

Who's In Your Audience? 508 Requirements and Customer Needs



When you develop software, applications, e-learning content, documents or presentations, you work hard to make sure your project meets the needs of your customers. You would probably be disappointed if, after all your hard work, end users weren't able to benefit from what you created.

But are you considering all of your customers? What about people with disabilities? One of the most common comments we hear in the Section 508 Office is, "No one with a disability is going to use our product. Do we still have to meet the Section 508 requirements?"

The short answer is "yes". There isn't really a way to tell whether a person with a disability is going to want or need to use your application or document. There are hundreds of people with disabilities working in VA. They are physicians, nurses, administrative assistants, benefits counselors...the list goes on and on. Some of them have obvious disabilities that you can see. Others have hidden disabilities you won't ever know anything about. They are our co-workers, doing their jobs, serving Veterans every day.

Speaking of Veterans, many of them have disabilities too. They need access to information and programs, websites and forms. If your product meets the 508 requirements, Veterans with disabilities will be much more likely to be able to use it.

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Section 508 doesn't really focus on who's in the audience, or who the end users of a product might be. Instead, it provides a set of technical and functional requirements to help you ensure that all your customers, including the ones who happen to have disabilities, can use what you've developed.

If you scan a document but don't tag it for accessibility, some people with disabilities won't be able to read it.

If you create a video, but don't include captions, some customers with disabilities won't be able to know what's being said.

If you design an electronic form, but the "submit" button isn't accessible with a keyboard, some people with disabilities won't be able to complete it.

Meeting the Section 508 requirements can make it possible for more of your customers, more of your students or more of your end users to benefit from your work and your creativity. It's a win-win situation for everyone.

If you have questions about specific requirements or about accessibility in general, visit the Section 508 training resources at <http://www.section508.va.gov/support>. You can also email us at section508@va.gov



New Section 508 e-Learning Courses Are Available on the VA Talent Management System (TMS)

The VA Section 508 Office is pleased to announce the publication of two new groups of courses – Principles of Accessible Design and Section 508 Conformant Hybrid Apps.

Principles Of Accessible Design is a series of four role-based courses covering accessibility basics:

TMS 4179676 — Accessible Design Role-Based Training for ICT Project Managers

This course presents how to integrate accessibility and the Section 508 Standards with the Agile and Waterfall methodologies. The Project Manager (PM) is presented with guidance to identify and monitor integration of Section 508 Standards from the beginning of and throughout ICT project development.

TMS 4179678 — Accessible Design Role-Based Training for UI and UX Designers

This course presents guidance for User Interface (UI) and User Experience (UX) Designers on integrating accessibility requirements and Section 508 Standards into the design of ICT products. It includes the benefits of incorporating Section 508 Standards during the design phase of a project and how to incorporate it into the design elements (e.g., text, audio, color and contrast).

TMS 4179679 — Principles of Accessible Design for Information and Communication Technology (ICT)

This course presents accessibility requirements for the development of ICT products and includes strategies and

best practices for ensuring that the applicable provisions of Section 508 are met.

TMS ID 4179681 — Accessible Design Role-Based Training for ICT Developers

This course presents guidance on integrating accessibility and Section 508 Standards into the development of ICT products. The course includes the benefits of incorporating Section 508 Standards during the prototyping phase of development. It includes what to look for when choosing accessible platforms and architecture.

Section 508 Conformant Hybrid Apps (Parts 1-3)

This is a three-part course created to help hybrid app developers, user interface (UI) designers, user experience (UX) designers, and app testers meet the Section 508 requirements for mobile apps.

- **TMS 4173024** — 508 Conformant Hybrid Apps Part 1
- **TMS 4173025** — 508 Conformant Hybrid Apps Part 2
- **TMS 4173026** — 508 Conformant Hybrid Apps Part 3

The goal of this course is to provide the knowledge necessary for developers, designers, and testers to integrate 508 conformance requirements as they develop and test hybrid apps. Solutions aligned to Section 508 Standards are included to ensure apps meet the applicable provisions of Section 508. The course covers conformance requirements related to recognizing applicable Section 508 requirements for the content of hybrid apps developed by VA.

Get Onboard!

It is now possible to be alerted when a new edition of the 508 XPress becomes available. Just visit www.section508.va.gov/support/newsletter and activate the link to subscribe to our list.

Visit the VA Section 508 website to review Section 508 checklists; training materials for developing accessible content in Flash, HTML, Word, PDF and PowerPoint; register for courses and to locate additional resources.

