

Social Security Administration



Section 508

**Accessibility of Electronic
and Information Technology
for People with Disabilities**

www.socialsecurity.gov

**Guide to Applying Section 508 Standards for
Application Developers**

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Input Controls

All Input Controls

Assigning Hotkeys

Section 508 Requirement 1194.21.a.1	Hotkeys must be assigned to commonly ¹ used control elements or notebook tabs to provide comparable mouse access. Tabbing which results in excessive ² keystrokes to activate an element is considered non-compliant.
Supported By	JAWS MAGic Dragon ³
Recommended Evaluation Criteria	3 or less keystrokes or alternative navigation
Testing Method	Use keyboard or voice to navigate through the text and controls. Ensure 3 keystroke maximum; identify JAWS/MAGic/Dragon alternatives.

Keyboard/Voice Access

Section 508 Requirement 1194.21.a.6	Navigation to screen elements with the keyboard/voice must be available in a comparable manner to a mouse
Supported By	JAWS MAGic Dragon ⁴
Recommended Evaluation Criteria	Keystroke/voice navigation must be within 3 keystrokes of a mouse user.
Testing Method	By using keyboard/voice navigation, users should not take more than 3 keystrokes to get to elements outside of the normal tab order.

Section 508 Requirement 1194.21.a.10	The keyboard must be used to open list boxes, open and close tree structures, and navigate to the next logical item in proper order ⁵ .
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Standard windows-based keystrokes must be used for consistency to navigating standard controls.
Testing Method	Use ALT + DownArrow or F4 to open list boxes; plus key, space bar or an equivalent opens tree

¹ Commonly is defined as keystrokes needed for use outside of the tab order

² Excessive is defined as more than 3 keystrokes

³ See Appendix A for keyboard usage requirements

⁴ See Appendix A for keyboard usage requirements

⁵ See Appendix A for keyboard usage requirements

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	structures; arrow keys or tabs navigate
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Section 508 Requirement 1194.21.I.2	Keyboard users must get focus to all controls, directions, and cues.
Supported By	MAGic
Recommended Evaluation Criteria	Focus must be visible on all controls, directions and cues.
Testing Method	Navigate through an application Identify well-defined visual focus on directions, controls, and cues.

Section 508 Requirement 1194.21.I.4	Voice Recognition users must have access by voice command to all Menus, Toolbars, and Field Elements.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars and any other navigable element.
Testing Method	Use voice to gain access to all elements of a screen needed to complete the information needed on a screen.

Section 508 Requirement 1194.22.I.1	Any content or interface elements must be keyboard or voice accessible.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Keyboard and voice input must be able to navigate to all content and interface elements.
Testing Method	Use the keyboard and voice to navigate content and interface elements. These must be spoken by screen readers accessible by voice.

Section 508 Requirement 1194.22.n.2	Keyboard users must get focus to all controls, labels, directions, and cues.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars, and any other navigable elements.
Testing Method	Use voice to gain access to elements of the screen needed to complete the on-screen information

Section 508 Requirement 1194.22.n.4	Voice-recognition users must have access, by voice command, to all Menus, Toolbars, and Field Elements.
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Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars, and any other navigable elements.
Testing Method	Use voice to gain access to elements of the screen needed to complete the on-screen information

Speak Labels, Data, and Cues

Section 508 Requirement 1194.21.d.1	Navigation to controls must result in appropriate speaking of labels, data and cues.]=
Supported By	JAWS
Recommended Evaluation Criteria	All data must be understandable in order to fill in appropriate responses to input areas.
Testing Method	Navigate to controls. Test whether JAWS speaks the necessary information to supply the required response.

Section 508 Requirement 1194.21.d.1	Navigation to controls must result in appropriate speaking of labels, data and cues.
Supported By	JAWS
Recommended Evaluation Criteria	All data must be understandable in order to fill in appropriate responses to input areas.
Testing Method	Navigate to controls. Test whether JAWS speaks the necessary information to supply the required response.

Section 508 Requirement 1194.21.l.1	Screen readers must speak all controls, labels, directions, and cues in a logical order.
Supported By	JAWS
Recommended Evaluation Criteria	All direction, cues, labels, and instructions must be spoken in order to fill out a field properly.
Testing Method	Navigate through an application Test to see whether all information is spoken in order to fill out a form properly

Section 508 Requirement 1194.21.l.3	Any content or interface element must be accessible to the Assistive Technologies.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Functional text must be available to the AT.
Testing Method	Use the AT to speak, magnify, or navigate to the functional text.

Section 508 Requirement 1194.21.l.4	Sufficient information about a user interface element including the identification, operation and
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	state of the element must be available to the Assistive Technology.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Any controls or interface elements created by scripting must be accessible to the Assistive Technologies.
Testing Method	The AT must be able to perform their normal function with any controls by scripting.

Section 508 Requirement 1194.22.n.1	Screen readers must speak all controls, labels, directions, and cues in a logical order.
Supported By	JAWS
Recommended Evaluation Criteria	All direction, cues, labels, and instructions must be spoken in order to fill out a field properly.
Testing Method	Navigate through an application. Test to see whether all information is spoken in order to fill out a form properly.

Section 508 Requirement 1194.22.n.4	Voice-recognition users must have access, by voice command, to all Menus, Toolbars, and Field Elements.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars, and any other navigable elements.
Testing Method	Use voice to gain access to elements of the screen needed to complete the on-screen information

Well-Defined, Visual Focus

Section 508 Requirement 1194.21.d.2	Navigation to controls must result in a well-defined visual focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	There must be a visible cursor, border, highlight, or some other indication to show the focus is on the screen.
Testing Method	Once a control is selected... <ul style="list-style-type: none"> • See if there is a well-defined visual focus present • If not, tab once to see refocusing. Any other destination other than the intended focus is failing.

Section 508 Requirement 1194.22.l.2	Sufficient information about a user interface element including the identification, operation and state of the element must be available to the Assistive Technology.
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Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Any controls or interface elements created by scripting must be accessible to the Assistive Technologies.
Testing Method	The AT must be able to perform their normal function with any controls by scripting.

Track with Screen Magnifiers

Section 508 Requirement 1194.21.d.4	Navigation to controls must track with screen magnifiers
Supported By	MAGic
Recommended Evaluation Criteria	Screen magnifiers must track to the focal point when moving to controls or others areas of focus.
Testing Method	<ul style="list-style-type: none">• Tab to a control with the screen magnifier set to 6-8X magnification• Test to see whether focus moves to the new control and is positioned properly for reading.

Exposed to Voice Recognition Technology

Section 508 Requirement 1194.22.d.4	Interface elements must be exposed to voice recognition technology so users can access all controls.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice input, navigate to controls
Testing Method	Use Dragon Naturally speaking to move to and select all controls present on a screen.

