# BWC Redesign Website Accessibility Pre-Test Plan

Ohio | Bureau of Workers' Compensation

**BWC AT-003: FINAL**

February 2018

Written by Theresa Wilkinson

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# State of Ohio Administrative Policy for Website Accessibility

The State of Ohio Administrative Policy for Website Accessibility (IT-09) states:

State agencies shall establish a website accessibility strategy that applies to the design, development, implementation and maintenance of public-facing agency web pages. At a minimum, public-facing state websites shall meet the following requirements:

2.1 **Web Page Accessibility Requirements**: State of Ohio public-facing web pages shall be compliant with the accessibility standards established by the Web Content Accessibility Guidelines (WCAG) 2.0, Level A and Level AA.

2.1.1 Section 508 of the Rehabilitation Act of 1973 shall take precedence when agencies have agreements in place with the federal government to make their websites Section 508 compliant.

2.2 **Outsourced Web Development**: Agencies shall ensure that all contracted, in-kind, or other third-party website development complies with the accessibility standards established by WCAG 2.0, Level A and Level AA.

2.3 **Accessibility Statements**: Agencies shall include an accessibility statement at a minimum on the agency home page and primary entry points or provide a link to an accessibility statement. The accessibility statement shall include:

- A statement of compliance if compliance has been attained;
- A statement describing steps taken to ensure continuing compliance if compliance has been attained; and
- A feedback mechanism for Internet visitors to report accessibility issues with the agency's website.

# What is accessibility?

The web is fundamentally designed to work for all people, whatever their hardware, software, language, culture, location, or physical or mental ability. When the web meets this goal, it is accessible to people with a diverse range of hearing, movement, sight, and cognitive ability.

Thus, **the impact of disability is radically changed on the web because the web removes barriers** to communication and interaction that many people face in the physical world. However, when websites, web technologies, or web tools are badly designed, they can create barriers that exclude people from using the web.

**Accessibility of a website describes how well users with limitations can access it**. These limitations can be physical, like color blindness, or, for example, a handicap that makes it impossible for users to operate a mouse.

An accessible website offers solutions for these limitations, like low resolution images to ensure a short loading time, screen reader optimization, or the compatibility with alternative input devices. It should also cater to all sets of people and NOT just limited to disabled people. These include:

- Users with poor communications infrastructure
- Older people and inexperienced users, who are often computer illiterate
- Users using old systems (NOT capable of running the latest software)
- Users using NON-standard equipment

## Dyslexia

It is estimated that 1 in 10 people have dyslexia. Over 40 million American adults are dyslexic - and only 2 million know it.

Dyslexia is a learning disability that impairs a person's fluency or accuracy in being able to read, write, and spell. Dyslexics are very sensitive to particular typefaces, both in print and on screen. Many dyslexic people find that the readability of a piece of text varies greatly depending upon the font (type face or type style) used.

Here are a few things you can do to improve the readability and accessibility of your site:

- Create a consistent, predictable set of interactions for sequenced activities.
- Limit the use of multimedia that plays automatically.
- Avoid the use of unusual fonts on your web pages.
- Find alternative security solutions to CAPTCHA.

- Create clear and simple sentences, and break up lengthy paragraphs of content.
- Use visuals where appropriate to reinforce complex concepts.

(http://simplyaccessible.com/article/user-needs-dyslexia/)

## What is accessibility testing?

Web accessibility testing is a subset of usability testing where the users under consideration have disabilities that affect how they use the web. The end goal, in both usability and accessibility, is to discover how easily people can use a website and feed that information back into improving future designs and implementations.

## How is web accessibility measured?

Accessibility of the web can be measured with the help of web accessibility standards created by the W3C known as Web Content Accessibility Guidelines (WCAG) and Section 508.

## WCAG 2.0

WCAG is developed through the W3C process in cooperation with individuals and organizations around the world, with a goal of providing a **single shared standard for web content accessibility** that meets the needs of individuals, organizations, and governments internationally.

WCAG 2.0 is approved as an ISO standard: ISO/IEC 40500:2012. ISO/IEC 40500 is exactly the same as the original WCAG 2.0, which is introduced above along with supporting resources.

## Section 508

The Section 508 standards are a list of accessibility standards for federal agencies in the United States. Section 508 requires U.S. government websites to be accessible. The standards were issued in 2000 by the U.S. Access Board under the Section 508 Amendment to the U.S. Rehabilitation Act of 1973.

Section 508 consists of several separate paragraphs.

- §1194.21 covers software applications and operating systems
- §1194.22 covers web-based content

Note that §1194.21 also applies to software applications (web applications) that are embedded in or deployed on websites.

# Approach

The accessibility tests will be conducted for BWC in November 2017. The tests will be performed with the BWC website prototype.

## Purpose

The primary purpose of accessibility testing is to identify where the new website design does not meet WCAG 2.0 and Section 508 standards and give recommendations for improvement.

## Method

### Accessibility evaluation tools

#### What evaluation tools can do

Web accessibility evaluation tools can significantly reduce the time and effort required to carry out evaluations. **When used carefully throughout the design, implementation, and maintenance phases of web development**, these **tools can assist their users in preventing accessibility barriers, repairing encountered barriers, and improving the overall quality of websites**. The following are ways in which tools can assist users in evaluating websites for accessibility; some tools can perform both:

- Determine the conformance of websites to accessibility checks that can be executed automatically;
- Effectively assist reviewers in performing accessibility checks that need to be evaluated manually.

#### What evaluation tools can *not* do

Many **accessibility checks require human judgement and must be evaluated manually** using different techniques. Also, in some cases evaluation tools are prone to producing false or misleading results, such as not identifying or signal incorrect code. The results from evaluation tools should not be used to determine conformance levels unless they are operated by experienced evaluators who understand the capabilities and limitations of the tools to achieve accurate results. **Web accessibility evaluation tools cannot *determine* the accessibility of websites; they can only *assist* in doing so**.

### Automated tools

| Name | URL | Description |
|---|---|---|

| | | |
|---|---|---|
| 508 Checker | http://www.508checker.com | Free. Check a web page for 508 compliance |
| A-Tester | http://www.evaluera.co.uk | Free. Uses Chrome. Checks a web page against WCAG 2.0 Level-AA conformance. |
| A11Y Compliance Platform | http://www.boia.org?wc3 | Free summary. Standards and guidelines used includes Section 508, WCAG & Americans with Disabilities (ADA) |
| a11y.css | http://ffoodd.github.io/a11y.css/ | Free. This CSS file intends to warn developers about possible risks and mistakes that exist in HTML code. |
| AATT (Automated Accessibility Testing Tool) by PayPal | https://github.com/paypal/AATT | Free. Checks against WCAG 2.0, Section 508, US federal procurement standard |
| WAVE by WebAIM | http://wave.webaim.org/ | WAVE is a suite of tools for facilitating web accessibility evaluation by providing a visual representation of accessibility issues within the page. |
| PEAT - Photosensitive Epilepsy Analysis Tool | http://trace.umd.edu/PEAT | This is a free tool to identify seizure risks in their web content and software. |
| Readability Grader | https://jellymetrics.com/readability-grader/<br><br>Also:<br>• https://readable.io/text/<br>• http://gunning-fog-index.com/ | Readability Grader is a tool that allows people to check whether their content is easy-to-read. It generates 7 different scores. |
| Visual ARIA | http://whatsock.com/training/matrices/visual-aria.htm | Visual ARIA allows engineers, testers, educators, and students to physically |

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| | | observe ARIA usage within web technologies, including ARIA 1.1 structural, live region, and widget roles, proper nesting and focus management, plus requisite and optional supporting attributes to aid in development. |
| Visolve | http://www.ryobi-sol.co.jp/visolve/en/ | **WORK WITH WINDOWS 10?** Visolve is the software tool that transforms colors of the computer display into the discriminable colors for various people including people with color vision deficiency, commonly called color blindness. |
| Dynamic Assessment Plugin | https://www.ibm.com/blogs/age-and-ability/2017/03/08/automating-accessibility-testing-of-web-applications/ | Checks rendered websites (?) in context, helping developers correctly use ARIA 1.1 and HTML5, detect color contrast issues, and more common checks, such as usage of forms labels and alt text. The Dynamic Assessment Plugin's engine is also built to support the implicit semantics of ARIA 1.1. |

