | 5 | **The State of interface elements with focus is “focused, focusable”.** Grayed out interface elements must be correctly identified as “unavailable” or similar. The state of a checkbox/radio button must be correctly listed as checked or unchecked. Again, it may be necessary to [Tab] out and [Shift+Tab] back to the field to update the State in Object Inspector. | | |  | | --- | | SW: Label Test Results | | If any interface element has an incorrect *Name, Role* or *State*, mark 21 SW (d) as NC.  If any input form (text form field, checkbox, radio button, etc.) has an incorrect *Name, Role,* or *State*, mark 21 SW (d), and 21 SW (l) as NC.  If any input text field has an incorrect *Value*, mark 21 SW (f) as NC.  If ALL interface elements have a correct *Name, Role, Value* and *State*, mark 21 SW (d), 21 SW (f) and  21 SW (l) as C.  If the application has no software interface elements, mark 21 SW (d), 21 SW (f) and 21 SW (l) as NA. | |
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***Note: Refresh (F5) the page to remove WAT markup.***

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| * + 1. Web: Forms |
| Form fields must be explicitly labeled for screen readers to read aloud the correct information so a user can complete the forms. Speech recognition software also relies on form field labels. |

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| Top of Form   |  |  | | --- | --- | | How to Test: | | | **Use WAT** (Select Structure – Fieldset/Labels) AND (Select DocInfo – Show Titles). | | | 1 | **Explicit labels are required.** | | 2 | Input type="hidden" do not need labels. | | 3 | Complete some form fields incorrectly (wrong format of data entry and leave some required fields incomplete) to review the error messages. | | 4 | **LABEL for="x" and ID="x" must be identical and match case.** If one is "X" and the other is "x", the label and form are not associated properly. | | 5 | **Inspect each text and select INPUT field for an ID and a corresponding LABEL or a descriptive TITLE:** | |  | Ex Text Field: Full Name  HTML Ex 1: Using Label/ID <LABEL for="name">Full Name</LABEL>  <INPUT type="text" ID="name">  HTML Ex 2: Using TITLE Full Name <INPUT type="text"  TITLE="Full Name"> | |  | Ex Radio Buttons:  Age Range: under 18 18 to 25  HTML Ex 1: Using TITLE  <INPUT type="radio"  TITLE="Age range 18 to 25">  HTML Ex 2: Using Fieldset/Legend and Label/ID <FIELDSET><LEGEND>Age Range</LEGEND> …  <INPUT type="radio" id="range2"> <LABEL for="range2">18 to 25</LABEL> </FIELDSET> | | 6 | **Navigate through the form and enter selections by keyboard.** Try to select the second or third option from a drop down list by keyboard only. | | |  | | --- | | Web: Forms Test Results | | If any Web form fields are not labeled properly (check for case also), mark 22 Web (n) as NC.  If ALL Web form fields are labeled properly, mark 22 Web (n) as C.  If any Web form interface elements are not keyboard accessible, mark  21 SW (a) as NC.  If there are no Web forms in the application, mark 22 Web (n) as NA.  \* Do not change any previous test results from NC to C or NA. \* |      |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (a)  1194.22 Web (n) | |
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| * + 1. Web: Scripts |
| All scripts must have functional text (or a label) to describe its function.  Scripting Languages, such as JavaScript, can be used to:   * Attach a function to an element (image, link, etc.). If attached to a link, the link name is the functional text. It must describe the script function. * Display information when triggered by a mouse event (on mouse over, on mouse click, etc.) A script that displays content requires a functional text description. An example would be “>” to indicate a submenu or “+/-” to indicate expand/collapse navigation tree.   Some scripts are for aesthetic appearance changes only such as a mouse over script that changes the background color of a link. These do not require functional text. |

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| |  |  | | --- | --- | | How to Test: | | | **Use WAT** (Select Doc Info – JavaScript / New Window Links). | | | **1** | Mouse over each script element outlined in red to reveal the functional text provided. | | **2** | If a text link is the scripted element, the text link is the script label. If an image link is the scripted element, the ALT content is the script label. “Click here” and “More…” would be examples of non-compliance because they are not descriptive of the function. | | **3** | Ignore the New Window icons (indicated by bull’s eye and scroll images). This is an indication that the script causes a new window to open. This is not a Section 508 requirement. | | **4** | Check the script functions for keyboard access. Try Windows keys (Tab, Enter, arrow keys) and the application’s shortcut keys. Pay attention to mouse event scripts that reveal information. | |  | **Manual inspection**: Use the mouse to identify any mouse events that display new information. All mouse events must be keyboard accessible. | | |  | | --- | | Web: Scripts Test Results | | If a scripted element does not include a functional text description, mark 22 Web (l) as NC.  If ALL scripted elements include a functional text description, mark  22 Web (l) as C.  If the script selection or execution is not keyboard accessible, mark  SW 22 (a) as NC.  If there are no Web Scripts, mark  22 Web (l) as NA.  \* Do not change any previous test results from NC to C or NA. \* | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (a)  1194.22 Web (l) | |