Checkboxes, Radio Buttons, Drop-Down Lists, Combo Boxes

Section 508 Requirement 1194.21.a.11	Navigation to radio buttons using arrow keys, items in a combo box, list views, or check boxes must not automatically select the item and/or change focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	OnChange events or equivalents must not act as automatic selectors in controls, thus preventing the user from changing a selection
Testing Method	<ul style="list-style-type: none">• Arrow keys or tab keys should navigate in the specified controls.• Determine whether all items can be selected, whether it is a list box, radio button, or check box without auto-selection

** See also Labels*

List Boxes

Keyboard Access

Section 508 Requirement 1194.21.a.10	The keyboard must be used to open list boxes, open and close tree structures, and navigate to the next logical item in proper order ⁶ .
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Standard windows-based keystrokes must be used for consistency to navigating standard controls.
Testing Method	Use ALT + DownArrow or F4 to open list boxes; plus key, space bar or an equivalent opens tree structures; arrow keys or tabs navigate

Avoid Automatic Selection

Section 508 Requirement 1194.21.a.11	Navigation to radio buttons using arrow keys, items in a combo box, list views, or check boxes must not automatically select the item and/or change focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	OnChange events or equivalents must not act as automatic selectors in controls, thus preventing the user from changing a selection
Testing Method	<ul style="list-style-type: none">• Arrow keys or tab keys should navigate in the specified controls.• Determine whether all items can be selected, whether it is a list box, radio button, or check box without auto-selection

⁶ See Appendix A for keyboard usage requirements

Label

Must Speak

Section 508 Requirement 1194.21.d.1	Navigation to controls must result in appropriate speaking of labels, data and cues.
Supported By	JAWS
Recommended Evaluation Criteria	All data must be understandable in order to fill in appropriate responses to input areas.
Testing Method	<ul style="list-style-type: none">• Navigate to controls.• Test whether JAWS speaks the necessary information to accurately supply the required response.

Section 508 Requirement 1194.21.l.1	Screen readers must speak all controls, labels, directions, and cues in a logical order.
Supported By	JAWS
Recommended Evaluation Criteria	All direction, cues, labels, and instructions must be spoken in order to fill out a field properly.
Testing Method	<ul style="list-style-type: none">• Navigate through an application• Test to see whether all information is spoken in order to fill out a form properly

Section 508 Requirement 1194.21.l.2	Keyboard users must get focus to all controls, directions, and cues
Supported By	JAWS
Recommended Evaluation Criteria	Focus must be visible on all controls, directions and cues.
Testing Method	<ul style="list-style-type: none">• Navigate through an application• Identify well-defined visual focus on directions, controls, and cues.

Section 508 Requirement 1194.22.n.1	Screen readers must speak all controls, labels, directions, and cues in a logical order.
Supported By	JAWS
Recommended Evaluation Criteria	All direction, cues, labels, and instructions must be spoken in order to fill out a field properly.
Testing Method	<ul style="list-style-type: none">• Navigate through an application.• Test to see whether all information is spoken in order to fill out a form properly.

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Section 508 Requirement 1194.22.n.2	Keyboard users must get focus to all controls, labels, directions, and cues.
Supported By	MAGic Dragon
Recommended Evaluation Criteria	Focus must be visible on all controls, directions, and cues.
Testing Method	<ul style="list-style-type: none"> • Navigate through an application • See whether there is a well-defined visual focus on all directions, controls, and cues.

Section 508 Requirement 1194.22.n.4	Voice-recognition users must have access, by voice command, to all Menus, Toolbars, and Field Elements.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars, and any other navigable elements.
Testing Method	Use voice to gain access to elements of the screen needed to complete the on-screen information

Section 508 Requirement 1194.22.n.4	Voice-recognition users must have access, by voice command, to all Menus, Toolbars, and Field Elements.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars, and any other navigable elements.
Testing Method	Use voice to gain access to elements of the screen needed to complete the on-screen information

Navigation

Links

Repeated

Section 508 Requirement 1194.21.a.2	Hotkeys must be assigned to links used repeatedly on more than one screen or identical links used as templates for multiple applications.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Repeatedly used links or template initiated links must have hotkeys.
Testing Method	Use the keyboard hotkeys to select links.

Section 508 Requirement 1194.22.o.1	Provide links/methods to skip over redundant links.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	A skip navigation link must be provided to move/avoid repetitive links.
Testing Method	Select the skip navigation link. Identify whether the focus has changed.

Avoid Reserved Words

Section 508 Requirement 1194.21.a.9	Browser reserved words, like but not limited to Help, Favorites, and View, if used within the application must have a modifier word providing voice input users a unique command.
Supported By	Dragon
Recommended Evaluation Criteria	Application developed keywords must not conflict with browser reserved words.
Testing Method	Use voice commands to test developed keywords.

In Sentences and Paragraphs

Section 508 Requirement 1194.21.a.13	When embedded links are within sentences or paragraphs, the link must stand on its own to be meaningful <i>and</i> must have a title attribute that is meaningful within the context of the sentence.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Embedded links must be meaningful to screen reader users and screen magnification users. A keyboard user should be able to expose alt text or tool tip using keyboard navigation to the link.
Testing Method	<ul style="list-style-type: none">• Screen reader users must hear the link as incorporating the meaning of the sentence that it

	is embedded in. <ul style="list-style-type: none">• Tab indices could be used before and after the link for clarification. If tab indices are not used, the link's tool tip must be exposed with the keyboard and JavaScript examples can be provided.
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Moving when Selecting Focus

Section 508 Requirement 1194.21.c.1	When selected, interface elements (i.e. button/link) must move focus to the resultant action of that element (e.g. selecting a folder moves focus to Open File dialog box).
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Focus must move to the result of the action selected.
Testing Method	<ul style="list-style-type: none">• Once a control is selected, see if there is a well-defined visual focus present• If not, tab once to see refocusing.• Any other destination other than the intended focus is failing.

Within a Page

Section 508 Requirement 1194.21.c.8	When there are links that move focus to the bottom of a page, there is usually a link that returns the user to the topic at the top of the page. Focus must return to the link the user selected, not just the top of the page. Also, in the event of multiple links, the users should be able to skip back to where they left off, rather than scrolling through.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Focus must return to the original selection point in returning to a list of links.
Testing Method	See Certificates of Coverage

*See also: Skip to Content Link
 Alt Text/Title Text

Skip to Content

Move Focus past Redundant Links

Section 508 Requirement 1194.22.o.1	Provide links/methods to skip over redundant links.
Supported By	JAWS MAGic

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	Dragon
Recommended Evaluation Criteria	A skip navigation link must be provided to move/avoid repetitive links.
Testing Method	Select the skip navigation link. Identify whether the focus has changed.
Section 508 Requirement 1194.22.o.3	Focus must be past the repetitive links and to the next control after the skip link is invoked and the next tab is keyed.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	When selected, skip links must focus and be a visible shift and the anchor must move so that the next tab is past redundant links.
Testing Method	<ul style="list-style-type: none">• Select the skip link.• Tab to see whether the focus is now on the next link or control after the repetitive link.