## Manual accessibility testing

### Check color contrast tools

| Name | URL | Description |
|---|---|---|

| | | |
|---|---|---|
| Grab Website Colors - Color Scheme Extraction Tool | http://www.colorcombos.com/grabcolors.html | The website color extraction tool is used to grab colors from a website. |
| Webaim Contrast Checker | http://webaim.org/resources/contrastchecker/ | Checks color contrast for WCAG compliance |
| WCAG 2.0 on Contrast Ratio Checker | http://leaverou.github.io/contrast-ratio/ | Checks color contrast for WCAG compliance |

**Web developer tools**

Google Chrome

| Name | URL | Description |
|---|---|---|
| Chrome browser download | https://www.google.com/chrome/<br><br>browser/desktop/index.html | |
| Github Chrome Accessibility Experiment | https://gist.github.com/marcysutton/<br><br>0a42f815878c159517a55e6652e3b23a | Instructions and download |
| WCAG Accessibility Audit Developer UI | https://chrome.google.com/webstore/detail/wcag-accessibility-audit/kpfleokokmllclahndmochhenmhncoej?hl=en | Download |
| WAVE Evaluation Tool | http://wave.webaim.org/extension/ | WAVE is a web accessibility evaluation tool developed by WebAIM.org. It provides visual feedback about the accessibility of your web content by injecting icons and indicators into your page. |

## Mozilla Firefox

- Information on using Firefox developer tools for accessibility testing: https://webaim.org/resources/webdev/ and https://developer.mozilla.org/en-US/docs/Web/Accessibility.
- https://support.mozilla.org/en-US/kb/accessibility-features-firefox-make-firefox-and-we
- **Use Chrome to disable CSS:** https://www.techwalla.com/articles/how-to-disable-css-in-chrome

| Name | URL | Description |
|---|---|---|
| Disable CSS addon | https://addons.mozilla.org/en-US/firefox/addon/disable-css/ | Allows you to disable CSS in Firefox |
| Juicy Studio Toolbar | https://addons.mozilla.org/en-US/firefox/addon/juicy-studio-accessibility-too/ | A toolbar for Firefox to examine WAI-ARIA properties, reveal data table information, and perform color contrast tests |
| WAVE Evaluation Tool | http://wave.webaim.org/extension/ | WAVE is a web accessibility evaluation tool developed by WebAIM.org. It provides visual feedback about the accessibility of your web content by injecting icons and indicators into your page. |
| | https://soap.stanford.edu/tips-and-tools/tools/firefox-extensions | |

## Screen readers

Free screen readers: https://usabilitygeek.com/10-free-screen-reader-blind-visually-impaired-users/

| Name | URL | Description |
|---|---|---|
| JAWs | http://www.freedomscientific.com/Products/Blindness/JAWS | See how long the free trial is |

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| | | and if I can use it for about 30 minutes |
| NVDA | https://www.nvaccess.org/ | Free. Uses with Windows. |
| Apple VoiceOver | https://www.apple.com/accessibility/mac/vision/ | Instructions on how to use |
| ChromeVox | https://chrome.google.com/webstore/<br><br>detail/chromevox/kgejglhpjiefppelpmljglcjbhoiplfn | Download |
| Fangs | https://addons.mozilla.org/en-US/firefox/tag/screen%20reader | Download |

## In scope devices

| Platform | Device | Test type & browser |
|---|---|---|
| Desktop | Desktop | Keyboard on Firefox<br>For keyboard short cuts, see https://webaim.org/techniques/keyboard/ |
| Desktop | Desktop | Keyboard on Chrome<br>For keyboard short cuts, see https://webaim.org/techniques/keyboard/ |
| Mobile | iPhone 6S Plus | Keyboard on iOS Safari<br>For keyboard short cuts, see https://webaim.org/techniques/keyboard/ |
| Tablet (optional) | iPad | Keyboard on iOS Safari<br>For keyboard short cuts, see https://webaim.org/techniques/keyboard/ |
| Desktop | Desktop | Screen reader – NVDA with Firefox |
| Desktop | Desktop | Screen reader – ChromeVox with Chrome |
| Mobile | iPhone 6S Plus | Screen reader - iOS Safari with VoiceOver |
| Tablet (optional) | iPad | Screen reader - iOS Safari with VoiceOver |

## Accessibility test cases

All pages in the new website format will be tested including PDFs.

Two excel spreadsheets will be created:

1. Listing new web pages and PDFs with paths when the content is finalized

2. A bug report (See bug reports below).

Also, a Google docs area will be created to allow screen shots and videos that correspond with the bug report to be uploaded.

## Instructions

1. Cover the pages listed in the spreadsheet
2. Group all recurring issues. If another tester has logged a bug about missing alt tags on one page, and you have a new page that also has images missing alt tags, please +1 with a comment stating where else it happens.
3. Add in HTML when relevant.
4. Try to find a resolution or cause of the issue and add the details in the bugs (View source code via web developer tools).
5. Please clear cache and cookies on any browsers or devices that you plan to use before you begin to test.

## Bug reports

Bug Title should start with one of the following:

- "**Color Contrast**" to be used for Color Contrast Issues
- "**Keyboard Navigation**" for when the item is only about keyboard issue, not to be used if it only applies to a screen reader being in use - in these bugs remove any reference in the steps to recreate with the screen readers
- "**Screen Readers**" for a specific screen reader issue when tested on more than one screen reader. If just one screen reader then add it **and the browser it was found in**.
- "**HTML Validator**" for any issues identified using an HTML validator

In the title, include the test case reference. So a bug found on the search page that happens for more than 1 screen reader would start with "**Screen Readers: Search: " + description of the issue**.

Steps need to start with the screen readers and browsers used**: Using Safari+VoiceOver** (also need updates after +1's) - this is instead of usual first step, e.g. 1) Turn on VoiceOver and open page in Safari.

**All bugs must have a screenshot of the page. Any issues that relate to a screen reader issue must have a narrated MP4 video (describing the actions you take as you navigate**). All videos must have the screen reader and narration in English but only if a specific screen reader bug, or else just a narration video describing the

issue. **Also keep the videos short - only start where the issue is found and highlight the issue of the bug.**

## Tools

https://www.w3.org/WAI/ER/tools/

**If you report a bug for a Windows desktop environment, you must record your videos using Screencast-o-matic**: http://www.screencast-o-matic.com/ and on the **Mac** make sure you **convert the MOV files with Handbrake: https://handbrake.fr/** to be MP4

# Appendix A – BBC Mobile Accessibility Guidelines, WCAG 2.0 Guidelines, Section 508

This section contains BBC Mobile guidelines mapped to both WCAG 2.0 and Section 508.

| BBC Mobile | WCAG 2.0 | Section 508 |
|---|---|---|
| **Audio & video** | | |
| Alternatives for audio and visual content: Alternative delivery, such as subtitles, sign language, audio description and transcripts, must be provided with embedded media when available. | 1.2.5 Audio descriptions are provided for all video content. NOTE: Only required if the video conveys content visually that is not available in the default audio track. Level AA<br><br>1.4.2 - A mechanism is provided to stop, pause, mute, or adjust volume for audio that automatically plays on a page for more than 3 seconds. Level A<br><br>1.2.4 - Synchronized captions are provided for all live multimedia that contain audio (audio-only broadcasts, webcasts, video conferences, Flash animations, etc.). Level AA | 1194.22 (b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.<br>1194.24 (c) - All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.<br>1194.24 (d) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described. |
| **How to test**<br>• Check if audio or video is present. If so, check that a transcript, textual or audio descriptions and captions are available.<br>• Check if there is a pause/stop/mute button is provided.<br>• Check if subtitles are available. | | |

How to test for screen reader

1. Locate media.
2. Determine if the media has audio content that contains important information - such as a spoken narrative.
3. Check that any audible information necessary for understanding the media is also provided via subtitles/open or closed captions in conjunction and synchronized with the audio.
4. Determine if the media has visual content that contains important information - such as a sign or new character entering.
5. Check that any visual information necessary for understanding the media is also described as part of the audio or is provided through a separate track containing the audio descriptions and is synchronized with the video. This may be via a screen reader where appropriate.

The following checks must be true:

- Media provides subtitles/opened or closed captions that are synchronized with any audio content that contains important information;
- Visual content necessary for understanding the media is described using an audio which is synchronized with the video content (Video description), or where appropriate provides textual content for a screen reader.