***Note: Refresh (F5) the page to remove WAT markup.***

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| 1. Non-Text interface elements |
| Images, animations, graphs, and audio files must have equivalent descriptions for screen reader users.  Decorative images that do not convey information should not be announced by a screen reader.  Images must be used consistently throughout the application for users with cognitive disabilities. |

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| * 1. SW: Images |
| Check for a descriptive Name value. |

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| |  |  | | --- | --- | | How to test: | | | **Use Object Inspector/Java Ferret**. | | | 1 | Mouse over graphics to check Name for an equivalent text description. If it is a decorative element, Name should equal none. | | 2 | Visually check that images used for controls and status indicators have consistent meaning. For example, a red star cannot be used to indicate “overdue” and “completed” in the same application. | | |  | | --- | | SW: Images Test Results | | If any graphic does not have an equivalent text description (Name), mark 21 SW (d) as NC.  If all graphics have an equivalent text description, mark 21 SW (d) as C.  If a single bit map image has multiple meanings, mark 21 SW (e) as NC.  If the meanings of bit map images are consistent throughout the application, mark 21 SW (e) as C.  If there are no images, mark 21 SW (e) as NA.  \* Do not change any previous test results from NC to C or NA. \* | |
|  | |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (d)  1194.21 SW (e) | |
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| * 1. SW: Animation |
| Animation must not be the only way to convey its information |

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| |  |  | | --- | --- | | How to test: | | | 1 | **Manually check** that the information conveyed through animation in software is available in text on the page. | | |  | | --- | | SW: Animation Test Results | | If any information is available only through animation, mark 21 SW (h) as NC.  If animation information is available in another format, mark 21 SW (h) as C.  If there is no animation, mark  21 SW (h) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (h) | |
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| * 1. Web: Images |
| Check for ALT attributes for text equivalent descriptions.  **Images and Pictures:** ALL images must contain an ALT\* attribute. Screen readers will read the ALT attribute value.   * Images that convey information must provide an equivalent description in the form of an ALT attribute or as text on the Web page. Images that contain text should have identical ALT value. * HTML example: <IMG src="dhshighres.jpg" ALT="DHS logo"> * Images that are described in page content or do not convey information (decorative images, spacers, etc.) must have ALT="" (quote quote). * HTML example: <IMG src="spacer.jpg" ALT="">   If the image is a CAPTCHA, where the image information cannot be provided in an ALT tag, it is acceptable for the CAPTCHA image ALT to be “CAPTCHA image. Use audio alternative” as long as there is an audio alternative available.  **Charts, Graphical representations of data:**  If the chart is intended only to show a trend, ALT content should contain a description of the trend.  Charts that contain greater detail should include a compliant data table (See Test 5) with the chart’s source data. ALT="" is then acceptable for the chart image.  \* TITLE can be used, but ALT is preferred. |

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| |  |  | | --- | --- | | How to test: | | | **Use WAT** (Select Images – Show Images) to reveal ALT content and (Select DocInfo – Show Titles) to reveal Titles on images. | | | 1 | Verify that each image has a text equivalent description. | | 2 | If there are images that are not marked up by WAT | | 3 | They may be background images placed on the page by CSS. If these images convey relevant information, a text description is required either on the image or through page content. | | 4 | They may be Flash or other Software elements. Follow the testing for Software D – Images. (Step 2a) |   ***Note: Refresh (F5) the page to remove WAT markup.*** | |  | | --- | | Web: Image Test Results | | If an image does not have an equivalent text description, mark  22 Web (a) as NC.  If all images have an equivalent text description, mark 22 Web (a) as C.  If the Web site is text only or has no images, mark 22 Web (a) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (a) | |

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| * 1. Web: Audio-only and video-only files |
| Check for an accurate text equivalent (transcript).  Audio files only play audible words or sounds and are considered non-text interface elements. Video files that only display visual information are also considered non-text interface elements. Both file types require equivalent text descriptions to describe the content. Usually, this is a transcript for audio-only files. For video files with no sound, a description of the content is sufficient. The image that represents the audio or video file must also have an ALT tag |

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| |  |  | | --- | --- | | How to test: | | | **Play audio or video and manually check** for an accurate transcript or text description: | | | 1 | Includes all relevant audio cues (ex: door bell rings, car honks, etc.) for audio files | | 2 | Includes all visual cues for video files (ex: driver hands license to officer). | | |  | | --- | | Web: Audio or video Test Results | | If an audio or video interface element does not have an equivalent text transcript, or video-description mark 22 Web (a) as NC.  If all audio and video interface elements have an equivalent text (transcript), or video-description mark 22 Web (a) as C.  If a plug-in player is required to play the video and audio, ensure that  22 Web (m) is tested. See Step 9.  If the Web site is text only, mark  22 Web (a) as NA.  \* Do not change any previous test results from NC to C or NA. \* | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (a)  1194.22 Web (m) | |