Visible when Tabbed

Section 508 Requirement 1194.22.o.2	Links must be visible/made visible when tabbed.
Supported By	MAGic Dragon
Recommended Evaluation Criteria	Skip Navigation links must be visible to keyboard users or become visible when tabbed
Testing Method	<ul style="list-style-type: none">• If pop-up errors are displayed they must receive focus and speak.• Other indicators of errors must have a well-defined visual focus, speak the error message and provide a means of navigating to successive errors in a productive keyboard manner.

Buttons

Accessible by Voice

Section 508 Requirement 1194.21.a.7	Buttons must be accessible through voice commands; screen text cannot differ from button title attributes.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Voice input users must be able to use speech to invoke a button based on the visible screen text.

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Testing Method	Use voice input commands to select a button. If unselected, check whether any alt text matches the screen text.
Section 508 Requirement 1194.21.a.9	Browser reserved words, like but not limited to Help, Favorites, and View, if used within the application must have a modifier word providing voice input users a unique command.
Supported By	MAGic
Recommended Evaluation Criteria	Application developed keywords must not conflict with browser reserved words.
Testing Method	Use voice commands to test developed keywords.

Moving Focus when Selected

Section 508 Requirement 1194.21.c.1	When selected, interface elements (i.e. button/link) must move focus to the resultant action of that element (e.g. selecting a folder moves focus to Open File dialog box).
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Focus must move to the result of the action selected.
Testing Method	<ul style="list-style-type: none">• Once a control is selected, see if there is a well-defined visual focus present• If not, tab once to see refocusing.• Any other destination other than the intended focus is failing.

*See also: Alt Text/Title Text
 Labels

Keystrokes

Standard Windows Keystrokes

Section 508 Requirement 1194.21.a.10	The keyboard must be used to open list boxes, open and close tree structures, and navigate to the next logical item in proper order ⁷ .
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Standard windows-based keystrokes must be used for consistency to navigating standard controls.
Testing Method	Use ALT + DownArrow or F4 to open list boxes; plus key, space bar or an equivalent opens tree structures; arrow keys or tabs navigate

Moving Focus

Section 508 Requirement 1194.21.a.12	When focus changes visually to a new frame/pane or a logical place on the screen, a keystroke must be available to move focus if a well-defined visual focus does not occur.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Have single standard keystroke capability to move to frames or panes on a screen.
Testing Method	<ul style="list-style-type: none">• CTRL + Tab or F6 are standard windows keystrokes to move forward to frames and panes.• Shift plus CTRL + TAB or Shift + F6 normally move backward to frames and panes.

*See also: Hotkeys

⁷ See Appendix A for keyboard usage requirements

Hotkeys

Assigning

Section 508 Requirement 1194.21.a.1	Hotkeys must be assigned to commonly ⁸ used control elements or notebook tabs to provide comparable mouse access. Tabbing which results in excessive ⁹ keystrokes to activate an element is considered non-compliant.
Supported By	JAWS MAGic Dragon ¹⁰
Recommended Evaluation Criteria	3 or less keystrokes or alternative navigation
Testing Method	Use keyboard or voice to navigate through the text and controls. Ensure 3 keystroke maximum; identify JAWS/MAGic/Dragon alternatives.

For Repeated Links

Section 508 Requirement 1194.21.a.2	Hotkeys must be assigned to links used repeatedly on more than one screen or identical links used as templates for multiple applications.
Supported By	JAWS MAGic Dragon ¹¹
Recommended Evaluation Criteria	Repeatedly used links or template initiated links must have hotkeys
Testing Method	Use the keyboard hotkeys to select links.

⁸ Commonly is defined as keystrokes needed for use outside of the tab order

⁹ Excessive is defined as more than 3 keystrokes

¹⁰ Not a necessity if alternatives provided

¹¹ Not a necessity if alternatives provided

Avoiding Conflicts

Section 508 Requirement 1194.21.a.8	Added keystrokes must not conflict with browser keystrokes.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Hotkeys must not conflict with the browser; hotkeys include the following for Internet Explorer (IE): <ul style="list-style-type: none">• ALT + D• F• E• A• T• H
Testing Method	Use the ALT key plus any application assigned hotkeys to see where the action focuses. If neither the browser hotkey nor the assigned application hotkey is available, then the test fails.

Section 508 Requirement 1194.21.b.2	Any developer assigned hotkeys must not conflict with browser hotkeys.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	There must be no conflict with hotkeys.
Testing Method	All hotkeys, whether browser based or application developed, must be accessible and operable through the keyboard.

Tree Structures

Keyboard Access

Section 508 Requirement 1194.21.a.10	The keyboard must be used to open list boxes, open and close tree structures, and navigate to the next logical item in proper order ¹² .
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Standard windows-based keystrokes must be used for consistency to navigating standard controls.
Testing Method	Use ALT + DownArrow or F4 to open list boxes; plus key, space bar or an equivalent opens tree structures; arrow keys or tabs navigate

¹² See Appendix A for keyboard usage requirements

Image Maps, Client Side

Text Alternatives

Section 508 Requirement 1194.22.f.1	Screen readers must be able to speak meaningful text alternatives.
Supported By	JAWS
Recommended Evaluation Criteria	Any image links must have meaningful alt text
Testing Method	Tab to the link and see if JAWS speaks understandable alt text links.

Section 508 Requirement 1194.22.f.2	Low vision and keyboard users must be able to access text alternatives with the keyboard.
Supported By	MAGic
Recommended Evaluation Criteria	When the link is navigated to, the alt text must be exposed. All colors and sizing must be available for this link.
Testing Method	<ul style="list-style-type: none">• Tab to the image map link; the alt text should be in focus so that it is readable.• Use the view menu to size the text; it must be able to be increased.• Change the colors using "ignore colors" from the accessibility options and use "high contrast" options for the display settings; these must be modifiable

Section 508 Requirement 1194.22.f.3	Voice input users must be able to discern any alternative text that is different than screen text by using voice.
Supported By	Dragon
Recommended Evaluation Criteria	Client-side image maps links must be selectable by voice.
Testing Method	Client-side image maps links must be selectable by voice.