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| Metadata: Relevant metadata should be provided for all media. | 1.2.3 Audio A descriptive text transcript OR audio description audio track is provided for non-live, Web-based video. Level A | 1194.22 (b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.<br>1194.24 (d) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described. |

**How to test**

1. Locate media.
2. View the source of the page.
3. Verify that metadata content is indicated in the head section of the page and indicates where alternatives to the media are located.

<table>
<tr><td colspan="3">The following check is true:<br>• Correct metadata is provided for media.</td></tr>
<tr><td>Autoplay: Audio must not play automatically unless the user is made aware this will happen or a pause/stop/mute button is provided.<br>Volume control: Separate volume controls should be provided for background music, ambient sounds, narrative and editorially significant sound effects.</td><td>1.4.2 - A mechanism is provided to stop, pause, mute, or adjust volume for audio that automatically plays on a page for more than 3 seconds. Level A</td><td>1194.21(h) - A non-animated alternative is provided for animations. Give users the option to start, pause or stop, and step through animated content.<br>1194.21(a) - All textually labelled functions can be controlled via a keyboard</td></tr>
<tr><td colspan="3">How to test<br>• Check if audio is present. If so, check that controls are present.<br>• Check manually if moving, blinking or automatically updating content is present. If so, check that it is compliant.<br>How to test with screen reader<br>1. Locate media<br>2. Determine if the media has audio content that contains important information - such as a spoken narrative.<br>3. Check that any audible information necessary for understanding the media is also provided via subtitles/open or closed captions in conjunction and synchronized with the audio.<br>4. Determine if the media has visual content that contains important information - such as a sign or new character entering.<br>5. Check that any visual information necessary for understanding the media is also described as part of the audio or is provided through a separate track containing the audio descriptions and is synchronized with the video. This may be via a screen reader where appropriate.<br>The following checks must be true:<br>• Media provides subtitles/opened or closed captions that are synchronized with any audio content that contains important information;<br>• Visual content necessary for understanding the media is described using an audio which is synchronised with the video content (Video description), or where appropriate provides textual content for a screen reader.</td></tr>
<tr><td colspan="3">Design</td></tr>
<tr><td>Color contrast: The</td><td>1.4.3 - Text and images of text have a</td><td>1194.21 (g) - The</td></tr>
</table>

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| color of text and background content must have sufficient contrast. | contrast ratio of at least 4.5:1. Large text (over 18 point or 14 point bold) has a contrast ratio of at least 3:1. Level AA<br>1.4.6 - Enhanced contrast: Text has enough contrast with the background (contrast ratio 7:1 for small text and 4:5:1 for large text). Level AAA | application does not override user-defined color, contrast and other display settings.<br>1194.22 (c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup. |
| **How to test**<br>1. Locate samples of text with background colors and links that are only identified by colour.<br>2. Identify the color values:<br>o Take a screen shot of the module (home+power button on iOS),<br>o Email or sync the picture to a desktop PC,<br>o View the image of the page to be tested,<br>o Determine the foreground and background color of the content using an eye dropper tool to obtain the color values for the background and foreground colours.<br>3. Manually inspect the element's color definition.<br>4. Use http://webaim.org/resources/contrastchecker/. Enter the foreground and background values into the color contrast analyser.<br>The following check is true:<br>• Verify the luminosity requirements are met and that the colour contrast meets the minimum ratio requirements of 4.5:1 for standard size and non-bolded text. | | |
| Color and meaning: Information or meaning must not be conveyed by color only. | 1.4.1 Use of Color: Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. Level A | 1194.21(i) Color is not used as the only visual means of conveying info, indicating an action, prompting a response, or distinguishing a visual element.<br>1194.22 (c) Web pages shall be designed so that all information conveyed with color is also available without color. |
| **How to test color and meaning**<br>• Use the Web developer toolbar to remove all CSS styling. | | |

- Use a tool like WAVE > Outline to check the headings.
- Check manually that the correct HTML markup is used for elements such as tables, headings and lists, and that color is not used as the only means of providing information.
- Check the page with errors and inspect the resulting messages and other feedback given.

How to test with screen reader:

1. Locate objects, images, or elements that use color.
2. Determine if color is the sole means of communicating information.
3. Verify that there is an alternative visual means of obtaining the same information.
4. Verify that the screen reader announces the meaning conveyed by the color.

The following check is true:

- Color used to convey meaning is also indicated by an additional non-color visual;
- Color used to convey meaning is announced by the screen reader.

**How to test for color contrast**

1. Locate samples of text with background colors and links that are only identified by color.
2. Identify the color values:
   - Take a screen shot of the page to test
   - Determine the foreground and background color of the content using an eye dropper tool to obtain the color values for the background and foreground colors
3. Manually inspect the element's color definition.
4. Use a reliable tool, such as Webaim color contrast checker to check if contrast is sufficient.
5. Enter the foreground and background values into the color contrast analyzer.
6. Verify the luminosity requirements are met and that the color contrast meets the minimum ratio requirements of 4.5:1 for standard size and non-bolded text.

The following check is true:

- Contrast between text and background meet minimum color contrast (luminosity) ratio requirements indicated by WCAG 2.0 of 4.5:1 for standard font size that is not in bold.

**How to test for actionable items**

1. Locate all actionable items.
2. Verify that the actionable items can be visually distinguished from non-actionable ones.
3. Verify that the actionable status is indicated by a screen reader.

The following checks are all true:

- Actionable items can be visually distinguished from non-actionable ones.
- Actionable items are announced in a way that indicates they are actionable by a

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|---|---|---|
| screen reader. | | |
| Styling and readability: Core content must still be accessible when styling is unsupported or removed. | 1.3 - Content can be presented in different ways (e.g. through a screen reader) without losing info or structure<br>1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22(e) Redundant text links shall be provided for each active region of a server-side image map.<br>1194.22 (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.<br>1194.22 (g) Row and column headers shall be identified for data tables.<br>1194.22 (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.<br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary |

| | | |
|---|---|---|
| | | page changes.<br>1194.22 (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. |
| **How to test**<br>1. Identify styles that are not supported by older devices or assistive technologies.<br>2. Verify that all content is available on older devices and assistive technology that do not support these styles:<br>o Alternatives for background images<br>o Colors<br>o Fonts<br>The following check is true:<br>• All content is available and readable.<br>How to test for readability<br>• Check that the content (navigation labels, headings, page text) on website pages requires a reading level that is less advanced than the lower secondary education level (middle school).<br>The following checks are true:<br>• The website content (navigation labels, headings, page text) is in the lower secondary education (middle school) reading level. Use a tool that scores the grade level of the text like https://www.perrymarshall.com/grade/. | | |
| Touch target size: Touch targets must be large enough to touch accurately.<br>Spacing: An inactive space should be provided around actionable elements. | 1.4.1 - Color is not used as the only visual means of conveying info. Level A<br>1.4.4. - The page is readable and functional when the text size is doubled. Level AA<br>3.2 Touch Target Size and Mapping (https://www.w3.org/TR/mobile-accessibility-mapping/)<br>Best practices for touch target size include the following:<br>• Ensuring that touch targets are atleast | 1194.21 (i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.<br>1194.22 (c) Web pages shall be designed so |

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|---|---|---|
| | 9 mm high by 9 mm wide (34 x 34 pixels).<br>• Ensuring that touch targets close to the minimum size are surrounded by a small amount of inactive space.<br>**Note:** This size is not dependent on the screen size, device or resolution. Screen magnification should not need to be used to obtain this size, because magnifying the screen often introduces the need to pan horizontally as well as vertically, which can decrease usability.<br>**Apple's iPhone Human Interface Guidelines recommends a minimum target size of 44 pixels wide 44 pixels tall.**<br>WCAG Mobile guidelines: http://w3c.github.io/Mobile-A11y-Extension/ | that all information conveyed with color is also available without color, for example from context or markup.<br><br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet. |
| **How to test**<br>• Locate all touch targets/actionable items.<br>• Verify that there appears to be inactive space between every touch target/actionable item.<br>The following checks are all true:<br>• All touch targets/actionable items have inactive space between them.<br>Code examples:<br>• http://www.bbc.co.uk/guidelines/futuremedia/accessibility/mobile/design/touch-target-size<br>• http://www.bbc.co.uk/guidelines/futuremedia/accessibility/mobile/design/spacing | | |
| Content resizing: Users must be able to control font sizing and user interface (UI) scaling. | 1.4.4 - The page is readable and functional when the text size is doubled. Level AA | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet. |
| **How to test on desktop**<br>1. Enter some text into text-based form controls that receive user entered text.<br>2. Increase the text size of the content by 200%.<br>The following checks are all true:<br>• Check that the text in text-based form controls has increased by 200%.<br>**How to text on mobile or tablet**<br>1. Verify that UI scaling ("zoom") is not disabled.<br>2. Verify that content can still be accessed when scaled up ("zoom in"). | | |

