A Quick Guide to Screen Readers

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What is the purpose of a screen reader?

- A screen reader provides feedback about what is displayed on-screen to a computer user who is blind and/or visually impaired and cannot read conventional printed text.
- Typically, the information is communicated using auditory output through text-to-speech (TTS), but can also be outputted via Braille with a wired or wireless connection to a refreshable Braille display. The American Foundation for the Blind provides some general information on the functionality and purpose of Braille displays.
- The software will, if set appropriately, read punctuation, as well as make key differentiations in letter capitalization.
- With the TTS (text-to-speech), there are typically a variety of voices available (male, female, different accents, etc.) with support for many languages, and the level of information conveyed, rate of speech, and many other nuances can be adjusted according to the individual user's personal preferences.

Navigating and Useful Tips

There are some key points to keep in mind for navigating and manipulating the computer and its particular programs when using a screen reader, as well as general points to consider when creating or procuring accessible content. The concepts are relatively similar regardless of whether they are websites or documents like Microsoft Office Word, PowerPoint, PDF files, etc.:

- Navigation is achieved primarily via a keyboard using single key presses or a combination of keys, called keystrokes, to accomplish a specific task.
- For example, on Windows (PC computers), using "Alt+F4" will close the program currently in use/active (in the foreground)

- Screen readers will not, nor can they, describe images or other visual and graphical information (maps, charts, graphs, diagrams, etc.) to the user. This is why it is critical that alternate (alt) text is provided. An alt text or tag (the terms can be used interchangeably) provides an appropriate and concise description of the visual item. [Here is an article](#) that dives into much greater detail about alt text, their functions, and appropriate implementations, which apply similarly for both documents on the Web and say, PowerPoint or Word files for use within a course in an instructional environment.

- Use descriptive headings, explicitly defined in the HTML markup of the document for web pages (tagging to make web pages), to facilitate easier and more fluid page structure and navigability. Particularly for webpages, h1 and h2 (the heading tags) should be used for organizing main content. [Here is an article](#) that explains the concept of structural and explicit headings versus the visual, stylistic use of headings in a different method. Screen reader users can thus navigate by using the heading and, in some cases, even drill down to a specific heading level (1 for main content, 2 for subcontent, etc.).

- Use descriptive link text (the title of the link/text displayed). Actual links labeled as 'Click Here' for example are utterly useless to a user who is blind, and pose potential barriers for cognitively impaired users as well. In short, it is good practice in universal design to label links explicitly so their destination is clear from the text. For example, the screen reader would speak, "link About Us." Here, the user knows the link's purpose and to what webpage it will take them when activated (keyboard on a computer, for example, or finger for a mobile device).

Why does it matter?

Ensuring your documents are accessible to as wide of an audience helps reduce and eliminate barriers for people with disabilities. Even though screen reader users do not make up the majority of computer users, they still matter. Following these and other best practices and guidelines helps facilitate universal design, which benefits everybody. It is also important to note in Microsoft Office, an accessibility checker is included, which is a great way to automatically test for accessibility shortcomings within a document to which you have access and what should be addressed. [Here is a nice introductory video](#) that discusses this feature. Closed-captioning is available from within the YouTube player.

Types of Screen Readers (Grouped by operating system)

Windows

- JAWS for Windows
- NVDA (Nonvisual Desktop access)
- WindowEyes
- System Access and System Access to Go
- Dolphin Supernova Access

Mackintosh

The Mac has a built-in screen reader developed by Apple called VoiceOver, which can be toggled on and off with 'Command+F5' — that is, pressing Command and F5 simultaneously.

iOS (iPhone, iPad, iPod)

The iOS mobile operating system has a built-in screen reader called VoiceOver, which can be enabled from within the "Accessibility" portion of "Settings". It alters the way in which gestures are performed in order to allow blind and/or visually impaired people to swipe and flick through, double tap, and select icons, buttons, and other items on the screen from within applications and on the home screens. Likewise, VoiceOver can be disabled from clicking on "Settings" of iOS as well.

Android

Google has developed a screen reader for the Android mobile operating system called TalkBack. It's functionality is comparable to that of iOS's VoiceOver, although it does have variations that are beyond the scope of this outline. Some variations include: different gestures, the way you turn on the Android device, etc.

Resources

This is by no means a comprehensive or exhaustive guide on screen readers, nor is it meant as a foolproof checklist for ensuring your content is accessible. However, it is meant as a way to get you

thinking about screen readers and accessibility in a general context. The below resources can assist with more specific and direct initiatives:

- [Some screen reader usability tips](#)
- [Web Accessibility in Mind](#) (WebAim) provides articles, guides, blog posts, etc. on accessibility in a much broader context
- Although technical in nature, the [Web Content Accessibility Guidelines](#) (WCAG) 2.0 provide a comprehensive framework and set of standards and guidelines for varying levels of web accessibility for a variety of disability groups—auditory, visual, motor, cognitive.