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| * 1. Web: Image Maps |
| Hotspot regions must have equivalent ALT description and be keyboard accessible.  An ***image map*** is a single image that has designated regions or “hotspots” that contain links. |

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| |  |  | | --- | --- | | How to test: | | | **Use WAT** (Select Images – Show Image Maps). Go back (ALT+ left arrow) to the original page to test the image map.  **Manually check** for keyboard access and ALT descriptions. | | | 1 | **Tab to each hotspot.** If the map regions are not keyboard accessible, check for alternative methods to provide access to the map links. (Example: drop down list or text links on page) | | 2 | Mouse over each hot spot region to reveal the ALT description in a tooltip. |   ***Note: Refresh (F5) the page to remove WAT markup.*** | |  | | --- | | Web: Image map Test Results | | If any/all map region hotspots are not keyboard accessible, and there are no alternative links, it is a non-compliant server side image map. An accessible client side image map should have been used instead. Mark 22 Web (e), 22 Web (f) and 21 SW (a) as NC.  If alternative links are required and provided for all hot spots, it is a compliant server-side image map. An accessible client side image map should have been used instead. Mark 22 Web (e) as C. Mark 22 Web (f) as NC.  If all map regions are keyboard accessible, but descriptive ALT content is not available, it is a client-side image map that lacks text equivalents. Mark Web (a) as NC; mark 22 Web (f) as C and 22 Web (e) as NA.  If all map regions are keyboard accessible and have descriptive ALT content, it is a compliant client-side image map. Mark 22 Web (e) as NA and 22 Web (f) as C.  If there are no image maps, mark  22 Web (e) and 22 Web (f) as NA.  \* Do not change any previous test results from NC to C or NA. \* | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (a)  1194.22 Web (a)  1194.22 Web (e)  1194.22 Web (f) | |

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| 1. Color Dependence |
| Information provided by color must also be available in text.  ***Color dependency***:   * Shall not be the only method used to convey information, indicate an action, prompt a response, or emphasize text. (ex: the red fields are required, yellow items should be selected first, or green fields can be ignored.) * Is often indicated by a specific color (ex: Green status items are complete.) * Is often used in charts or status bar indicators (ex: DHS threat level indicators) * Does not mean that color cannot be used |

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| |  |  | | --- | --- | | How to test: | | | **Web** **– Use WAT** (Select Colour – Grayscale)  **SW** **– Manual inspection**. Print to black and white printer if necessary. | | | 1 | If there is information that is being presented in color, check to see if the same information is represented textually on the screen. | | 2 | If executing the WAT tool renders a page with missing information, this is not a failure of the Web page. The tool is not functioning properly on this page. Manually inspect the page or print to a black and white printer if necessary. |   ***Note: Refresh (F5) the page to remove WAT markup.*** | |  | | --- | | Color dependence Test Results | | **Web:** If information is provided only through color, mark 22 Web(c) as NC.  If information is provided by color and indicated textually, mark 22 Web (c) as C. If color is not used to convey information, prompt a response, or indicate an action, mark 22 Web (c)  as NA.  **SW:** If information is provided only through color, mark 21 SW (i) as NC. If information is provided by color and indicated textually, mark 21 SW (i) as C. If color is not used to convey information, mark 21 SW (i) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (i)  1194.22 Web (c) | |

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| 1. Flickering |
| Visually check for any flashing, scrolling or blinking interface elements  Flickering interface elements may cause seizures for users with photosensitive epilepsy. Look for any repetitive blinking, flickering, or scrolling interface elements. |

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| |  |  | | --- | --- | | How to test: | | | 1 | **Web** – Fail any interface element that blinks or scrolls. Web HTML tags that render flickering interface elements cannot control frequency of flicker. | | 2 | **SW** – Manual inspection - Count. Software shall not use flashing or blinking text, objects, or other interface elements between 2 Hz and 55 Hz. | | 3 | Scrolling text should be avoided unless clearly identified as a method of conveying information that can’t be accomplished in any other way. If this method is used, the scrolling feature needs to have the ability to “stop” and “start” the text by using both the mouse and keyboard. Is the scrolling text supported by “need” and if so, can the scrolling be stopped and started by both keyboard and mouse? |   ***Note: Refresh (F5) the page to remove WAT markup.*** | |  | | --- | | Flickering Test Results | | If a Web interface element flickers or blinks, mark 22 Web (j) as NC.  If a SW interface element flickers between 2 Hz and 55 Hz, mark  21 SW (k) as NC.  If a SW interface element flickers less than 2 Hz or greater than 55 Hz, mark 21 SW (k) as C.  If there are no flickering interface elements, mark 22 Web (j) and  21 SW (k) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (k)  1194.22 Web (j) | |

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| 1. Web: Data Tables |
| Data table column and row headers must be identified.   * Row and Column Headers must have markup to assist screen reader users with data cell comprehension. * Simple data tables have only 1 level of headers. Complex data tables have more than 1 level of headers. * Do not check layout tables; this standard applies to data tables ONLY. Data tables can be identified by a data cell that requires a row or column header to describe the cell information. For example, if only reading the cell contents does not provide sufficient information to understand the full context, it requires mark up and is not a layout table. * Using style to identify headers does not meet this standard. * An image of a data table does not meet this standard. |