| | | |
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| 3. Change the device default text size.<br>4. Verify text resizes and properly reflows on the page/screen.<br>5. Verify that scrolling is not disabled.<br>The following checks are all true:<br>• It is possible to change the UI scale without losing access to content.<br>• The default text size is respected.<br>• Content properly reflows and scrolls as required when resized. | | |
| Visible focus: When focused, all actionable and focusable elements must have a visible state change.<br><br>Actionable elements: Links and other actionable elements must be clearly distinguishable | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br><br>1.4.1 - Color is not used as the only visual means of conveying info. Level A<br><br>2.1.1 – All functionality is available from a keyboard, except for tasks such as drawing. Level A<br><br>2.4.7 - The page element with the current keyboard focus has a visible focus indicator. Level AA | 1194.21(a) All textually labelled functions can be controlled via a keyboard.<br><br>1194.21 (c) A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that assistive technology can track focus and focus changes.<br><br>1194.21 (i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.<br><br>1194.22 (c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.<br><br>1194.22 (d) Documents shall be organized so |

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| | | they are readable without requiring an associated style sheet.<br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br>1194.22 (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.<br>1194.22 (g) Row and column headers shall be identified for data tables.<br>1194.22 (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.<br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br>1194.22 (n) When |

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<tr><td></td><td></td><td>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.</td></tr>
<tr><td colspan="3">How to test<br>1. Navigate through the active on-screen components.<br>2. For each active element that receives focus:<br>o Verify where the text input location is;<br>o Verify that the focus location is indicated at all times and follows traversal of the user interface;<br>o Verify that the focus indicator can be clearly distinguished from other on-screen elements.<br>3. Verify that you can open and close modal windows using the keyboard only<br>The following is true:<br>• The text input location is indicated;<br>• When switching page tabs, the focused tab is indicated visually and announced by a screen reader;<br>• The object, element, or control that has focus is indicated in a clear, visually distinguishable manner that meets the colour contrast requirements.</td></tr>
<tr><td>Consistency: A user's experience should be consistent.<br>Consistency allows all users to predict where to find information and how to use it. This is particularly helpful for users with cognitive impairments, in particular autistic users.</td><td>3.2.3 - Navigation menus are in the same location and order on every web page. Level AA<br>3.2.4 - UI components used across the website are identified consistently on every page. Level AA</td><td>1194.22(e) When images are used for controls, status indicators and other UI elements, the same images are used for the same UI elements consistently throughout.</td></tr>
<tr><td colspan="3">How to test<br>• Tab through the interactive elements on the page<br>• Open and close modal windows using the keyboard only<br>• Go through the site and check that the main navigation menus look and work the</td></tr>
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| same on every page.<br>How to test with a screen reader<br>1. Locate all actionable items.<br>2. Verify that the actionable items can be visually distinguished from non-actionable ones.<br>3. Verify that the actionable status is indicated by a screen reader.<br>The following checks are all true:<br>• Actionable items can be visually distinguished from non-actionable ones.<br>• Actionable items are announced in a way that indicates they are actionable by a screen reader. | | |
| Choice: Interfaces must provide multiple ways to interact with content. | 2.4.5 More than one way is available to navigate to other Web pages, such as a sitemap. Level AA | |
| **How to test**<br>1. Identify the different actionable elements.<br>2. Verify they can be accessed and controlled, as appropriate for the device, by:<br>o Mouse<br>o Touch<br>o Keyboard<br>o With or without screen reader enabled<br>The following checks are true:<br>• Actionable elements can be controlled in multiple ways. | | |
| Flicker: Content must not visibly or intentionally flicker or flash more than three times in any one-second period. | 2.3.1 - No more than three flashes in a 1-second period, or the flashes are below the defined thresholds. Level A<br>2.3.2 - No more than three flashes in a 1-second period. Level AAA | 1194.21(k) No flashing or blinking text, objects, or other elements with a flash or blink frequency between 2 Hz and 55 Hz.<br>1194.22 (j) The screen should not flicker at frequencies between 2 and 55 Hz. |
| **How to test**<br>• Check manually if flashing occurs. If so, check that it is compliant.<br>• Use a tool or app, such as Flicker Tester, to determine the rate of flicker. | | |
| **Editorial** | | |
| Consistent labelling: Consistent labelling should be used across | 3.2.4 - UI components used across the web site are identified consistently on every page. Level AA | 1194.21(e) When images are used for controls, status |

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<tr><td>websites and native applications, as well as, within websites and applications.</td><td>2.4.6 - The headings and labels are clear and consistent, accurately describing the topic or purpose. Level AA<br><br>3.1.5 - Reading Level: When text requires reading ability more advanced than the lower secondary education level after removal of proper names and titles, supplemental content, or a version that does not require reading ability more advanced than the lower secondary education level, is available. Level AAA</td><td>indicators and other UI elements, the same images are used for the same UI elements consistently throughout</td></tr>
<tr><td colspan="3">How to test for readability<ul><li>Check that text (navigation labels, headings, page text) on website pages requires a reading ability that is less advanced than the lower secondary education level (middle school).</li></ul>The following checks are true:<ul><li>The website (navigation labels, headings, page text) is in the lower secondary education (middle school) reading level. Use a tool that scores the grade level of the text like https://www.perrymarshall.com/grade/.</li></ul>How to test with screen reader<ol><li>Navigate to an image, object, element or control denoted by an image.</li><li>Ensure that any image that is used two or more times across the application performs the same function and has the same textual representation.</li><li>Repeat for each image that represents different functionality.</li></ol>The following checks are true:<ul><li>Images that are used two or more times across the application perform the same functions, have the same textual representation and have an accessible alternative that is announced consistently;</li><li>Images that are used for different purposes are different.</li></ul></td></tr>
<tr><td>Indicating language: The language of a page or app must be specified, and changes in language must be indicated.<br><br>Changes in language must be specified.</td><td>3.1.1 - Specify the language (e.g. English) of the Web page. Level A<br><br>3.1.2 - Specify the language (e.g. English) of each text phrase or passage that is in a language other than the default language specified for the entire Web page. Level AA</td><td></td></tr>
<tr><td colspan="3">How to test<ol><li>Set the platform language.</li><li>Activate the app with platform standard assistive technologies enabled.</li><li>Verify the following appears or are announced in the correct language:<ul><li>Text</li></ul></li></ol></td></tr>
</table>

- Text in a different language from that of app/site
- Images of text
- Images of text in a different language from that of app/site
- Labels
- Tooltips
- Sound
- Video sub-titles
- Page and screen titles
- Alternatives for image, objects and elements in a different language from that of app/site

The following check is true:

- All content, text, images of text, audio, video subtitles, and alternatives are announced or displayed in the language expected, as set in iOS;
- The language should switch appropriately.

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| Instructions: When needed, additional instructions should be provided to supplement visual and audio cues. | 3.3.2 - Items requiring user input are clearly labeled or have clear instructions. Level A<br>3.3.5 - Provide context-sensitive help. Level AAA | 1194.21 (l) Provides that automatically detected input errors are identified and described in text to the user.<br>1194.22 (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. |

**How to test**

- Go through the form elements on the page and check for unexpected actions.

How to test with screen reader

1. Locate all forms or actionable items.
2. Verify the page or object/element/control contains instructions explaining how to complete the form or what the object/element/controls will do.
3. Verify that the instructions are sufficiently clear to avoid and prevent errors.

The following checks are true:

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| • Forms provide instructions;<br>• Forms provide clear instructions which assist users in avoiding and preventing errors during form completion;<br>• Actionable object/controls/elements provide labels or instruction that indicate what action will be performed when the item is activated. | | |
| **Focus** | | |
| Focusable elements: All interactive elements must be focusable and inactive elements must not be focusable. | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br><br>2.1.1 Keyboard: All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints. Level<br><br>2.2.1 Sequential Navigation Between Elements: The user can move the keyboard focus backwards and forwards through all recognized enabled elements in the current viewport. Level A<br><br>2.4.7 Focus Visible: Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible. Level AA | 1194.21(a) All textually labelled functions can be controlled via a keyboard.<br><br>1194.21(c) A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that assistive technology can track focus and focus changes.<br><br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br><br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br><br>1194.22 (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 |

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| | | shape.<br><br>1194.22 (g) Row and column headers shall be identified for data tables.<br><br>1194.22 (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.<br><br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br><br>1194.22 (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.<br><br>1194.22 (p) - Users are warned of time limits and time limits can be extended. |

**How to test**

- Tab through the interactive elements on the page
- Open and close modal windows using the keyboard only

How to test with screen reader

1. Verify that each actionable object can be accessed directly (by touch) and appears in the focus order of the view.
2. Verify that each actionable object can be focused with a screen reader by navigation (swipe gestures).

