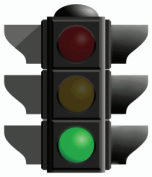
# 508 XPress

VHA Section 508 Office

Welcome to the inaugural 508 XPress newsletter. In these quarterly communications we will focus on 508 news, accessibility tips, common violations flagged by our office and how you can avoid them. We will also highlight innovative uses of electronic information and technology that successfully incorporate the Section 508 requirements. We aim to inspire you to create visually appealing and accessible content. We encourage you to incorporate Section 508 accessibility standards into the early stages of all your projects.

Settling on a title for this newsletter was not easy. We know that some misunderstand or fear Section 508. We had great fun thinking up titles we could not use. We contemplated using titles like "5 Oh No" or "5 Oh Wait!" Don't be surprised. We can poke fun at ourselves and we do have a sense of humor. But when it comes to ensuring access for our entire audience, we get serious.



We ultimately settled on the name "508 XPress" because we want to keep you on track and prevent you from getting derailed when it comes to complying with Section 508. The light ahead is green. The track is clear. Proceed with full steam, as you collect 508 knowledge here and express your way to a fast, compliant delivery of fully accessible material.

## *Why Section 508 Matters*

Besides not wanting to exclude Veterans, visitors and employees with disabilities from fully accessing information, accessibility to electronic information provided by the federal government is the law. In short, Section 508 of the Rehabilitation Act requires that access to information and data by federal employees, as well as by persons with disabilities seeking information or services from the federal government, is comparable to that received by those without disabilities. Failure to apply Section 508 requirements has significant consequences, including exposing the agency to lawsuits and potentially costing hundreds of hours and millions of dollars retrofitting software and updating content. By planning for accessibility early in the development phase, and testing often, your projects will achieve Section 508 certification in a more cost-effective, timely manner.

The intent of this newsletter is to equip you with the information and resources you need to apply accessibility standards and meet Section 508 requirements. We hope you find this information useful.

## *A Few Words From CIO Luigart*

I would like to congratulate and thank the 508 team for their innovative and forward thinking efforts that have led to the publication of this, their first of many quarterly 508 newsletters. The time spent to compile, edit and finalize this newsletter highlights the service-focused underpinnings that we all must strive to integrate into our planning, processes and products. We are all in service to our colleagues and teammates to work as a united front to assist and empower our Veterans. Section 508 and compliance to its regulations are essential in that effort. It is our obligation and my expectation that we will be a leader in ensuring the technology we promote and utilize is accessible to all of our Veterans and employees. Please read the articles in this and future newsletters and as you incorporate them in your daily activities, don't hesitate to reach out to our 508 team with questions, suggestions and ideas. It is through this collaboration and teamwork that we will remain an influential and effective organization.

*— Craig B. Luigart*
*VHA Chief Information Officer*

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# *Common Violations by Media Type*

We helped remediate the following accessibility violations during this quarter. Avoid them so your content will pass accessibility testing more quickly.

## Web

### Implicit Headings

This functional standard has huge implications for users of assistive technology. Some functional standards provide such significant, positive impact, that not remediating them would be doing a disservice to persons with certain disabilities. Implicit headings is one of these functional standards, which is why our office flags them as violations. Just as headings break up information visually and convey useful information about the relationship of text, properly applied formatting will allow assistive technologies such as screen readers to indicate changes in the text structure and hierarchy, making the information more clear to users who are visually impaired. If the author intended for the audience to understand that the text was composed of distinct sections, and the author took steps to make this aspect visually apparent, this structure also needs to be conveyed to non-visual users. Instead of only altering the font to indicate headings, appropriately apply heading level tags.

### Provide Alternative Text for Images

Images often convey important information on a Web page. As a result, just as links should have meaningful names, so too should images. Alt text for image tags should be meaningful and concise. Alt tag text should be shorter than 255 characters. The description should be relevant. For example, the following might be appropriate for a Web page with the American flag: <img src="filename.gif" alt="U.S. Flag">. There is no need to describe the colors of the flag, the number of stripes and stars, etc. One exception to providing alternative text for images is when the graphic is a spacer or is purely decorative, such as a border. In these cases, an empty or null alt tag is preferred. For example:
<img src="spacer.gif" alt="">

Not only does having alt tags available convey important information, failure to include them in image tags results in certain assistive technologies, such as screen readers, speaking the image source file name, which is often meaningless and confusing.

## PDF

### Implicit Headings

Just as with Web content, it is important to use explicit headings to convey text structure and hierarchy. Assign the appropriate levels of heading tags in PDFs you create with Adobe Acrobat Professional. If your source document is Microsoft Word, applying headings through the Styles dialog box will make the conversion to PDF more accessible.