Page Layout

Frames

Navigation and Scrolling

Section 508 Requirement 1194.21.a.5	When frames are used there must be a navigational capability to move with the keyboard from frame to frame and/or control to control. Scrolling within a frame must be achievable through keyboard/voice command.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	CTRL + Tab or F6 must move focus from frame to frame. Tabbing from the last control in a frame must take you to the first element in the next frame. Scrolling within a frame must be achievable through keyboard or voice.
Testing Method	Press CTRL + Tab, F6 or the JAWS "M" command to between frames. Voice input should say the hotkey or "next frame". Scrolling will similarly be accomplished by using arrow keys or scrolling commands.

Section 508 Requirement 1194.21.c.4	When frames are used there must be a logical navigational capability to move using keyboard/voice commands from frame to frame and/or control to control.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	The standard windows keystrokes for frame navigation or application developed keystroke must move the focus from frame to frame with a well-defined focus evident.
Testing Method	<ul style="list-style-type: none">• Use CTRL + Tab or F6 to move the focus from frame to frame• Test the movement to a new frame by noticing focus around the frame and/or press tab to see where the new focus is• Shift + CTRL + Tab or Shift + F6 will move back through the frames• The JAWS keystroke INS + F9 will show the list of frames• The JAWS quick key, M or Shift + M, will navigate to/from frames

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Section 508 Requirement 1194.22.i.2	Navigation to frames with a keyboard must be equivalent to navigating with a mouse.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Frames must be navigable with a single keystroke
Testing Method	Press F6, CTRL + Tab, or the JAWS quick key "M" to move from frame to frame.

Section 508 Requirement 1194.22.i.3	Frames must be designed so that voice commands provide visible navigation to the frame and functionality.
Supported By	Dragon
Recommended Evaluation Criteria	Voice input must be capable of moving from frame to frame
Testing Method	Use the Dragon frame command to move from frame to frame. A well-defined visual focus must be evident around the frame.

In Help Utilities

Section 508 Requirement 1194.21.c.3	In Help utilities where frames are used, when keywords or content subjects are selected, the focus must move to the contents frame /pane.
Supported By	JAWS MAGIC Dragon
Recommended Evaluation Criteria	A well-defined visual focus must move from the current frame to the content in the selected frame.
Testing Method	<ul style="list-style-type: none">• Select a help topic and then tab• Focus should be in the frame of the item selected and not remaining in the frame of topics.

Hidden

Section 508 Requirement 1194.22.c.5	When hidden frames are used for work areas or other non-navigational purposes, the display for these frames must be disabled and height and width set to zero. This prevents non-visual focus shifting to hidden frames, causing unnecessary and unknown tab stops.
Supported By	JAWS MAGIC Dragon
Recommended Evaluation Criteria	Screen readers should neither navigate nor speak hidden frames.
Testing Method	<ul style="list-style-type: none">• Use the JAWS command, INS + F9 to display the frames• Hidden frames should not be on the list. CTRL + Tab or F6 navigates to frames. All usable frames should have focus• If the keystroke produces no focus then a defect occurs. The JAWS quick key, M, can be used to test navigation to frames

Section 508 Requirement 1194.22.i.4	Hidden frames used for storage or work areas must not be spoken or exposed to assistive technologies.
Supported By	JAWS MAGIC
Recommended Evaluation Criteria	Hidden frames must not be spoken, appear on a frames list, or be navigable.
Testing Method	Use the frames keystroke to move to frames. Hidden frames must not get focus, be spoken or appear in a JAWS frame. Hidden frames or working frames must not be spoken when screens are introduced or refreshed.

Names of Frames

Section 508 Requirement 1194.22.i.1	Screen readers must be able to speak all frame names in a meaningful manner.
Supported By	JAWS
Recommended Evaluation Criteria	Frame names must be meaningful and not include frame as part of its name.
Testing Method	<ul style="list-style-type: none">• Press F6, CTRL + Tab, or "M" with JAWS running to hear the frame speak.• Press INS + F9 to get a list of frames and their names.

Excessive

Section 508 Requirement 1194.22.i.5	Excessive ¹³ use of frames must not be used when unnecessary for navigation or information purposes.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Tabbing controls should result in no speech or focus.
Testing Method	<ul style="list-style-type: none">• Tab through an implication to see if there is loss of focus or speech.• Use CTRL + Tab, F6, or the screen reader quick key for navigating frames (JAWS uses the letter "M").

Menus

Removal

Section 508 Requirement 1194.22.b.1	Menu bars and toolbars cannot be removed unless equivalent functionality is provided as an alternative.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Menu bars must be present or contain alternatives for Accessibility Options or View options.
Testing Method	<ul style="list-style-type: none">• Ignore colors, fonts and font sizes from the browser. Size the text from small to large through the browser.• Be able to change colors and fonts through the browser.

Voice Access

Section 508 Requirement 1194.21.i.4	Voice Recognition users must have access by voice command to all Menus, Toolbars, and Field Elements.
Supported By	Dragon
Recommended Evaluation Criteria	Using voice, users must be able to control all elements of the screen including menus, toolbars and any other navigable element.
Testing Method	Use voice to gain access to all elements of a screen needed to complete the information needed on a screen.

¹³ Excessive, in this instance, implies frames not used for primary navigation within an application or web page.

Tabs (“Folder” or “Notebook Style”)

Assigning Hotkeys

Section 508 Requirement 1194.21.a.1	Hotkeys must be assigned to commonly ¹⁴ used control elements or notebook tabs to provide comparable mouse access. Tabbing which results in excessive ¹⁵ keystrokes to activate an element is considered non-compliant.
Supported By	JAWS MAGic Dragon ¹⁶
Recommended Evaluation Criteria	3 or less keystrokes or alternative navigation
Testing Method	Use keyboard or voice to navigate through the text and controls. Ensure 3 keystroke maximum; identify JAWS/MAGic/Dragon alternatives.

Keystrokes

Section 508 Requirement 1194.21.a.10	The keyboard must be used to open list boxes, open and close tree structures, and navigate to the next logical item in proper order ¹⁷ .
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Standard windows-based keystrokes must be used for consistency to navigating standard controls.
Testing Method	Use ALT + DownArrow or F4 to open list boxes; plus key, space bar or an equivalent opens tree structures; arrow keys or tabs navigate

Tables

Row and Column Headers (Simple)

Section 508 Requirement 1194.22.g.1	Screen readers must be able to associate row and column headers with data elements when navigated to within a table.
Supported By	JAWS
Recommended Evaluation Criteria	All row and column headers must speak while navigating through cells in a table.
Testing Method	<ul style="list-style-type: none">• Use the JAWS table reading commands to speak row and column headers while navigating through a table (CTRL + ALT + Arrow Keys).• Use CTRL + ALT = NumPad 5 to speak the current cell information that has virtual cursor focus.