The following checks are true:

- Each actionable object can be accessed directly (by touch) and appears in the focus order of the view;
- Each actionable object can be focused with a screen reader via swipe gestures.

http://www.bbc.co.uk/guidelines/futuremedia/accessibility/mobile/focus/focusable-elements

**How to test with touch**

1. Verify that each actionable object can be accessed directly (by touch) and appears in the focus order of the view.
2. Verify that each actionable object can be focused with a screen reader by navigation (swipe gestures).

The following checks are true:

- Each actionable object can be accessed directly (by touch) and appears in the focus order of the view;
- Each actionable object can be focused with a screen reader via swipe gestures.

How to test:

1. Navigate through the active on-screen components.
2. For each active element that receives focus:
    - Verify where the text input location is;
    - Verify that the focus location is indicated at all times and follows traversal of the user interface;
    - Verify that the focus indicator can be clearly distinguished from other on-screen elements.

The following is true:

- The text input location is indicated;
- When switching page tabs, the focused tab is indicated visually and announced by a screen reader;
- The object, element, or control that has focus is indicated in a clear, visually distinguishable manner that meets the colour contrast requirements.

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| Keyboard trap: There must not be a keyboard trap. | 2.1.1 - All functionality is available from a keyboard, except for tasks such as drawing. Level A<br>2.1.2 - The user can use the keyboard to | 1194.21(a) - All textually labelled functions can be controlled via a keyboard. |

<table>
<tr><td></td><td>move through page elements and is not trapped on a particular element. Level A</td><td>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.</td></tr>
<tr><td colspan="3">How to test<ul><li>Check manually by tabbing through the page and checking all interactive elements for keyboard accessibility.</li><li>Check manually by tabbing through the page and checking for keyboard traps.</li></ul>How to text with screen reader<ol><li>Navigate to an actionable object, element, or control.</li><li>Attempt to navigate away from the item via a navigation method when focus is on the item.</li><li>Ensure that the focus moves out of the item.</li><li>If focus does not move out of the item with the standard gesture or method, ensure that a method for moving the focus away from the item is described visually and by a screen reader.</li></ol>Either of the following checks are true:<ul><li>Object, elements, or controls can be navigated away from, through or over with a standard navigation method;</li><li>A method to navigate away from the item is described in a visible fashion and through a screen reader and the method works to move focus past or over the keyboard trap.</li></ul></td></tr>
<tr><td>Content order:<br>Content order must be logical.</td><td>1.3 - Content can be presented in different ways (e.g. through a screen reader) without losing info or structure<br><br>1.3.2 - The reading and navigation order (determined by code order) is logical and intuitive. Level A</td><td>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.</td></tr>
<tr><td colspan="3">How to test<ul><li>Use the Web developer toolbar to remove all CSS styling.</li><li>Check manually that the elements on the page are in a logical reading order and that the tabbing order is logical.</li><li>Check what is shown on the browser tab, or bookmark the current page.</li><li>Tab through the interactive elements on the page</li><li>Open and close modal windows using the keyboard only</li></ul>How to test with screen reader<ol><li>Navigate using standard commands for next and previous.</li><li>Verify that the content is announced in a meaningful sequence.</li></ol>The following check is true:<ul><li>The content is announced in a meaningful sequence.</li></ul></td></tr>
</table>

<table>
<tr><td>Focus order:<br>Actionable content must be navigable in a meaningful sequence.</td><td>2.4.3 - Users can tab through the elements of a page in a logical order. Level A</td><td>1194.21(c) – A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that assistive technology can track focus and focus changes.</td></tr>
<tr><td colspan="3">How to test with screen reader<br>1. Navigate through the active on-screen object, elements, and controls.<br>2. Verify that the focus order is equivalent to the intuitive visual reading order of the page.<br>3. Select radio buttons, checkboxes and other actionable object, elements, and controls.<br>4. If additional item appear or become enabled, determine if these items are later in the focus order. Newly appearing fields should appear later in the focus order.<br>5. Ensure focus moves forward and backward in an intuitive manner.<br>Note: Android has a focus emulator that can be used in the absence of a directional controller.<br>The following checks are all true:<br>• The focus order is equivalent to the intuitive visual reading order of the page;<br>• When additional items appear or become enabled, these items appear after the item that activated them;<br>• Focus moves forward and backward in an intuitive manner.</td></tr>
<tr><td>User interactions:<br>Actions must be triggered when appropriate for the type of user interaction.<br><br>Touch events must only be triggered when touch is removed from a control</td><td>2.1.4 Separate Selection from Activation: The user can specify that focus and selection can be moved without causing further changes in focus, selection, or the state of controls, by either the user agent or author content. Level A<br><br>3.2.1 - When a UI component receives focus, this does not trigger unexpected actions such as automatically submitting a form, opening a new window or switching focus to another element. Level A</td><td>1194.21(a) - All textually labelled functions can be controlled via a keyboard<br><br>1194.21(l) - Provides for labels or instructions when content requires user input. UI components do not initiate a change of context when receiving focus. Automatically</td></tr>
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| | 3.2.2 - Changing the setting of a checkbox, radio button or other UI component does not trigger unexpected changes in context, such as causing significant changes to the page content or opening a new window. Level A | detected input errors are identified and described in text to the user.<br>1194.22 (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. |
| **How to test via touch screen**<br>1. Navigate using the touch screen.<br>2. Navigate to the on-screen objects, elements, or controls.<br>3. Begin to activate an item (touch it without lifting your finger or stylus).<br>4. Verify that the item does not immediately trigger an action/event.<br>5. Finish activating the item (remove your finger or stylus from the screen).<br>6. Verify that the item now triggers the action/event.<br>The following checks are all true:<br>• Objects, elements, or controls do not trigger actions/events at the start of activation (when touched);<br>• Objects, elements, or controls trigger actions/events when the user finishes activation (touch is removed). | | |
| Alternative input methods must be supported. | 2.1.1 Keyboard: All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints. Level A<br>2.1.3 Keyboard (No Exception): All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes. Level AAA | 1194.21(a) - All textually labelled functions can be controlled via a keyboard<br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet. |
| **How to test with screen reader** | | |

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| 1. Identify the active screen objects, elements, and controls.<br>2. Ensure that all items can be navigated to via alternative input methods.<br>3. Ensure that the items can be activated via alternative input methods.<br>4. Activate the item.<br>5. For items with complex functionality, check for equivalent methods of action support such the arrow keys to instead of swipe up and down gestures to move a slider.<br>The following checks are all true:<br>• Objects, elements, and controls can be navigated to via alternative input methods;<br>• Items can be activated and manipulated via alternative input methods. | | |
| **Forms** | | |
| Labelling form controls: All form controls must be labelled. | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br>3.3.2 - Items requiring user input are clearly labeled or have clear instructions. Level A<br>4.1.2 - For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A) | 1194.21(d) - Provides that sufficient information (including identity, operation, and state) about user interface components is available to assistive technology.<br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br>1194.22 (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.<br>1194.22 (g) Row and column headers shall be identified for data tables.<br>1194.22 (h) Markup |

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| | | 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.<br><br>1194.22 (l) Content provided through JavaScript is keyboard and screen reader accessible.<br><br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br><br>1194.22 (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. |

**How to test with screen reader**

1. Fill in form fields according to their constraints and verify that focus is not forcibly shifted when entering text, traversing a list or selecting an item.