### Page Structure

Use the Tag Panel in Adobe Acrobat Professional to ensure that the PDF not only has appropriate headings, but also clearly denotes images, tables, links and lists, including differentiating between parent and child items.

## Flash

### Ensure Objects Contain Textual Names, Descriptions, Role, State and Value

It is important that Flash objects have textual names and that the object's role, state and value are also made available for assistive technologies to identify and report such information to users. Using standard components, such as standard checkboxes and radio buttons will ensure such information is accessible.

What do role, state and value refer to? Role is the type of control – checkbox, radio button, etc.; state indicates the status of the control – a checkbox is checked, a radio button is selected, etc.; the value describes what the control is about – a checkbox that says, "Yes, add me to your mailing list," or for a group of radio buttons for your favorite flavor – Chocolate radio button, Strawberry radio button, Vanilla radio button.

### Ensure Keyboard Access is Not Provided to Hidden Elements

When dialog box user interface elements are grayed out, and other items on a screen are hidden from view, take care to ensure that accessibility information is not exposed for these hidden elements. If they remain exposed to assistive technology, the user will think they are part of the top layer and will be frustrated when attempts to interact with them result in no action as expected. Hidden elements should not receive keyboard access.

## *Accessibility Quick Tip*

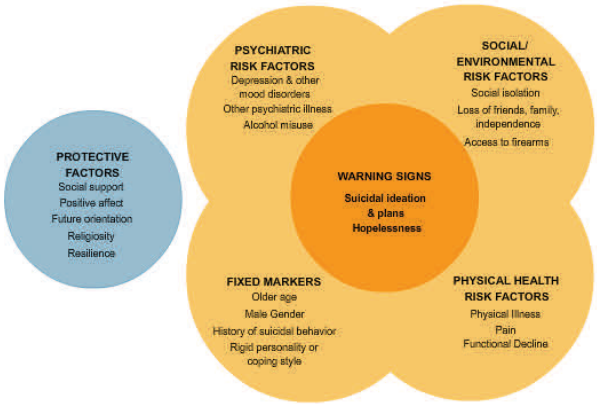
### Why Scanned Documents Make Inaccessible PDFs

Most of the time, a document scanned directly to PDF will not be Section 508-compliant. That is because the PDF that is produced is just an image of the text in that document, and just like any other image, a straight image is not machine readable. So technologies like screen readers cannot identify the contents of that image. In order to be nominally accessible, scanned documents should go through an Optical Character Recognition (OCR) process, which does turn the images of words into machine readable words. If this can't be done for some reason, then the other option is to provide alternative text for the document image (as you would for any other complex image). This would provide the text of the document, using either the alt attribute, or a long description link. It is the responsibility of the PDF producer to provide a machine readable PDF or the alternative text for the PDF.

It is fairly easy to tell if a PDF contains text or is just an image. You can do either of the following: Open the Quick Accessibility check in Acrobat Reader, or use Reader's "Read Aloud" function. If it tells you the document is empty, then you've got an image, not real text; therefore, you have a non-compliant document.

## *Creative and Accessible!*

Accessibility need not stifle creativity. You do not have to forgo dynamic or interactive content, as illustrated by an example by Carole Bagley and the other members of the project team – Rick Coger, Patricia Myers, Steve McDonald and Matt Richardson – for their work on the course, "Increase Your Suicide Prevention Skills with Older Veterans." This course included a Flash animation that included images of five spheres. Four of the spheres were portrayed as risk factors and one sphere was portrayed as a protective factor. When the animation played, it showed the risk factor spheres moving and interacting with the protective factor sphere. It was a very clever means of depicting suicide risk factors. By working with the VHA Section 508 Office at the outset, the development team insured that this innovative Flash animation element provided equivalent information to all learners.




Following our work with the development team on the new element, the entire course was submitted to our office for Section 508 certification. Thanks to the excellent teamwork the project team performed in the prototype stage, the course sailed through testing within a day and was certified on the first pass. We encourage development teams to exercise their creativity while working with our office to ensure that their innovative ideas are accessible to all learners.

Congratulations to the development team and thank you for your dedication to meeting the requirements of Section 508.

# *Accessibility of Leading Smart Phone Platforms: A Side-By-Side Comparison*

## Introduction

In late May of 2011, the VHA Section 508 Office performed a side-by-side comparison of the accessibility of the three leading smart phone platforms – iOS from Apple, Android from Google, and Blackberry OS from Research in Motion (RIM). This article is based on that report, with some updates to reflect changes that have occurred over the summer. The first phase of this comparison was dedicated to smart phone support. A similar comparison of tablet functionality is planned.