¹⁴ Commonly is defined as keystrokes needed for use outside of the tab order

¹⁵ Excessive is defined as more than 3 keystrokes

¹⁶ Not a necessity if alternatives provided

¹⁷ See Appendix A for keyboard usage requirements

Row and Column Headers (Complex)

Section 508 Requirement 1194.22.g.2	Screen magnification users must be able to associate row and column headers with data elements.
Supported By	MAGic
Recommended Evaluation Criteria	Screen magnification users must be able to have the row and column headers exposed while navigating through a table.
Testing Method	<ul style="list-style-type: none">• Tab to a table. ALT Text tab indices must be supplied in order to use keyboard navigation through a table• The ALT TEXT must be exposed (JavaScript example). See RASMTAS.

Tab Index

Text, Instructions and Errors

Section 508 Requirement 1194.21.a.3	Tab indices must be assigned to significant ¹⁸ text information, directional cues, and error text information, or comparable access method must be attained.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	All information necessary to complete a form or application must retain focus so that the information is seen or spoken.
Testing Method	<ul style="list-style-type: none">• Tab through text areas to see static text area OR• Listen to focus on static text areas

¹⁸ "Significant" is defined as information that is absolutely necessary in order to productively and accurately fill out information on a form.

Tab Order

Logical

Section 508 Requirement 1194.21.a.3	There must be a logical tab order. Generally left to right, top to bottom. There are cases when the tab order is application dependent. The requirement is to have a tab order that makes sense to the user in accomplishing the task.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	The tab order, at a minimum, must progress from left to right and top to bottom. Application specific functionality must produce tab orders consistent with the flow of the application.
Testing Method	<ul style="list-style-type: none">• Tab through the application to identify the tab order• Note any inconsistencies with left to right and top to bottom order• Note any instances of tab order that results to extra keystrokes that could be eliminated by improving the tab order• Tab through text to see/hear focus on static text

Help

Utilities with Frames

Section 508 Requirement 1194.21.c.3	In Help utilities where frames are used, when keywords or content subjects are selected, the focus must move to the contents frame/pane.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	A well-defined visual focus must move from the current frame to the content in the selected frame.
Testing Method	<ul style="list-style-type: none">• Select a help topic and then tab• Focus should be in the frame of the item selected and not remaining in the frame of topics.

On-Screen

Section 508 Requirement 1194.21.d.1	Navigation to controls must result in appropriate speaking of labels, data and cues.
Supported By	JAWS
Recommended Evaluation Criteria	All data must be understandable in order to fill in appropriate responses to input areas.
Testing Method	<ul style="list-style-type: none">• Navigate to controls.• Test whether JAWS speaks the necessary information to accurately supply the required response.

Text, Colors, and Graphics

Alt Text

For Buttons

Section 508 Requirement 1194.21.a.7	Buttons must be accessible through voice commands; screen text cannot differ from button title attributes.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Voice input users must be able to use speech to invoke a button based on the visible screen text.
Testing Method	Use voice input commands to select a button. If unselected, check whether any alt text matches the screen text.

Section 508 Requirement 1194.21.a.8	The screen names of any button will be at the beginning of any Alt-text if Alt-text is present.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Screen names must be the same at the start of any alt text. Voice input uses the alt text on buttons with the screen text.
Testing Method	Use voice to initiate a button control to see whether the action can be invoked by voice.

*See also: Buttons
 Labels

For Images

Section 508 Requirement 1194.21.a.1	Screen readers shall be able to speak all alt text or equivalent elements.
Supported By	JAWS
Recommended Evaluation Criteria	All alt text must be meaningful and speak when accessed.
Testing Method	Tab through controls to ensure that they speak and are meaningful. Arrow through images to see that they speak and are meaningful.

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Section 508 Requirement 1194.21.a.2	Keyboard and voice input users must be able to access all text equivalent alternatives for non-text elements.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	All alt text or any equivalent must be exposed by the keyboard or voice input.
Testing Method	Navigate by keyboard to see whether alt text or tool tips are exposed by using the keyboard or voice. ASB has developed a JavaScript capability to accomplish this.

Section 508 Requirement 1194.21.a.3	If textual links are not possible, then the screen name of the non-text element will be at the beginning of the alt-text tag, long description, title attribute, etc.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	All text links must have alt text beginning with the screen text shown.
Testing Method	Use AT to expose alt text using screen readers, keyboard, or voice input.

Section 508 Requirement 1194.22.f.1	Screen readers must be able to speak meaningful text alternatives.
Supported By	JAWS
Recommended Evaluation Criteria	Any image links must have meaningful alt text.
Testing Method	Tab to the link and see if JAWS speaks understandable alt text links.

Section 508 Requirement 1194.22.f.2	Low vision and keyboard users must be able to access text alternatives with the keyboard.
Supported By	MAGic
Recommended Evaluation Criteria	When the link is navigated to, the alt text must be exposed. All colors and sizing must be available for this link.
Testing Method	<ul style="list-style-type: none"> • Tab to the image map link; the alt text should be in focus so that it is readable. • Use the view menu to size the text; it must be able to be increased. • Change the colors using "ignore colors" from the accessibility options and use "high contrast" options for the display settings; these must be modifiable.

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Section 508 Requirement 1194.22.f.3	Voice input users must be able to discern any alternative text that is different than screen text by using voice.
Supported By	Dragon
Recommended Evaluation Criteria	Client-side image maps links must be selectable by voice.
Testing Method	Use voice to select a link. If it is not selectable, then the alt text must include the beginning screen text.

For Links

Section 508 Requirement 1194.21.a.13	When embedded links are within sentences or paragraphs, the link must stand on its own to be meaningful <i>and</i> must have a title attribute that is meaningful within the context of the sentence.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Embedded links must be meaningful to screen reader users and screen magnification users. A keyboard user should be able to expose alt text or tool tip using keyboard navigation to the link.
Testing Method	<ul style="list-style-type: none">• Screen reader users must hear the link as incorporating the meaning of the sentence that it is embedded in.• Tab indices could be used before and after the link for clarification. If tab indices are not used, the link's tool tip must be exposed with the keyboard and JavaScript examples can be provided. Use voice to select a link. If it is not selectable, then the alt text must include the beginning screen text.