Internet: www.section508.va.gov || Intranet: vawww.section508.va.gov*

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UNITED STATES ACCESS BOARD

Advancing Full Access and Inclusion for All

Plain Language Provisions— Well-Defined Focus, or What You Get is What You See

This is the third in a series of articles called Plain Language Provisions, where we will explain some of the commonly misunderstood Section 508 requirements.

The requirements are part of the Section 508 standards, which are available on the [United States Access Board website](#). The requirements are listed in lettered paragraphs under Subpart B – Technical Standards, Subpart C – Functional Performance Criteria, and Subpart D – Information, Documentation and Support. They are called provisions because, legally speaking, they represent an agreement between a federal agency and the people or organizations responsible for the Electronic and Information Technology (EIT) that it develops, procures, maintains, or uses.

Keyboard accessibility is perhaps the most critical piece to making technology accessible. By keyboard accessibility, we mean that all parts of a screen that you would click on to operate – user interface elements including links, buttons, dropdowns, menus, checkboxes, and more – also operate using standard keyboard conventions. In short, every type of user interface element has default keyboard behavior. People that don't use a mouse use spacebar to press buttons and check checkboxes, and Enter (or Return) to follow links, the down arrow key to select radio buttons, and alt (or Command) + down arrow to open dropdown boxes. People who use the keyboard know these commands (as opposed to mouse users, who primarily click everything regardless of what it is or how it was built). People who use assistive technology know which keyboard command to use for a particular element based on that element's role, which is covered in [508 Xpress Volume 16](#) article, "Plain Language Provisions: User Interface Elements."

Provision 1194.21(c) enables keyboard accessibility, and it states: "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."

This provision is critical because before a user can operate a user interface element, the user must be able to *reach* it in order to operate it. Mouse users reach controls by pointing at them, hence typical computer interaction being described as "point and click." Keyboard users press the tab key. Tab is the keystroke used to move forward among user interface elements. Pressing shift+tab will move backwards. The arrow keys are used to move among items in a list. As a user is moving through an application, we call ***the focus*** the place on-screen or within the application where an action will take place.

In software applications, the focus is represented by a highlight or a box. To see it for yourself:

ON A WINDOWS DESKTOP

1. Press Windows Key + D to send focus to the desktop.
2. Use the arrow keys to move among different icons on your desktop.
3. Press Enter to activate an icon (and open an application or file).

IN WINDOWS EXPLORER

1. Press Windows Key+E to open Windows Explorer (the list of drives and files on a Windows computer).
2. Press the arrow keys to move among drives.
3. Press F6 to move between frames of the window until your focus is in the file list on the left-hand side. You will know that the file list has focus when arrows appear to the left (pictured).

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4. Use the arrow keys to navigate to your Documents library.
5. Press Enter to open your documents library.

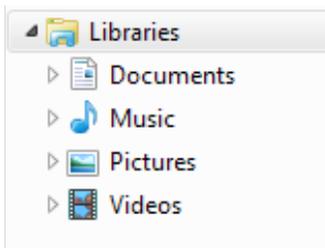


Figure 1: Notice the arrows that appear when the Files list frame has focus. They disappear if you leave the frame.

IN MICROSOFT WORD 2010

1. Open a Word document.
2. Use the arrow keys. Notice your cursor moves among the document content.
3. Press the Alt key.
4. Notice your focus leaves the document and goes to the Office ribbon. The Home tab will be highlighted in yellow.
5. Press Tab to move from control to control on the Office Ribbon.
6. Press Escape to return your focus to the document.

DEFINING “WELL-DEFINED”

The provision requires that focus be “well-defined,” and that means three things:

1. The focus must be set by application and web accessibility APIs so that it can be tracked and manipulated consistently through the keyboard, as well as through scripting like CSS and JavaScript. This is a responsibility of application developers.
2. Assistive technology (like screen readers, screen magnifiers and speech recognition software) must be able to track the focus and communicate it to end users. This is the responsibility of assistive technology developers.
3. The focus must be visible (this is the default, assuming #1 is true. It is therefore imperative that content authors do nothing to remove the visible focus).

Operating systems expose the focus by default, and several operating systems provide a way to enhance the default focus indicator. In the Windows 7 “Ease of Access Center”

there is a setting to “Make the Focus Rectangle Bigger” under the option group *Make the Computer Easier to See*. Speech recognition and screen magnification software provide even more enhanced focus indicators to make it easier for people with disabilities to tell where they are on screen.