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| |  |  | | --- | --- | | How to test: | | | **Use WAT** (Select Tables – Show Data Tables) | | | 1 | Determine if a data table is simple or complex | | 2 | Inspect each row and column header for SCOPE or ID. | | 3 | If ID is used, check the data cells for a headers attribute that corresponds to the ID of each row and column header. | |  | HTML table header attributes:  **SCOPE** (works only with 1 or 2 level headers)  Example:  <TH SCOPE="col">Name</TH>  <TD SCOPE="row">Joe Smith</TD>;  OR  **Header and ID** (works with all data tables but most often used for complex data tables) Example:  <TR> <TH id="fullname" colspan="2">Name</TH> </TR> <TR> <TH headers="fullname" id="fname">First</TH> <TH headers="fullname" id="lname">Last</TH> </TR> <TR> <TD headers="fullname fname”>John</TD>  <TD headers="fullname lname">Smith</TD> </TR> | | |  | | --- | | Web: Data Table Test Results | | If a data table does not have all row or column headers identified, mark  22 Web (g) as NC.  If a complex data table does not have all data cells associated with a headers identified, mark 22 Web (h) as NC.  If all data table headers are identified properly, mark 22 Web (g) as C.  If all complex data table cells are associated properly, mark  22 Web (h) as C.  If there are no complex data tables, mark 22 Web (h) as NA.  If there are no data tables, mark  22 Web (g) and 22 Web (h) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (g)  1194.22 Web (h) | |

***Note: Refresh (F5) the page to remove WAT markup.***

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| 1. Web: Style Sheet Dependence |
| A Web page must be readable and functional without the developer’s style sheet.  Some users with disabilities create their own style sheets with their personalized preferences (font size, font color, background color, etc.) and replace the provided style sheet. This allows some people with disabilities to access Web pages without additional assistive technology products.  Disabling style sheets shall not render the page unreadable and or remove functionality. Layout and appearance of the page may change visually, but reading order must be logical and consistent with the style sheet view. |

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| |  |  | | --- | --- | | How to test: | | | **Use WAT** (Select CSS – Disable CSS). | | | 1 | Visually inspect the page for a reading order consistent with style sheet view. | | 2 | Note any hidden coding that is revealed that could cause confusion. | | 3 | Mouse over all areas of the page to make sure the page does not get distorted or unreadable.  Elements must not interfere with readability of other elements.  Ex: drop down boxes must close when not in use. | | 4 | Ensure there is no loss of information | | 5 | If background images are removed, the information that they provide must still be available. | | |  | | --- | | Web: Style Sheet Test Results | | If the page is unreadable or unusable without its style sheet (with and without a mouse), mark 22 Web (d)  as NC.  If the page is readable and usable, mark 22 Web (d) as C.  If the page does not use a style sheet, mark 22 Web (d) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (d) | |

***Note: Refresh (F5) the page to remove WAT markup.***

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| 1. Web: Frames |
| Descriptive Frame titles are required.  Frame Titles must be descriptive so the content of the frame is obvious to aid screen reader navigation.   * HTML Ex: <frame src="nav.html" TITLE="left navigation">   The NAME attribute can also be accepted as long as it is descriptive. |

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| |  |  | | --- | --- | | How to test: | | | **Use WAT** (Select Frames – Frame Name / Title) | | | 1 | Check for each frame for a content description in Name or Title attribute. | | 2 | Use [Control+Tab] or F6 to move focus through each frame. | | **3** | WAT functions may not test framed content. To open the content in a separate window, use WAT – Frames – Navigate to framed documents. |   ***Note: Refresh (F5) the page to remove WAT markup.*** | |  | | --- | | Web: Frames Test Results | | If a frame’s Title or Name is non-descriptive, mark 22 Web (i) as NC.  If all frames have a descriptive Title or Name, mark 22 Web (i) as C.  If the frames are not keyboard accessible, mark 21 SW (a) as NC.  If there are no frames, mark  22 Web (i) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (a)  1194.22 Web (i) | |

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| 1. Web: Repetitive Navigation Links |
| There must be a method to skip past the repetitive navigation links.  The skip repetitive navigation links function:   * Aids navigation for keyboard only and screen reader users. * May not be visible * Must move the focus past the navigation links when activated * Is only required on pages where repetitive navigation links exist   Additional Test for Keyboard Access:   * Ensure that the skip function is accessible by keyboard only * Any issues would fail Software Standard A (Keyboard Access)   **NOTE:** A properly coded skip function may not work properly due to an IE bug. IE may also cause a loss of focus on the anchor target. These are not failures of the Web application. |