Colors

Windows Selectable Colors

Section 508 Requirement 1194.21.b.3	The ability to use Windows selectable colors must not be disabled by the application.
Supported By	MAGic
Recommended Evaluation Criteria	Select high contrast colors for foreground and background colors (ex. white/black).
Testing Method	<ul style="list-style-type: none">• Select "ignore colors" from the Accessibility options• Visually identify color changes• Go to Display Options, appearance and change the colors to see if screens change

Ignoring or Changing Colors

Section 508 Requirement 1194.21.g.1	For browsers, users must be able to check "ignore colors" under Internet Options\Accessibility. This is followed by changing colors from the Windows Display Settings.
Supported By	MAGic
Recommended Evaluation Criteria	Users must be able to change colors on the screen to high contrast or any other color combination desired
Testing Method	<ul style="list-style-type: none"> • Check "ignore colors" under Tools\Accessibility • Notice whether the web page changes • If not, then the colors are hard coded • If colors change... <ul style="list-style-type: none"> ➤ Go to Display options under the OS ➤ Change the appearance to high contrast or other color combinations to identify changeable elements.

Section 508 Requirement 1194.21.g.2	For client, server, or mainframe applications, users must be able to change colors from the Windows Display Settings.
Supported By	MAGic
Recommended Evaluation Criteria	Users must be able to change colors on the screen to high contrast or any other color combination desired.
Testing Method	Go to the display options under the OS and change the appearance to high contrast or other color combinations to see which elements can be changed.

Ignoring or Changing Colors in Animation

Section 508 Requirement 1194.21.h.3	AT users should have the ability to change text size and colors of any text associated with animations or be presented textually in a non-animated manner.
Supported By	MAGic
Recommended Evaluation Criteria	Change text size and color including foreground and background animations. Addable text must describe animation and be customizable for color/font size.
Testing Method	Use the browser's view menu to change the font size and display colors to change foreground and background colors.

*See also: Animation

Ignoring or Changing Colors with Style Sheets Off

Section 508 Requirement 1194.22.d.2	All colors and text must be modifiable for low vision users if style sheets are turned off.
Supported By	JAWS
Recommended Evaluation Criteria	Identify if low vision users have the same capabilities with style sheets turned off in regard to text size and colors.
Testing Method	Turn off style sheets using the web accessibility toolbar.

Alternative Text

Section 508 Requirement 1194.21.i.1	Users of screen readers must have access to alternative text that indicates a condition of color.
Supported By	JAWS
Recommended Evaluation Criteria	Any indication of color as a means of conveying information must contain a text alternative.
Testing Method	Test to see whether any indicators of color have text alternatives.

Section 508 Requirement 1194.22.c.1	Apply text equivalents to any information that is color depicted.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Text equivalents must be readily apparent to any color coded screen element.
Testing Method	Use the keyboard to navigate through color coded elements. Any color coding must expose text elements and be spoken or keyboard accessible.

Conveying Information

Section 508 Requirement 1194.21.i.2	Low vision users who also use screen readers must be able to understand the selection of the color names through the screen reader by using the keyboard to navigate to them.
Supported By	JAWS
Recommended Evaluation Criteria	Any indication of color as a means of conveying information must contain a text alternative.
Testing Method	Change colors to high contrast to see if meaning is still available without color.

Section 508 Requirement 1194.22.c.2	Do not use color as the only means of conveying information or an action.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Provide alternatives to color coding.
Testing Method	See if there are any alternatives for color coding.

Mechanisms for Selecting Colors

Section 508 Requirement 1194.21.j.1	Low vision users who also use screen readers must be able to understand the selection of the color names through the screen reader by using the keyboard to navigate to them.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Any color selection must be keyboard navigable for selection purposes.
Testing Method	Use the keyboard to navigate through color palettes or other types of pick lists.

Section 508 Requirement 1194.21.j.2	All colors depicted for color choices must have accompanying text descriptions.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Any color palettes or other means of selecting colors must have alt text relating the color image to indicated the shade of color.
Testing Method	Use the screen reader to access a color palette or list of colors and listen for the text equivalent

Graphics

*See also: Images

Images

Alt Text and Equivalents

Section 508 Requirement 1194.21.e	When bitmap 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.
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Section 508 Requirement 1194.22.a.1	Screen readers shall be able to speak all alt text or equivalent elements.
Supported By	JAWS
Recommended Evaluation Criteria	All alt text must be meaningful and speak when accessed.
Testing Method	Tab through controls to ensure that they speak and are meaningful. Arrow through images to see that they speak and are meaningful.

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Section 508 Requirement 1194.22.a.2	Keyboard and voice input users must be able to access all text equivalent alternatives for non-text elements.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	All alt text or any equivalent must be exposed by the keyboard or voice input.
Testing Method	Navigate by keyboard to see whether alt text or tool tips are exposed by using the keyboard or voice. ASB has developed a JavaScript capability to accomplish this.

Section 508 Requirement 1194.22.a.3	If textual links are not possible, then the screen name of the non-text element will be at the beginning of the alt-text tag, long description, title attribute, etc.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	All text links must have alt text beginning with the screen text shown.
Testing Method	Use AT to expose alt text using screen readers, keyboard, or voice input.

Style Sheets

Turned Off

Section 508 Requirement 1194.21.d.1	Screen readers must be able to speak properly if style sheets are turned off.
Supported By	JAWS
Recommended Evaluation Criteria	Determine if screen readers speak all controls properly when style sheets are off.
Testing Method	Turn off style sheets using the web accessibility toolbar.

Section 508 Requirement 1194.21.d.2	All colors and text must be modifiable for low vision users if style sheets are turned off.
Supported By	JAWS
Recommended Evaluation Criteria	Identify if low vision users have the same capabilities with style sheets turned off in regard to text size and colors.
Testing Method	Turn off style sheets using the web accessibility toolbar.

Text

Tab Index On

Section 508 Requirement 1194.21.a.3	Tab indices must be assigned to significant ¹⁹ text information, directional cues, and error text information, or a comparable access method must be attained.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	All information necessary to complete a form or application must retain focus so that the information is seen or spoken.
Testing Method	<ul style="list-style-type: none">• Tab through text areas to see static text areasOR• Listen to focus on static text areas

Section 508 Requirement 1194.21.f.2	AT must be able to attain focus to textual elements in order to speak or gain focus.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Speaking textual elements and tracking to text must be made available to the assistive technologies.
Testing Method	Tab indices must be assigned to textual elements and thus be “tabbable” when navigating through screens.

Must Speak

Section 508 Requirement 1194.21.f.1	Screen readers should speak all significant text displayed
Supported By	JAWS
Recommended Evaluation Criteria	Navigate through an application and ensure the screen reader speaks all textual information necessary to complete an application or understand a screen of text.
Testing Method	Tab through web pages and listen to all spoken text to ensure that all necessary information is provided.

¹⁹ “Significant” is defined as information that is absolutely necessary in order to productively and accurately fill out information on a form.

Changing Size in Animation

Section 508 Requirement 1194.21.h.3	AT users should have the ability to change text size and colors of any text associated with animations or be presented textually in a non-animated manner.
Supported By	MAGic
Recommended Evaluation Criteria	Change text size and color including foreground and background animations. Addable text must describe animation and be customizable for color/font size.
Testing Method	Use the browser's view menu to change the font size and display colors to change foreground and background colors.