FOCUS ON THE WEB

Web browsers provide a focus indicator by default. Go to VA.gov and tab around. As you do, you will see an outline on the VA logo. This is the default focus indicator. In Internet Explorer, it will be a small, dotted outline. In Safari or Chrome, it will be a rounded, blue box. It is possible to remove the focus indicator, but this article will not provide the code to do so because ***removing the focus indicator must never be done unless your design team plans to make an even better one.*** If you remove the focus indicator, people using the keyboard can no longer tell where they are onscreen.

For an example of an enhanced focus indicator, go to www.vets.gov. As of Fall 2016, there are four prominent links on screen:

- Disability Benefits
- Education Benefits
- Careers and Employment
- Health Care

Although these are technically links (each “box” has a role of link!), the links are styled with CSS to look like boxes. As you tab to each “box,” the box with focus changes color. This is a very obvious, prominent focus indicator. If you press Enter on any of those boxes, (and you press Enter because, again, the boxes have a role of link), it is clear where the action on screen will happen. If you tab out of those boxes to the other things on that page styled as traditional, underlined text links, you will see the default focus indicator. It is OK if the focus indicator changes its look, as long as it is always present and clear.

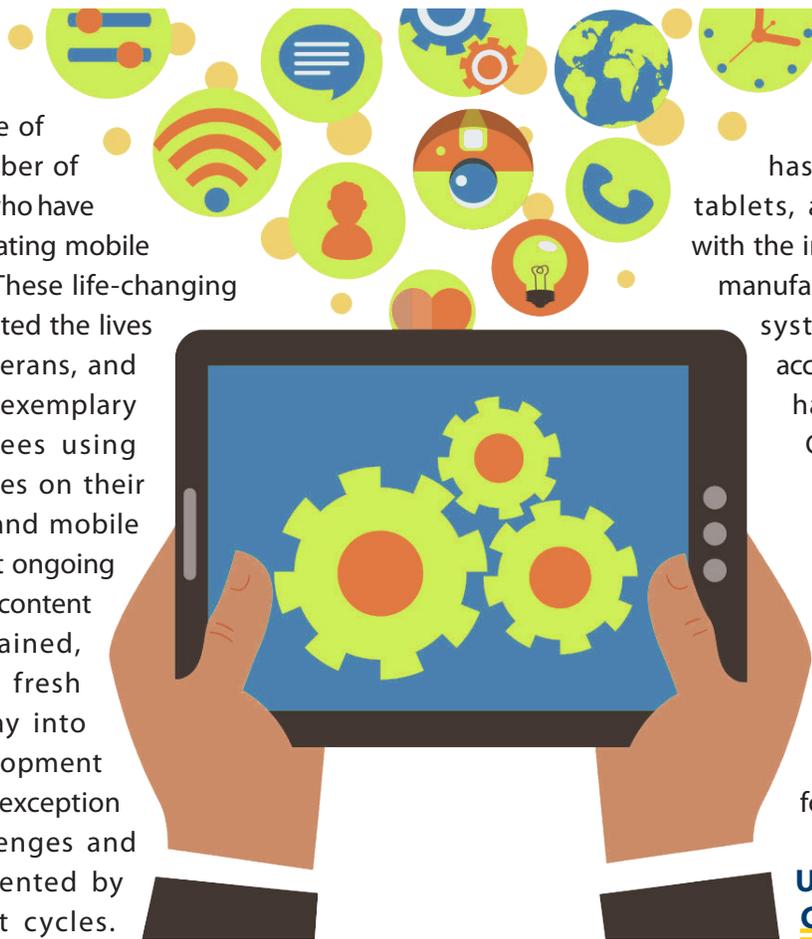
Keyboard accessibility is critical, and it is impossible without focus. When working in applications, find yours and never lose it.

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Back To Basics: Considerations for Testing Mobile Content

Over the past three+ years, the VA's Section 508 Office has had the privilege of working with a number of development teams who have been tasked with creating mobile websites and Apps. These life-changing creations have impacted the lives of thousands of Veterans, and have also provided exemplary service to employees using assistive technologies on their GFE-issued tablets and mobile phones. As with most ongoing development efforts content is developed, sustained, and updated; also, fresh ideas find their way into newly funded development efforts. The VA is no exception in facing the challenges and opportunities presented by Agile development cycles. Some VA Project Managers assume new roles with these projects, and other managers have current projects reassigned to them. Contracts are awarded to support the statements of work that fuel these efforts. What is the end result? Shifts in personnel present opportunities for the Section 508 Office to educate more project teams on the necessity for Section 508 testing to occur within these mobile projects.