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| |  |  | | --- | --- | | How to test: | | | **Web: Use WAT** (Select Doc Info – Show Internal Links).  **Use the named anchor bookmarklet** (Favorites – Named Anchors tool). | | | **1** | Internal links are marked with an anchor image. | | **2** | The anchor targets are marked (usually with “#”) and must be after the repetitive links. | | **3** | Tab to the skip navigation function. | | **4** | Select it with Enter. (The page may scroll to move the target to the top of the screen.) | | **5** | Tab again. | | **6** | The focus should move beyond the repetitive navigation links to an interactive element (often a link).  If the focus does not move past the repetitive links, check if the skip function and target anchor have the same name. | | **7** | Refresh the page (F5) and retest the skip function. |   ***Note: Refresh (F5) the page to remove WAT markup.*** | |  | | --- | | Web: Skip Navigation Test Results | | If there is no skip function, or the target is not after the repetitive links, mark 22 Web (o) as NC.  If the skip function works properly, mark 22 Web (o) as C.  If the skip function does not work properly but the skip function and target are named correctly, this is most likely an IE bug. Mark  22 Web (o) as C.  If the repetitive links are contained within a frame, a skip function is not required; mark 22 Web (o) as C.  If there are no repetitive links on the page, mark 22 Web (o) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (o) | |

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| 1. Web: Required Plug-ins |
| Links must be provided to download plug-ins required to view file types that will not display in the browser.  ***The plug-in must be compliant with 21 SW standards.***  Examples of files that require a plug-in to view: .PDF – Adobe Reader, Office files (.doc, .xls, .ppt) – Office Viewer, .SWF – Flash player, multimedia (.wmv) – Media player (Windows Media Player) |

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| |  |  | | --- | --- | | How to test: | | | **For the link to the plug-in:**  **Web application: Use WAT** (Select Doc Info. – List Downloadable Files [new window]). | | | 1 | Knowing the file types, return to the Web page to check for links to download the plug-ins required to view files. | | 2 | Check for a link to the required plug-in or a link to a page with plug-in links. | | 3 | An acceptable approach to meet this standard is to provide a link to a separate page with the download information for the required plug-in. Compliant example: the footer of the page contains a link to the “Download Plug-ins” page and the required plug-in is included on that page. | | 4 | If the site is restricted to internal use, and the internal standard computer image includes the required plug-in, a link to the plug-in is not required. | | 5 | For any public sites or pages, the link must be provided. | | **For the Plug-in compliance  Use this script to test the plug-in for SW standards** | | |  | If the plug-in is COTS, provide a separate report on the plug-in.  If the plug-in is custom developed, include the test results in the application’s report.  \*Contact DHS Accessibility Help Desk for test results of common COTS plug-ins (Adobe Reader, Windows Media Player, Office viewer apps, etc.) Product manufacturer voluntary product accessibility template(s) may be utilized for this requirement if no other source is available. |   ***(Additional test criteria continued on next page)*** | |  | | --- | | Web: Required Plug-ins and Plug-in Test Results | | Public site: If a download link for the required plug-in is not provided, mark 22 Web (m) as NC. Test the plug-in.  Internal site: If all required plug-ins are available to internal users, a plug-in link isn’t required. Test the plug-in.  Plug-in test: If the required plug-in is not fully compliant with SW standards, mark 22 Web (m) as NC. A separate compliance report for the plug-in must be included with the application report.  If all required plug-in download links are provided and the plug-in is fully compliant, mark 22 Web (m) as C.  Plug-in content: If the content rendered is PDF or Office file, create a separate accessibility report for each file. Test all other plug-in content and report within the application report.  If no files require a plug-in to view, mark 22 Web (m) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (m)  1194.21 SW (a-l) | |

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| **9. Web: Required Plug-ins (Continued)** |
| Links must be provided to download plug-ins required to view file types that will not display in the browser.  ***The plug-in must be compliant with 21 SW standards.*** |

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| How to test: | |
| **For the content rendered by the plug-in:** | |
| 1 | **If the content rendered by the plug-in is part of the application, it must also be tested for accessibility.**  Examples of application content include an application functions (reports generated by the application, simulation videos) and help or supporting documentation (user guides, training for the application). |
| 2 | **Use this script to test multimedia (step 10) and customized software content (Flash, Silverlight, JAVA, etc.).**  Report these results within the Web application report.  PDFs and Office files follow a separate test process. Report on each file separately. |

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| 1. Web: Multimedia |
| Access to audible information (synchronized captioning) and access to visual information (synchronized audible descriptions) required.   ***Multimedia*** is a presentation consisting of two time-synchronized media, for example, video *AND* audio. |

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| |  |  | | --- | --- | | How to test: | | | 1 | **Web: Manually inspect** the multimedia for captioning that is synchronized with the audible sounds and dialog. Descriptions of important sounds must be included in captions. If there are visual actions necessary for comprehension, check that they are adequately described in the audio track. All relevant audible and visual information from the multimedia should be available if the speakers are off or if the monitor is off. | | |  | | --- | | Web: Multimedia Test Results | | If there are no synchronized captions, mark 22 Web (b1) as NC.  If audio descriptions are needed and not provided, mark 22 Web (b2)  as NC.  If the multimedia includes synchronized captions and audio descriptions, mark 22 Web (b1) and 22 Web (b2) as C.  If there is no multimedia, mark  22 Web (b) as NA.  If a plug-in player is required to play the multimedia, ensure that  22 Web (m) is tested. See Step 9. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (b) | |