Changing Size in Pop-Ups

Section 508 Requirement 1194.21.i.7	Text in a pop-up should be able to be increased in size through operating system settings.
Supported By	MAGic
Recommended Evaluation Criteria	Font size and colors must be configurable through operating system functions.
Testing Method	<ul style="list-style-type: none">• Use the Windows display settings to choose Appearance/Advanced.• Choose Message Box or other windows elements to change the font, font size and/or colors.

Changing Size with Style Sheets

Section 508 Requirement 1194.22.d.2	All colors and text must be modifiable for low vision users if style sheets are turned off.
Supported By	JAWS
Recommended Evaluation Criteria	Identify if low vision users have the same abilities with style sheets turned off regarding text size and colors.
Testing Method	Turn off style sheets using web accessibility toolbar.

System Feedback

Errors

Tab Index On

Section 508 Requirement 1194.21.a.3	Tab indices must be assigned to significant ²⁰ text information, directional cues, and error text information, or a comparable access method must be attained.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	All information necessary to complete a form or application must retain focus so that the information is seen or spoken.
Testing Method	<ul style="list-style-type: none">• Tab through text areas to see static text areas OR• Listen to focus on static text areas

Ways of Handling

Section 508 Requirement 1194.21.l.3	Error handling is added to this section. Errors can be handled by the use of pop-ups, "red balls" or any other means. Errors can also be displayed after inputting a field or submitting a page. Access to errors must be keyboard accessible and comparable to a mouse user.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	All error information must receive focus, and navigation to errors must be keyboard-able and productive with a minimum of keystrokes.
Testing Method	If pop-up errors are displayed, they must receive focus and speak. Other indicators of errors must have a well-defined visual focus, speak the error message and provide a means of navigating to successive errors in a productive keyboard manner.

²⁰ "Significant" is defined as information that is absolutely necessary in order to productively and accurately fill out information on a form.

Section 508 Requirement 1194.22.n.3	Errors scan be handled by the use of pop-ups, "red balls", or any other means to identify an error. Errors can also be displayed after inputting a field or submitting a page.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	All errors information must receive focus and navigation to errors must be key-able and productive with a minimum of keystrokes.
Testing Method	If pop-up errors are displayed, they must receive focus and speak. Other indicators of errors must have a well-defined visual focus, speak the error message and provide a means of navigating to successive errors in a productive keyboard manner.

Pop-Up Messages

Section 508 Requirement 1194.21.l.5	The information within the pop-up should speak immediately through a screen reader.
Supported By	JAWS
Recommended Evaluation Criteria	Any pop-up message must speak immediately and completely through the screen reader
Testing Method	When a pop-up message appears, wait to hear what the screen reader says. If it does not speak all information present, use the JAWS command INS + B to see whether additional information is spoken or whether the information spoken can be repeated. The pop-up must have a well defined visual focus. This is apparent by the title bar being highlighted or a control having focus.

Server-Side Display

Section 508 Requirement 1194.21.l.9	A list of errors must be identified at the top of the page and receive focus. Links to each error must be displayed at the top of the page.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Errors must be displayed at the top of a page indicating the number and links to these errors or a way to get consecutive errors with the keyboard
Testing Method	Test for focus on errors at the top of the page by seeing a visual focus or hearing the number of errors. Select the first error to see if focus moves to that control. Use the JAWS or MAGic links list command to bring back the list of errors.

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Section 508 Requirement 1194.21.I.1	Screen readers must speak all controls, labels, directions, and cues in a logical order.
Supported By	JAWS
Recommended Evaluation Criteria	All direction, cues, labels, and instructions must be spoken in order to fill out a field properly.
Testing Method	<ul style="list-style-type: none"> • Navigate through an application • Test to see whether all information is spoken in order to fill out a form properly

Section 508 Requirement 1194.21.I.1	The user must have the ability to navigate precisely to each identified error on the page and know precisely where each error is without having to navigate through an entire form.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Techniques must be provided to navigate directly to errors on the page within 3 keystrokes.
Testing Method	Navigate to successive errors on a page. Navigation must be within 3 keystrokes of moving from error to error within a field.

Section 508 Requirement 1194.22.n.5	A list of errors shall be identified at the top of the page and receive focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Errors must be displayed at the top of a page indicating the number and links to errors or a way to arrive consecutively at errors with the keyboard.
Testing Method	<ul style="list-style-type: none"> • Test for focus on errors at the top of the page; visual focus or hearing the number of errors. • Select first error to see focus moves to that control. • Use the JAWS or MAGic links list command to resurface list of errors.

Section 508 Requirement 1194.22.n.5	Each error on the page is associated with the element in error by some indicator, identifiable by speech or text.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Error message text must be associated with each error element. All error messages must be understandable in order to correct the error.
Testing Method	Visual and auditory checks of the error messages are associated with each control and error messages must be understandable for correction.

Section 508 Requirement 1194.22.n.7	The user shall have the ability to navigate precisely to each identified error and know precisely where each error is without entire form navigation.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Techniques must be provided to navigate directly to errors with 3 keystrokes
Testing Method	Navigate to successive errors on a page. Navigation must be within 3 keystrokes of moving through errors within a field.

Focus

Changes In

Section 508 Requirement 1194.21.a.11	Navigation to radio buttons using arrow keys, items in a combo box, list views, or check boxes must not automatically select the item and/or change focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	OnChange events or equivalents must not act as automatic selectors in controls, thus preventing the user from changing a selection
Testing Method	<ul style="list-style-type: none"> • Arrow keys or tab keys should navigate in the specified controls. • Determine whether all items can be selected, whether it is a list box, radio button, or check box without auto-selection

Section 508 Requirement 1194.21.a.12	When focus changes visually to a new frame/pane or a logical place on the screen, a keystroke must be available to move focus if a well-defined visual focus does not occur.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Have single standard keystroke capability to move to frames or panes on a screen
Testing Method	<ul style="list-style-type: none"> • CTRL + Tab or F6 are standard windows keystrokes to move forward to frames and panes. • Shift plus CTRL + TAB or Shift + F6 normally move backward to frames and panes.

Changes after Selecting a Button/Link

Section 508 Requirement 1194.21.c.1	When selected, interface elements (i.e. button/link) must move focus to the resultant action of that element (e.g. selecting a folder moves focus to Open File dialog box).
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Focus must move to the result of the action selected.
Testing Method	<ul style="list-style-type: none">• Once a control is selected, see if there is a well-defined visual focus present• If not, tab once to see refocusing.• Any other destination other than the intended focus is failing.