The following check is true:

- Focus does not shift to other objects, elements, or controls while navigating lists,

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| entering data into form fields or selecting an item within an object, element, or control.<br>**Note:** Focus movement to a sub-item of the object, control, element that is expected, such as movement to the next list item on using arrow key, tabbing or flicking, is desired and thus meets this check. | | |
| Form inputs: A default input format must be indicated and supported. | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br>BBC HAS GOOD HTML TECHNIQUES | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br>1194.22 (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.<br>1194.22 (g) Row and column headers shall be identified for data tables.<br>1194.22 (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.<br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be |

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| | | accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br>1194.22 (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. |
| **How to test with screen reader**<br>1. Locate form fields.<br>2. Verify that form fields announce a input type or restrict the keyboard to relavant input.<br>The following checks are all true:<br>• The input type is announced by a screen reader;<br>• The input type is restricted via the keyboard. | | |
| Form Layout: Labels must be placed close to the relevant form control, and laid out appropriately. | 3.3.2 - Items requiring user input are clearly labeled or have clear instructions. Level A | 1194.21(l) - Provides for labels or instructions when content requires user input. UI components do not initiate a change of context when receiving focus. Automatically detected input errors are identified and described in text to the user.<br>1194.22 (n) When electronic forms are designed to be completed online, the form shall allow people |

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| | | using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues. |
| **How to test with screen reader**<br>1. Enable zoom to two times magnification.<br>2. Gain focus on each individual form field.<br>3. Verify that the control is visually labelled.<br>4. Verify the label is in close proximity to the control.<br>5. Verify that the label placement is most effective for the layout (portrait or landscape).<br>6. Verify that the label of the field is announced properly by a screen reader and matches the label's on-screen text.<br>7. Verify that the label when taken out of context clearly and uniquely describes the purpose of the control and the action the user must take.<br>8. Verify that any field constraints of the field are indicated in the accessible name announced by a screen reader.<br>The following checks are all true:<br>• On-screen controls are visually labelled with meaningful names which when taken out of context describe the control's purpose;<br>• The label must be in close proximity to the field;<br>• The label must be placed in an effective location for the layout of the screen:<br>- Above the field for portrait,<br>- To the left of the field of landscape;<br>• The label of the field is rendered properly via a screen reader and matches the label's on-screen text;<br>• Field constraints of the field are announced properly via a screen reader. | | |
| Grouping form elements: Controls, labels, and other form elements must be properly grouped. | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified. |

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| | | 1194.22 (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.<br><br>1194.22 (g) Row and column headers shall be identified for data tables.<br><br>1194.22 (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.<br><br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br><br>1194.22 (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 |

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| | | for completion and submission of the form, including all directions and cues. |
| **How to test with screen reader**<br>1. Locate any forms within the screen.<br>2. Determine if one or more logical groupings exist within the form.<br>3. For each grouping, navigate to each field in the group and verify that the group name is announced prior to the field's label.<br>4. Verify that the methods of interacting with each grouping work as expected with alternative input methods.<br>The following checks are all true:<br>• On-screen fields that are part of a logical grouping have a visible group name indicated as part of the label for the on-screen field;<br>• For each field that is part of the group, the group label is announced prior to the field's label by either using platform conventions to associate fields with a group and testing using a screen reader, or pre-pending the group label to the accessible name of each field within the group;<br>• For each group of items, navigation and interaction among the group items must work as expected for group items, for example, properly grouped HTML radio buttons allow navigation between them via up and down arrows. | | |
| Managing focus: Focus or context must not automatically change during user input. | 3.2.1 - When a UI component receives focus, this does not trigger unexpected actions such as automatically submitting a form, opening a new window or switching focus to another element. Level A<br>3.2.2 - Changing the setting of a checkbox, radio button or other UI component does not trigger unexpected changes in context, such as causing significant changes to the page content or opening a new window. Level A | 1194.21(l) Provides for labels or instructions when content requires user input. UI components do not initiate a change of context when receiving focus. Automatically detected input errors are identified and described in text to the user.<br>1194.22 (n) Provides that user interface components do not initiate a change of context when receiving focus. When electronic forms are designed to be completed online, the form shall allow people using assistive |

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| | | technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues. |
| **How to test with screen reader**<br>1. Fill in form fields according to their constraints and verify that focus is not forcibly shifted when entering text, traversing a list or selecting an item.<br>The following check is true:<br>• Focus does not shift to other objects, elements, or controls while navigating lists, entering data into form fields or selecting an item within an object, element, or control.<br>**Note:** Focus movement to a sub-item of the object, control, element that is expected, such as movement to the next list item on using arrow key, tabbing or flicking, is desired and thus meets this check. | | |
| **Images** | | |
| Images of text: Images of text should be avoided. | 1.4.5 - If the same visual presentation can be made using text alone, an image is not used to present that text. Level AA<br>1.4.9 - Images of text are used only for decoration or where the presentation of text is essential, such as in logos. Level AAA | 1194.21(f) When images are used to identify controls, status indicators, or other programmatic elements, the meaning assigned to those images shall be consistent throughout an application's performance shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input, caret location, and text attributes. |
| **How to test**<br>1. Identify images of text by enlarging the default text size to determine if all text on the screen resizes.<br>2. View the screen in a magnified state to determine if any text looks pixelated and is therefore an image of text.<br>3. Exclude any images that would be considered an exception, such as logos, icons or | | |

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| interactive content that uses canvas.<br>The following check is true:<br>• Actual text is used instead of images of text. | | |
| Background images: Background images that convey information or meaning must have an additional accessible alternative. | 1.1.1 - All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. Embedded multimedia is identified via accessible text. Level A | 1194.22 (a) A text equivalent for every non-text element shall be provided (for example via alt or longdesc attributes, or in element content). |
| **How to test**<br>• Manually check that the text descriptions provided by ALT and TITLE attributes are clear and descriptive<br>How to test with screen reader<br>1. Identify all images which contain information.<br>2. Identify which images are background images.<br>3. Verify that alternative text is announced by a screen reader.<br>4. In some cases this may require checking the code or testing on a non-mobile device.<br>The following check is true:<br>• The image can be focused using assistive technology and meaningful information is announced. | | |
| **Links** | | |
| Descriptive links: Link and navigation text must uniquely describe the target or function of the link or item. | 2.4.4 - The purpose of each link can be determined from the link text or context. Level A<br>2.4.9 - The purpose of each link can be determined from the link text alone. Level AAA | 1194.21(d) - Provides that sufficient information (including identity, operation, and state) about user interface components is available to assistive technology. |
| **How to test**<br>1. Locate the link, button or navigation item.<br>2. Determine if the link or item by itself is sufficient to describe the component uniquely and clearly indicates its purpose.<br>The following check is true:<br>• Links, buttons, or navigational items are sufficiently described via text (on or off-screen), or by alternative text to clearly indicate their purpose.<br>**Note:** Off-screen text can most easily be verified by using a screen reader. This text if created correctly will be announced by a screen reader but does not appear on screen. | | |
| Links to alternative formats: Links to alternative formats | 2.4.4 - The purpose of each link can be determined from the link text or context. | 1194.21(d) - Provides that sufficient information (including |

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| must indicate that an alternative is opening. | Level A<br>2.4.9 - The purpose of each link can be determined from the link text alone. Level AAA<br>3.2.2 - On Input: Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behavior before using the component. Level A | identity, operation, and state) about user interface components is available to assistive technology.<br>1194.21 (l) When electronic forms are used, 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. |
| **How to test**<br>1. Verify that a single interface is provided to allow access by all individuals.<br>2. If an alternative format is provided, verify that a warning and link is provided to the alternative.<br>Either of the following checks must be true:<br>• The app provides a single interface to be accessed by all users;<br>• A warning and link is provided to an alternative. | | |
| Combining repeated links Repeated links: to the same resource must be combined within a single link. | 2.4.4 - The purpose of each link can be determined from the link text or context. Level A<br>2.4.9 - The purpose of each link can be determined from the link text alone. Level AAA | 1194.21(d) - Provides that sufficient information (including identity, operation, and state) about user interface components is available to assistive technology. |
| **How to test with screen reader**<br>1. Identify the active screen objects, elements, and controls that have textual and image components.<br>2. Navigate to the items.<br>3. Verify that the text is not announced twice.<br>4. Verify that there are not two equivalent actionable items announced for each item.<br>The following checks are all true:<br>• Objects, elements, and controls with image and text labels are only announced once;<br>• Objects, elements, and controls that with image and text labels are grouped in such a way that they only announced as one component. | | |

| **Notifications** | | |
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| Where necessary screen reader accessible instructions should be provided to supplement visual cues | 3.3.2 Labels or Instructions: Labels or instructions are provided when content requires user input. Level A<br><br>3.3.5 Help: Context-sensitive help is available. Level AAA | 1194.21(l) Provides for labels or instructions when content requires user input. UI components do not initiate a change of context when receiving focus. Automatically detected input errors are identified and described in text to the user.<br><br>1194.22 (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. |
| Changes of state must be communicated visually and audibly | 1.3.1Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br><br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br><br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this |

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| | | part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br>1194.22 (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. |
| Notifications must be both visible and audible. | 1.2.1 - A descriptive text transcript is provided for non-live, Web-based audio. A text or audio description is provided for non-live, Web-based video-only. Level A | 1194.22 (a) Provide text alternatives for non-text content (e.g. images).<br>1194.22 (b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation. |

**How to test**

1. Complete forms and trigger error messages within the application.
2. Locate any cues used to signal error states or form completion.
3. Verify that additional cues exist (text or visual, audio, or vibration) to provide the same information that was conveyed.