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| 1. SW: Built-in Color Contrast Options |
| If color and contrast settings are adjustable, a variety of settings must be available. |

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| |  |  | | --- | --- | | How to test: | | | 1 | **SW: Manual inspection** - Determine if the application has color and contrast settings. If so, ensure that more than one selection is available. | | |  | | --- | | SW: Color contrast options Test Results | | If color and contrast settings are not adjustable within the application, mark 21 SW (j) as NA.  If the color and contrast can be adjusted to a variety of selections, mark 21 SW (j) as C.  If the color and contrast selections are limited to only two or three options, mark 21 SW (j) as NC. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (j) | |

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| 1. SW: OS Accessibility Features |
| Use of the application must not interrupt user’s accessibility functions and must adopt operating system appearance attributes. |

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| |  |  | | --- | --- | | How to test: | | | **SW: Manual inspection.** | | | 1 | Close the application. | | 2 | Windows XP:   1. All Programs – Accessories – Accessibility - Narrator 2. Control Panel - Accessibility Options. Enable the following options: Keyboard- Sticky Keys, Sound – Sound Sentry, Display- High Contrast. | | 3 | Windows 7:   1. Control Panel – Ease of Access Center. Enable Narrator, High Contrast, Sticky Keys | | 4 | Next, restart the application and check if the application adopted the high contrast appearance. Check that information is not cut off because of the larger font size. Scrolling may be necessary. | | 5 | Check if any of the configured Accessibility Options settings have changed. | | 6 | Check that Narrator is still working with the desktop and Start menu. |   ***Note: Reset the Accessibility Options to the original settings and restart the application.*** | |  | | --- | | SW: OS Accessibility Features Test Results | | If the application disabled any of the Accessibility options or disabled Narrator’s operation, mark 21 SW (b) as NC.  If the application does not inherit the High Contrast settings, mark 21 SW (g) as NC.  If none of the Accessibility Options are disabled, Narrator is running, and the application successfully displays in High Contrast, mark 21 SW (b) and  21 SW (g) as C.  If testing a Web application (that opens in a browser), these standards do not apply. Mark 21 SW (b) and  21 SW (g) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.21 SW (b)  1194.21 SW (g) | |

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| 1. Web: Accessible Version |
| Alternative versions for accessibility are only permitted when the primary page cannot be made compliant.  **Check for a Text only or alternative version of pages:**   * Typically indicated by a link, ex: Text Only Version * If the primary page is not compliant but can be made compliant, then it must be remediated. * Must be maintained and updated with the primary page. * Preference for an inaccessible technology for primary is not acceptable. |

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| |  |  | | --- | --- | | How to test: | | | 1 | **Web: Manually verify** that the primary page cannot be made accessible. Verify that the text only page contains identical information as the primary page. Check that all applicable Section 508 standards are compliant. | | |  | | --- | | Accessible Version Test Results | | If there is no alternative version, mark 22 Web (k) as NA.  If the primary site can be made compliant, mark 22 Web (k) as NC.  If the alternative accessible version is not compliant, mark 22 Web (k) as NC. The alternative version must be fully tested.  If the primary site cannot be made accessible, and the alternative version contains equivalent accessible information, mark 22 Web (k) as C. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (k) | |

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| 1. Web: Timed Response |
| Check for notification that a time out is about to occur.  **Timed Response:**   * Includes server and security time outs * Is typically associated with sites that require login   **The user must be:**   * Alerted that time is about to expire AND * Allowed to request more time |

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| |  |  | | --- | --- | | How to test: | | | 1 | **Web:**  **Manual inspection.** Leave the application open and inactive. Check for notification of a pending time out and opportunity to request more time. | | |  | | --- | | Web: Timed Response Test Results: | | If the time out occurs without notification or option to request more time, mark 22 Web (p) as NC.  If there is notification of a pending time out and how to request more time before the time out occurs, mark 22 Web (p) as C.  If there is no time out feature, mark 22 Web (p) as NA. | |
| |  | | --- | | Applicable 508 Standards: | | 1194.22 Web (p) | |

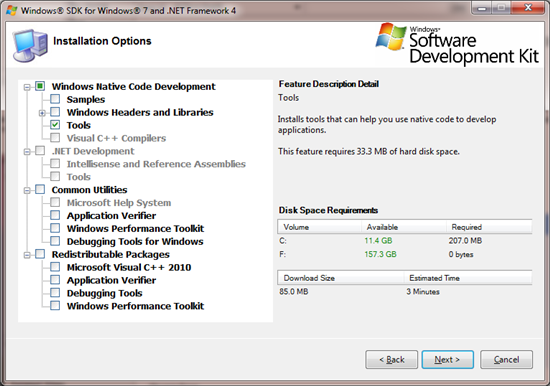
# DHS Section 508 Testing Tools Reference