Because Section 508 does not currently address smart phone devices specifically, the platforms were compared on their support of various functionality required by people with different disabilities which would fall under functional requirements (part 1194.31), as well as any applicable standards for self-contained devices. Because it was difficult to determine all applicable rules, this comparison should be considered a report on overall accessibility rather than an official Section 508 evaluation.

## Key Areas

The platforms and devices were compared on the support available for people with particular disabilities. These included:

- availability of a screen reader for blind users
- availability of alternative fonts and color schemes for people with severely impaired vision
- availability of alternative input methods for people with dexterity impairments
- support for visual and tactual information for people with impaired hearing

If support for these needs did exist, we then tested them with a standard set of smart phone functions including:

- Phone functions
- Messaging
- Email
- Calendar

Other questions about whether the functions could be independently started and controlled by a person with a disability were also tested.

## Issues to Note

The degree of accessibility for Android and Blackberry phones is dependent on the device hardware. Android accessibility can also vary based on the version of software being used and whether a device manufacturer or mobile carrier has made any modifications to the underlying operating system. Two models of iPhone fully support accessibility, the 3GS and the iPhone 4. For these devices, accessibility is determined by the Operating System version and is supported equally on both devices.

## High-Level Overview

Apple's iOS provides the best across-the-board accessibility support, most of which is provided as part of the Operating System itself. Third-party applications are also available to add functionality.

While Android does have an accessibility framework for the Operating System, it does not have consistent or standardized implementation of that support for its applications. Frequently, low cost or no cost third-party applications do exist that can provide access. Variations in hardware and software implementations can also impact Android accessibility.

Blackberry accessibility is fairly basic. In the area of screen reader support however, the technology is limited, unstable, and costly.

We were not equipped to test options such as hearing aid or TTY compatibility, but we can confirm that all three devices provide alternatives to audio output for people with hearing impairments that indicate alerts for new mail and messages.

## Detailed Summaries

### Apple iOS

Of the three devices and platforms, the iPhone from Apple had the most consistent and stable support for accessibility for different disabilities. It is the only device that has a screen reader built into the OS as a default and which can be activated independently by a blind user who has access to a computer running iTunes. An external keyboard can be connected for alternative input and iOS is the only one of the devices we tested which supports Braille input and output. The built-in voice input can be used to make calls and control the music player. Other voice-control options require the use of a third-party application.

### Google Android

Android has an increasing degree of support for accessibility in its phones, but does not have the level of reliability for touch screen accessibility that exists in iOS – especially for screen reader users – so it is recommended that users choose Android devices which have a keyboard and track pad. Three screen readers exist for Android. Talkback developed by Google and Spiel developed by a private individual are free. Mobile Access from Code Factory costs approximately $100. None of these applications can be installed independently by a non-sighted user for the first time. If one screen reader is installed, it can be used to install or control additional software.

With any of these screen readers, Android can be usable, although several of the stock applications that ship with it do not support the Android Accessibility API. Unfortunately, these include the calendar, the web browser and the email reader for non-Gmail accounts. It is possible to use third-party applications at low or no cost in conjunction with the Gmail web interface to work around these shortcomings. For example, Code Factory has made the web-browser component of its Mobile Access suite available as an individual download from the Android market. Similarly, one can find third-party products to provide alternative font sizing and there may also be applications to change color schemes on the Android market; although, our testers were unable to discover them.

We were also unable to connect an external keyboard to the phone, so those unable to use the physical or onscreen keyboard might have difficulty. Voice input support in Android and through third-party applications was quite good and went beyond the phone control capabilities in iOS and Blackberry.

### RIM Blackberry

Blackberry's accessibility support for people with impaired vision is quite good, with built-in options for changing color and sizing. There is limited voice-input capability for making calls. It did not appear to be possible to connect an external keyboard for input beyond the phone's own keyboard. Screen reader support is available from a third-party product, Oratio for Blackberry from Code Factory and Humanware. It retails for $495 and cannot be installed independently by a blind user. It is only supported on Blackberry Curve devices. It can be used with the phone and with many email and calendar functions. It does not work in the web browser and crashed several times during general testing.

## Conclusion

Of the three phones that were tested, the iPhone provided the most straightforward and stable support for accessibility. Android phones have the potential to meet accessibility requirements, but cannot be recommended without reservation at this time. Similarly, while Blackberry phones may meet the needs of users with certain types of disability, for others it has a number of significant shortcomings.

## *Get Onboard the 508 XPress*

Visit the VHA Section 508 Web site to review Section 508 checklists; training materials for developing accessible content in Flash, HTML, Word, PDF and PowerPoint; and to locate additional resources.

Internet: www.ehealth.va.gov/508/ Intranet: vaww.vista.med.va.gov/508workgroup/