How to test with screen reader

1. Focus on an individual object, element, or control that can change state.
2. Verify that the announced item label matches the on-screen text or contains additional supplementary information to assist with non-visual access of the item.
3. Verify that the state of the element is announced properly.
4. If applicable, toggle the state of the item and verify that the screen reader announces the correct state change.

The following checks are true:

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<tr><td colspan="3">
<ul>
<li>The app provides both visible and audible cues for each alert or notification used to convey information or errors;</li>
<li>Object, elements, or controls including their labels, roles, values, states and state changes are correctly announced by a screen reader.</li>
</ul>
</td></tr>
<tr><td>Standard operating system notifications should be used where available and appropriate.</td><td>4.1.2 For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A)</td><td>1194.21(d) - Provides that sufficient information (including identity, operation, and state) about user interface components is available to assistive technology.<br>1194.21(l) Provides for labels or instructions when content requires user input. UI components do not initiate a change of context when receiving focus. Automatically detected input errors are identified and described in text to the user.<br>1194.22 (p) - Users are warned of time limits and time limits can be extended.</td></tr>
<tr><td colspan="3">How to test with screen reader<br>1. Trigger an alert or error on at the app level e.g.<br>o Time out,<br>o Update notice,<br>o Error contacting the server,<br>o Other app level errors or alerts.<br>2. Verify that the alerts or error notifications are announced by assistive technologies.<br>The following check is true:<br>• The app uses operating system standard methods for providing app level or non-action triggered alerts and indicating errors to users which are announced by assistive technologies.</td></tr>
<tr><td>Error messages and correction: Clear error messages must be provided.</td><td>3.3.1 - If an input error is automatically detected, the item that is in error is identified and the error is described to the</td><td>1194.21(l) Provides for labels or instructions when content requires user input. UI</td></tr>
</table>

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| A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission. | user in text. Level A<br>3.3.3 - If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content. Level AA<br>3.3.4 Error Prevention (Legal, Financial, Data) Provides that when legal, financial, or test data can be changed or deleted the changes or deletions can be reversed, verified, or confirmed. Level AA | components do not initiate a change of context when receiving focus. Automatically detected input errors are identified and described in text to the user.<br>1194.22 (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. |
| **How to test with screen reader**<br>1. Locate or activate any feedback, hints or help.<br>2. Verify that this assistance is both visual and available to the screen reader.<br>3. Verify that this assistance is appropriate and not over-bearing.<br>The following check is true:<br>• Assistance provided is appropriate and inclusive. | | |
| Feedback and assistance: Non-critical feedback or assistance should be provided when appropriate. | 3.3.1 - If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text. Level A<br>3.3.3 - If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content. Level AA | 1194.21(l) - Provides for labels or instructions when content requires user input. UI components do not initiate a change of context when receiving focus. Automatically detected input errors are identified and described in text to the user.<br>1194.22 (n) When electronic forms are |

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| | | 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. |
| **How to test with screen reader**<br>1. Locate or activate any feedback, hints or help.<br>2. Verify that this assistance is both visual and available to the screen reader.<br>3. Verify that this assistance is appropriate and not over-bearing.<br>The following check is true:<br>• Assistance provided is appropriate and inclusive. | | |
| **Scripts and dynamic content** | | |
| Progressive functionality: Apps and websites must be built to work in a progressive manner that ensures a functional experience for all users. | @None: This was in WCAG1, but removed for WCAG2 since many uses of Javascript can be considered accessibility supported. | 1194.22 (l) Content provided through JavaScript is keyboard and screen reader accessible. |
| **How to test**<br>1. Identify content and functionality that may be dependent on JavaScript.<br>2. Run the app or site on a device or mobile browser, or assistive technology that does not support JavaScript, or has Javascript disabled.<br>3. Verify that content is available, or information is provided about why it isn't available.<br>4. Verify that functionality is available.<br>The following check is true:<br>• Content and functionality are available when run on a mobile device, browser, or a screen reader that does not have JavaScript enabled. | | |
| Controlling media: Media that updates or animated content must have a pause, stop or hide control. | 2.2.2 - Users can stop, pause or hide moving, blinking, scrolling or auto-updating information. Level A | 1194.21(h) A non-animated alternative is provided for animations. Give users the option to start, pause or stop, and step through animated |

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| | | content.<br>1194.22 (p) Users are warned of time limits and time limits can be extended. |
| **How to test**<br>1. Determine if the screen contains dynamically updating, moving, blinking scrolling content or animation.<br>2. If so, determine if there are controls to stop, hide, pause, or control the content.<br>3. Verify that the controls correctly control the media in the indicated fashion.<br>4. Verify that these controls can be accessed via assistive technology and that the dynamic content can be controlled using assistive technology.<br>5. Verify that animated content that is decorative does not last for more than five seconds.<br>The following check is true:<br>• When the screen contains dynamically updating, moving, blinking scrolling content or animation, a method is available to stop, hide, pause, or control the content;<br>• This method can be accessible with assistive technology;<br>• Decorative content animation does not last for more than five seconds. | | |
| Page refreshes: Automatic page refreshes must not be used without warning. | 2.2.1 - Users are warned of time limits shorter than 20 hours and time limits can be turned off or extended. Level A<br>2.2.2 - Users can stop, pause or hide moving, blinking, scrolling or auto-updating information. Level A<br>3.2.5 Change on Request: Changes of context are initiated only by user request or a mechanism is available to turn off such changes. Level AAA | 1194.21(h) A non-animated alternative is provided for animations. Give users the option to start, pause or stop, and step through animated content.<br>1194.22 (p) Users are warned of time limits and time limits can be extended. |
| **How to test with screen reader**<br>1. Navigate through all content.<br>2. Verify that the entire screen does not refresh or update:<br>o Automatically, or<br>o Based on navigation.<br>The following check is true:<br>• Entire screen does not refresh or change automatically or when focus moves between objects, elements, or controls. | | |
| Timeouts: A timed response must be adjustable. | 2.2.1 - Users are warned of time limits shorter than 20 hours and time limits can be turned off or extended. Level A | 1194.22 (p) Users are warned of time limits and time limits can be |

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| | | extended. |
| **How to test**<br>1. Determine if the website contains a form or activity that must be completed within a given amount of time.<br>2. Verify that the app allows the user to do one of the following:<br>o disable the timeout before it occurs,<br>o extend the length of the current session,<br>o increase the time limit.<br>4. Verify that the user is warned at least 20 seconds prior to the timeout.<br>5. Verify that the user is warned if any data entered during the session will be deleted upon session timeout.<br>6. Verify that the user can renew or extend the session using an alternative input method.<br>One of the following checks is true:<br>• When a form or activity has a time limit:<br>o The timeout can be disabled by the user;<br>o A mechanism exists whereby the user can request more time to complete the form/activity;<br>o The user can modify the session to extend the amount of time before timeout. | | |
| Input control: Interaction input control should be adaptable. | 2.1.1 – All functionality is available from a keyboard, except for tasks such as drawing. Level A | 1194.21(a) All textually labelled functions can be controlled via a keyboard.<br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet. |
| **How to test**<br>1. Identify interactive content.<br>2. If the default interaction is a single action control, verify it works with mouse, touch, and keypress actions.<br>3. If the default interaction has complex controls, determine if a mode with simpler controls is offered.<br>4. Determine if there is a mode to adjust the interaction pace or difficulty.<br>The following checks are true:<br>• The user can control interaction with their choice of input device;<br>• The user can adapt the input control. | | |
| **Structure** | | |
| Unique page/screen titles: All pages or | 1.3 - Create content that can be presented in different ways (for example | 1194.22 (d) Documents are readable without |