* **Old Object Inspector:** for use with Windows XP  
  <http://download.microsoft.com/download/7/3/1/73161b80-0d08-4780-86c5-4d7d1ab82999/inspect32.exe>
* **New Object Inspector:** for use with Windows 7 and XP  
  <http://www.microsoft.com/downloads/en/details.aspx?FamilyID=6b6c21d2-2006-4afa-9702-529fa782d63b&displaylang=en#Top>
* **Java Access Bridge and JavaFerret** – for use with Windows XP  
  <http://www.oracle.com/technetwork/java/javase/tech/index-jsp-136191.html>
* **Web Accessibility Toolbar** – IE Plugin  
  <http://www.paciellogroup.com/resources/wat-ie-about.html>
* **Named anchors bookmarklet** – IE favorites  
  <https://www.squarefree.com/bookmarklets/webdevel.html>

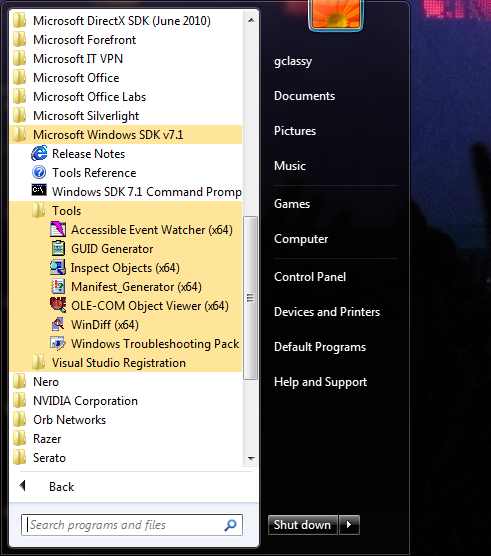
# New Inspect Objects Set Up

The following instructions describe the setup process for the new Microsoft Inspect Object Inspects which will work in the 32-bit and 64-bit environments of Windows operating systems.

1. <http://www.microsoft.com/downloads/en/details.aspx?FamilyID=6b6c21d2-2006-4afa-9702-529fa782d63b&displaylang=en#Top>
2. Select Download. The download should start but select “Start download” if necessary.
3. In the dialog box which appears, select on “Run.”
4. You may get a dialog similar to the following screenshot regarding installation of the .net Framework 4. You can select OK as .NET is not necessary for installation or use of Inspect Objects.
5. A Windows Registered SDK setup wizard will appears. Select “Next” to continue with the setup.
6. Check “I Agree” on the license agreement screen and select “Next.”
7. Accept the default installation destinations. Select “Next”.
8. On the next screen expand Windows Native Code Development and select Tools. This is a fairly small download. Select “Next”.



1. After you have downloaded the toolkit, you will have the Microsoft SDK 7.1 in your Start menu.  Inspect Objects is under Tools.



# Web Standard O Addendum

## Testing around the Internet Explorer bug

Internet Explorer versions 5, 6, and 7 have a bug that interferes with skip links moving the focus to the anchor or target.

The skip code below passes Section 508 requirements but does not work in IE:

<a href="#maincontent">Skip to Main Content</a>

… [repetitive links]

<a name=“maincontent”></a>

… [content]

The skip code above contains two parts: the link and the anchor.

* The link specifies the internal target with the # symbol (#maincontent).
* The anchor is the target of the link, identified by the name attribute, maincontent.

Testing the skip function involves tabbing to the skip function, selecting it (Enter), and tabbing once more. The focus should move beyond the repetitive links on the page, usually to the main content area.

Use the Web Accessibility Toolbar and Named anchors bookmarklet to check if the page was coded correctly with a skip function and an anchor tag. If it is coded correctly, but the focus does not move due to the IE bug, the application should be marked as compliant for Web Standard (O).

## Setup: Named Anchors bookmarklet

The “named anchors” bookmarklet will make anchors visible.

**Set up instructions the Named Anchors Bookmarklet in Internet Explorer** (Setup only needs to be done once.)

1. Go to <https://www.squarefree.com/bookmarklets/webdevel.html>
2. Right click on the bookmarklet “named anchors”.
3. Select “Add to Favorites…”

Figure : WAT and named anchors bookmarklet markup on a Web page

# DHS Application Testing Process Outline

The DHS Application Testing Script consists of fourteen main testing sections. Below is a list of each Section 508 standard that is tested in each section. Testers who are familiar with the Section 508 Software and Web standards and testing tools can use this as a quick reference while testing.