It's important to remember that Section 508 regulations and standards are not simply good policies, they are mandated by Federal Law. When Section 508 standards are not met by a developer, and conformance is not achieved, the nonconformant project places its stakeholders at risk should complaints be filed by those unable to access the nonconformant content. When Section 508 regulations were introduced to Federal agencies in the late 90s, the norm was the usage of desktop computers which allowed third-party assistive technologies to be installed on hard drives. Standards were crafted to accommodate



keyboard usage within the Windows desktop operating system. Since its inception, Section 508 has been applied to laptops, tablets, and mobile devices along with the introductions of two different manufacturers of scalable operating systems. In regard to mobile accessibility, third party ingenuity has given way to Apple and Google creating & building assistive technologies directly into their operating systems at no additional costs to the end user. The following factors and variables are important to keep in mind when testing content designed for these devices for Section 508 conformance.

UNDERSTANDING THE CONTENT

The most common misunderstanding exemplified by members of a project team who are not responsible for writing code the content is a basic understanding of the type of content being developed. While it's fashionable to refer to content displayed on a mobile device as a "Mobile App", it's not accurate. There are two types of mobile content tested by the Section 508 Office. The first is content displayed within mobile content, also referred to as "mobile web" content. This content is accessed through sites which are either designed for specifically for mobile devices or sites that are "responsive", meaning that when they are accessed, the content is automatically resized to accommodate the screen of the desktop or mobile device. The second type of content accessed is a Mobile App which are stand-alone programs that carry out specific functions and are not dependent on accessing a browser. These Apps are developed for both iOS and Android devices. Mobile websites are fantastic for conveying content to and facilitating communication with audiences using

mobile devices. On the other hand, apps have a more functional approach, leveraging off the device's hardware functionality and often the functionality of other apps on the device.

SELECTING AN ENVIRONMENT

Once the content is understood, the appropriate environment for testing must be selected. A common mistake made by project teams during the testing and remediation process is attempting to remediate violations in mobile environments using desktop environments to validate and trouble-shoot the findings. Using a desktop computer, a mouse, hardware keyboard, and third party assistive technologies designed for desktop access are not optimal strategies for testing mobile web content. In order to effectively replicate and remediate any mobile violation, use a mobile device with a mobile operating system; its built-in assistive technology must be enabled. It's the most accurate and efficient means of not only moving toward the end goal of Section 508 conformance for the mobile content, but will help developers begin to gain a better understanding of how users of these assistive technologies interact with this content.

TESTING STRATEGIES

There are three questions to ask prior to the testing of mobile content for Section 508 conformance. First, "Is the Content Frozen?" One of the pluses and minuses of Agile development is the rate at which code is changed, enhancements are made, and bugs are introduced. It is imperative in order to maintain the integrity of the test results to resist the urge to make any code adjustment to the content while it is being tested. If adjustments must continue while content is being tested, access should be provided to the frozen content in a test environment.

Second, "Is the assistive technology enabled?" When it is, the behavior of the mobile device changes drastically, and gives you an accurate reflection of how accessible the content is for users of these assistive technologies. It is impossible to manually test content for Section 508 conformance without screenreading/magnification tools enabled. They can be located under the "accessibility" option within the device's "settings".

The last question is: "Do I understand alternative gestures?" When the Assistive Technology is enabled, the gestures change. Two basic testing methods that use alternative gestures are "explore by touch" and "single finger swipe". "Explore by touch" simply means whenever one's finger touches a portion of the mobile device's touch screen, what is touched is spoken and becomes the "focused" area on the screen. Double tap the screen to either activate or interact with the desired control or element. Using one finger to swipe left or right across the screen is referred to as "single finger swiping". This technique allows for the systematic shifting of focus and exploration of the display window of a webpage or App. These two techniques allow for issues such as focus, reading order, and determining specific elements state and role when ensuring that the mobile content is accessible.

TRAINING RESOURCES

The Section 508 Office has developed a number of training resources for developers and QA testers to further assist with Section 508 considerations for mobile project development efforts.

- **TMS 3885576** — [Testing Mobile Apps for Section 508 Compliance](#)
- **TMS 3941884** — [Developing Section 508 Compliant iOS Apps*](#)

Now that you've read this article and have a basic understanding of mobile development and Section 508, why not benefit from these courses? They will definitely make the path to Section 508 conformance for your mobile content much easier.

If you have questions or ideas on how to best share or benefit from the ideas expressed in this article, please email the mobile testing mailgroup at Section508mobile@va.gov.



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