<table>
<tr><td>screens must be uniquely and clearly identifiable.</td><td>simpler layout or though a screen reader) without losing information or structure.<br>1.3.1 – Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br>2.4.2 - The page has a title describing its topic or purpose. Level A</td><td>requiring an associated style sheet<br>1194.22 (i) Provides for descriptive and informative page titles. Proposed standard is for all types of content instead of just HTML frames.</td></tr>
<tr><td colspan="3">How to test<br>1. Examine the title of each page/screen on the site/app.<br>2. Verify that a title exists:<br>o For HTML a unique descriptive {code}title{/code} element must be present be announced by a screen reader;<br>o For Android and iOS a title must appear at the top of the screen and be announced by a screen reader.<br>The following checks must be true:<br>• Each page/screen must have a unique context sensitive title:<br>• For HTML a unique descriptive {code}title{/code} element is present and announced by a screen reader;<br>• For Android and iOS a title appears at the top of the screen and is announced by a screen reader.</td></tr>
<tr><td>Allow users to skip repeated items on every page, and go straight to the content</td><td>2.4.1 - Users can bypass blocks of content that are repeated on multiple Web pages, such as navigation menus. Level A</td><td>1194.22 (o) - Provide links to bypass repetitive navigation menus</td></tr>
<tr><td colspan="3">How to test<br>• Use the Web developer toolbar to remove all CSS styling<br>• Check every screen for the presence of "Skip to main content" links</td></tr>
<tr><td>Headings: Content must provide a logical and hierarchical heading structure, as supported by the platform.</td><td>1.3 - Content can be presented in different ways (e.g. through a screen reader) without losing info or structure<br>2.4.6 - The headings and labels are clear and consistent, accurately describing the topic or purpose. Level AA</td><td>1194.22 (d) - Documents are readable without requiring an associated style sheet<br>1194.21(e) - When images are used for controls, status indicators and other UI elements, the same images are used for the same UI elements consistently throughout</td></tr>
<tr><td colspan="3">How to test</td></tr>
</table>

1. Examine each page/screen and locate any visual headings/headers.
2. Determine if headings/headers are possible in the platform.
3. Verify that there are actual heading/headers.
4. Verify that headings/headers are announced by a screen reader.
5. Verify that all headings are logically structured. This is for HTML content only.

Check that the following are all true:

- All visual heading/header elements are represented as headings/headers (within the limited imposed by the platform);
- All headers are logically structured (HTML content only).

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| Containers and landmarks: Containers should be used to describe page/screen structure, as supported by the platform. | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.<br>1194.22 (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. |

**How to test**

1. Check manually that the correct HTML markup is used for elements such as tables,

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| headings and lists, and that color is not used as the only means of providing information. | | |
| Grouped elements: Controls, objects and grouped interface elements must be represented as a single accessible component. | 1.3.1 - Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br>3.2.4 - UI components used across the website are identified consistently on every page. Level AA<br>4.1.2 - For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A) | 1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified. |
| **How to test**<br>1. Check manually that the correct HTML markup is used for elements such as tables, headings and lists, and that color is not used as the only means of providing information.<br>How to test with screen reader<br>1. Identify all compound object, elements and controls on a page.<br>2. Verify that compound objects, elements, or controls are announced as a single unit where applicable e.g. a slider control should be indicated as a slider rather than as an up button, a down button, and an indicator.<br>The following check is true:<br>• All compound element, objects, and controls do not indicate individual elements but rather announce themselves as whole unit. | | |
| **Text equivalents** | | |
| Alternatives for non-text content: Alternatives must briefly describe the editorial intent or purpose of the image, object, or element. | 1.1.1 - All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. Embedded multimedia is identified via accessible text. Level A | 1194.22 (a) - Provide text alternatives for non-text content (e.g. images) |
| **How to test with screen reader**<br>1. Identify any meaningful images, elements, or objects.<br>2. Verify that an equivalent alternative briefly describes the intent of the functionality. | | |

3. Verify that words such as “image of”, “picture of”, “link to” are avoided.

The following checks are all true:

- Each meaningful image has an alternative that briefly describes the intent and is announced properly;
- Each alternative does not contain words such as “image of”, “picture of”, or “link to”.

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| Decorative content: Decorative images must be hidden from assistive technology. | 1.1.1- All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. Embedded multimedia is identified via accessible text. Level A | 1194.22 (a) - Provide text alternatives for non-text content (e.g. images) |

**How to test with screen reader**

1. Activate a screen reader.
2. Locate any images, objects, or elements that do not have meaning, are visibly disabled, or appear obscured.
3. Attempt to move focus or navigate to these images, objects, or elements.
4. Verify that the images, objects, or elements do not receive focus and are not rendered by a screen reader.
5. If the images, objects, or elements can be navigated to, ensure that they are announced as "unavailable" or "disabled" and verify that they are not actionable.

Either of the following checks must be true:

- Images, objects, or elements that are not meaningful do not receive focus and are not read by screen readers;
- Images, objects, or elements that are not meaningful yet do receive focus are announced as "unavailable" or "disabled" and are not actionable.

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| Tooltips and supplementary information: Tooltips must not repeat link text or other alternatives. (pop-overs) | 4.1.2 - For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A) | 1194.21(d) - Provides that sufficient information (including identity, operation, and state) about user interface components is available to assistive technology. |

**How to test with a screen reader**

- Gain focus on the individual objects, elements, or controls.
- Ensure that identity, information is not announced twice for each individual item (e.g. “Next Next button”).

The following checks is true:

- Information provided via a screen reader for an object, element, or control is not announced more than once, including accessibility properties which are conveyed via speech such as identity of the item.

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| Roles, traits and properties: Elements must have accessibility properties set appropriately. | 1.3 - Content can be presented in different ways (e.g. through a screen reader) without losing info or structure<br><br>1.3.1 Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br><br>1.4.1 Color is not used as the sole method of conveying content or distinguishing visual elements. Level A<br><br>4.1.2 - For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A) | 1194.21 (i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.<br><br>1194.22 (c) - Color is not used as the only visual means of conveying info<br><br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br><br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br><br>1194.22 (k) A text-only page, with equivalent information or functionality, shall be provided to make a website comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes. |
| **How to test with screen reader**<br>1. Gain focus on the individual object, element, or controls.<br>2. Verify that the announced item label matches the on-screen text or contains additional supplementary information to assist with non visual access of the item.<br>3. Verify that the announced role of the item matches the perceived visual role.<br>4. If applicable, verify that the value of the item is properly announced by the screen | | |

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| reader.<br>5. Verify that the state of the element is announced properly.<br>6. If applicable, toggle the state of the item and verify that the screen reader announces the correct state change.<br>The following check is true:<br>• Object, elements, or controls including their labels, roles, values, states and state changes are correctly announced by a screen reader. | | |
| Visual formatting: Visual formatting alone must not be used to convey meaning. | 1.3.1 Provides that information, structure, and relationships conveyed visually are available to users of assistive technology. Level A<br>1.4.1 Use of Color: Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. Level A | 194.21 (e) - When images are used for controls, status indicators and other UI elements, the same images are used for the same UI elements consistently throughout<br>1194.21 (i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.<br>1194.22 (c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.<br>1194.22 (d) Documents shall be organized so they are readable without requiring an associated style sheet.<br>1194.22 (e) Elements that have the same functionality across multiple Web pages are consistently identified.<br>1194.22 (k) A text-only page, with equivalent |

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| | | information or functionality, shall be provided to make a website comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes. |

**How to test**

1. Determine if any component is using visual formatting to convey meaning, including:
   - Color,
   - Shape/size,
   - Font attributes (bold/italics, etc.),
   - Location,
   - Orientation,
   - Selection.
2. Determine if on-screen text, alternative text or audio cues are present that supplements the visual formatting:
   - Navigate to the item with a screen reader to confirm alternative text;
   - Visually verify the presence of on-screen text.

The following check is true:

- When an object, element, or control uses visual formatting to convey meaning, on-screen text, alternative text or audio cues are also provided.

**Sources**

- https://www.w3.org/WAI/GL/mobile-a11y-tf/wiki/BBC_Mobile_Accessibility_Standards_and_Guidelines
- https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/background/comparison-table-of-wcag2-to-existing-508-standards
- http://www.tomjewett.com/accessibility/508-WCAG2.html
- http://romeo.elsevier.com/accessibility_checklist/