1. **Interactive Interface Elements  
   ALWAYS test for:**

21 SW (a) Keyboard Accessibility

21 SW (c) Visual Focus

1194.21 SW

(d) Role, Name & State

(f) Input Text

(l) Labels for Forms

1194.22 Web

(n) Labels for Forms

(l) Functional Text for Scripts

1. **Non-Text Interface Elements**

1194.21 SW

(d) Descriptive Name Value

(e) Bitmap Images

(h) Animation

1194.22 Web

(a) Equivalent text descriptions

(e) Server side Image Maps   
21 SW (a) Keyboard Accessibility

(f) Client side Image Maps

1. **Color Dependence**

1194.21 SW & 1194.22 Web

(i) & (c) No color dependence to convey information

1. **Flickering**

1194.21 SW

(k) Blinking objects 2Hz – 55Hz

1194.22 Web

(j) No flickering interface elements

1. **Data Tables**

1194.22 Web

(g) & (h) Identify row and column headers

1. **Style Sheet Dependence**

1194.22 Web

(d) Readable Style Sheets

1. **Frames**

1194.22 Web

(i) Descriptive Frame Titles  
21 SW (a) Keyboard Accessibility

1. **Repetitive Navigation Links**

1194.22 Web

(o) Method to Skip Repetitive Links

1. **Required Plug-ins**

1194.22 Web

(m) Link to download required plug-in

1194.21 SW

(a-l) Plug-in must meet all standards

1. **Multimedia**

1194.22 Web

(b) Synchronized captioning/audio description

1. **Built-in Color Contrast**

1194.21 SW

(j) Color and Contrast Settings of OS

1. **OS Accessibility Features**

1194.21 SW

(b) Built-in accessibility features

(g) Color and Contrast – Override not allowed

1. **Accessible Version**

1194.22 Web

(k) Text only or alternative versions

1. **Timed Response**

1194.22 Web

(p) Time out notification

# Section 508 Standards Mapped to DHS Application Test Process

Each Section 508 standard is mapped to the DHS Application Testing Process for testers who are more familiar with the alphabetical approach.

## 1194.21 Software

|  |  |
| --- | --- |
| Standard | Test Process |
| **(a)** | [1. Interactive Interface Elements](#one), [1.1. Keyboard Access](#one_one) |
| [1. Interactive Interface Elements](#one), [1.2.1. Labels for assistive Technology – SW Forms](#one_two_one) |
| [1. Interactive Interface Elements](#one), [1.2.2. Labels for assistive Technology – Web Forms](#one_two_two) |
| [1. Interactive Interface Elements](#one), [1.2.3. Labels for Interactive Interface Elements – Web Scripts](#one_two_three) |
| [2. Non-Text Interface Elements](#two), [2.5. Image maps](#two_five) |
| [7. Frames](#seven) |
| **(b)** | [12. OS Accessibility Features](#twelve) |
| **(c)** | [1. Interactive Interface Elements](#one), [1.1. Keyboard Access](#one_one) |
| **(d)** | [1. Interactive Interface Elements](#one), [1.2.1. Labels for assistive Technology – SW Forms](#one_two_one) |
| [2. Non-Text Interface Elements](#two), [2.1. SW Images](#two_one) |
| **(e)** | [2. Non-Text Interface Elements](#two), [2.1. SW Images](#two_one) |
| **(f)** | [1. Interactive Interface Elements](#one), [1.2.1. Labels for assistive Technology –SW Forms](#one_two_one) |
| **(g)** | [12. OS Accessibility Features](#twelve) |
| **(h)** | [2. Non-Text Interface Elements](#two), [2.2. SW Animation](#two_two) |
| **(i)** | [3. Color Dependence](#three) |
| **(j)** | [11. Built-in color contrast options](#eleven) |
| **(k)** | [4. Flickering](#four) |
| **(l)** | [1. Interactive Interface Elements](#one), [1.2.1. Labels for assistive Technology – SW Forms](#one_two_one) |

## 1194.22 Web

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| Standard | Test Process |
| **(a)** | [2. Non-Text Interface Elements](#two), [2.3. Web: Images](#two_three) and [2.4. Web: Audio or video files](#two_four) |
| **(b)** | [10. Multimedia](#ten) |
| **(c)** | [3. Color Dependence](#three) |
| **(d)** | [6. Style Sheet Dependence](#six) |
| **(e)** | [2. Non-Text Interface Elements](#two), [2.5. Image maps](#two_five) |
| **(f)** | [2. Non-Text Interface Elements](#two), [2.5. Image maps](#two_five) |
| **(g)** | [5. Data Tables](#five) |
| **(h)** | [5. Data Tables](#five) |
| **(i)** | [7. Frames](#seven) |
| **(j)** | [4. Flickering](#four) |
| **(k)** | [13. Accessible Version](#thirteen) |
| **(l)** | [1. Interactive Interface Elements](#one), [1.2.3. Labels for Interactive Elements – Web Scripts](#one_two_three) |
| **(m)** | [9. Required plug-ins](#nine) |
| **(n)** | [1. Interactive Interface Elements](#one), [1.2.2. Labels for assistive Technology – Web Forms](#one_two_two) |
| **(o)** | [8. Repetitive Navigation Links](#eight) |
| **(p)** | [14. Timed response](#fourteen) |