Changes after a Search is Executed

Section 508 Requirement 1194.21.c.2	When a Search is executed, the focus must move to the results of the search, i.e., how many hits or no hits. The next tab must move to the first successful "hit" or back to Search files if no hits are found.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	After a search is executed, the focus must go to the first hit link or a message confirming how many/no hits were attained.
Testing Method	<ul style="list-style-type: none">• Select the Search button and see where it focuses• Press tab once to see if the focus refocuses on the results.

Keyboard/Voice Control

Section 508 Requirement 1194.21.c.6	Focus to usable parts of an application/screen must be attained using keyboard/voice commands.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Keystrokes or voice input must be available to navigate to any portion of the screen that provides information necessary for an action.
Testing Method	Use keystrokes or voice to attain focus on all informational and input areas of a screen.

Section 508 Requirement 1194.21.f.2	AT must be able to attain focus to textual elements in order to speak or gain focus.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Speaking textual elements and tracking to text must be made available to the assistive technologies.
Testing Method	Tab indices must be assigned to textual elements and thus be "tabbable" when navigating through screens.

Section 508 Requirement 1194.22.n.2	Keyboard users must get focus to all controls, labels, directions, and cues.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Focus must be visible on all controls, directions, and cues.
Testing Method	<ul style="list-style-type: none"> • Navigate through an application • See whether there is a well-defined visual focus on all directions, controls, and cues.

Concurrent

Section 508 Requirement 1194.21.c.7	Focus cannot be changed in two places concurrently. That is, selecting an action for a checkbox, for example, cannot change the status of other elements on screen.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Focus can only be produced by a single action. Multiple simultaneous focal points must not be used.
Testing Method	Test to see whether highlights and or focal points are shown in multiple areas of a screen.

Well-Defined Visual Focus

Section 508 Requirement 1194.21.d.2	Navigation to controls must result in a well-defined visual focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	There must be a visible cursor, border, highlight, or some other indication to show the focus is on the screen.
Testing Method	<p>Once a control is selected...</p> <ul style="list-style-type: none"> • See if there is a well-defined visual focus present • If not, tab once to see refocusing. Any other destination other than the intended focus is failing.

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Section 508 Requirement 1194.22.I.2	Any content or interface element must have a well-defined visual focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Content and interface elements produced by scripting must have focused text equivalents.
Testing Method	Navigate to the content and interface elements to see whether a well-defined visual focus is present.

*See also: Tab Index
 Tab Order

Pop-Up Messages

Speak Immediately

Section 508 Requirement 1194.21.I.5	The information within the pop-up should speak immediately through a screen reader.
Supported By	JAWS
Recommended Evaluation Criteria	Any pop-up message must speak immediately and completely through the screen reader
Testing Method	<p>When a pop-up message appears, wait to hear what the screen reader says. If it does not speak all information present, use the JAWS command INS + B to see whether additional information is spoken or whether the information spoken can be repeated.</p> <p>The pop-up must have a well defined visual focus. This is apparent by the title bar being highlighted or a control having focus.</p>

Receive Focus

Section 508 Requirement 1194.21.I.6	The pop-up should receive focus for screen magnification software.
Supported By	MAGic
Recommended Evaluation Criteria	Any pop-up must receive automatic focus.
Testing Method	The pop-up must have a well defined visual focus. This is apparent by the title bar being highlighted or a control having focus.

Text Size

Section 508 Requirement 1194.21.l.7	Text in a pop-up should be able to be increased in size through operating system settings.
Supported By	MAGic
Recommended Evaluation Criteria	Font size and colors must be configurable through operating system functions.
Testing Method	<ul style="list-style-type: none">• Use the Windows display settings to choose Appearance/Advanced.• Choose Message Box or other windows elements to change the font, font size and/or colors.

Search

Move Focus to Results

Section 508 Requirement 1194.21.c.2	When a Search is executed, the focus must move to the results of the search, i.e., how many hits or no hits. The next tab must move to the first successful "hit" or back to Search files if no hits are found.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	After a search is executed, the focus must go to the first hit link or a message confirming how many/no hits were attained.
Testing Method	<ul style="list-style-type: none">• Select the Search button and see where it focuses• Press tab once to see if the focus refocuses on the results.

Time-Out

Informing Users

Section 508 Requirement 1194.22.p.1	If there is a "time-out" feature, users must be advised up-front in the application that it exists.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	There must be on screen documentation or a separate Help screen that describes the time-out feature.
Testing Method	Look for documentation at the beginning of an application, detailing the time-out capability

Pop-Up Message

Section 508 Requirement 1194.22.p.2	The time-out message must pop-up, speak, and get focus.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	The time-out message must be accessible to the AT when displayed.
Testing Method	When the message appears, verify that it speaks/has focus.

Requesting Extension

Section 508 Requirement 1194.22.p.4	If users time-out, they must have the capability to return easily to the last addressed page.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Once the application has timed-out, the user must be able to return (within 3 keystrokes) to the last addressed page.
Testing Method	Navigate back to the discontinued page after timing-out within 3 keystrokes. Ensure that the instructions are clear on how to get back where you were.

Animation and Multimedia

Animation

Must be Spoken

Section 508 Requirement 1194.21.h.1	Screen readers must be able to speak any animation or describe the animation that is displayed.
Supported By	JAWS
Recommended Evaluation Criteria	Screen readers must either speak or describe any animation displayed.
Testing Method	Navigate to/through a screen with animation. All content of the animation must be accessible to the screen reader.

Avoid Conflicts with Screen Reader

Section 508 Requirement 1194.21.h.2	Animation speech must not conflict with the screen reader's speech engine.
Supported By	JAWS
Recommended Evaluation Criteria	If inherent speech is provided by the animation or application and not made available to the screen reader, all functionality of a screen reader, like "repeat what was spoken", must be supplied.
Testing Method	Navigate to a screen with animation. Use a screen reader to listen to the page. If the screen reader is not speaking properly, listen for the animation to speak. Ensure that either way, the animation is meaningful.

Changing Text and Colors

Section 508 Requirement 1194.21.h.3	AT users should have the ability to change text size and colors of any text associated with animations or be presented textually in a non-animated manner.
Supported By	MAGic
Recommended Evaluation Criteria	Change text size and color including foreground and background animations. Addable text must describe animation and be customizable for color/font size.
Testing Method	Use the browser's view menu to change the font size and display colors to change foreground and background colors.

Ability to Stop or Control

Section 508 Requirement 1194.21.h.4	AT users must be able to readily stop animation and be able to access a non-animated mode.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	There must be a keystroke, button or control to turn off the animation. When this is invoked an alternative text description must be supplied.
Testing Method	Use the keyboard or voice to stop animation and present information in an alternative format.

Section 508 Requirement 1194.21.h.6	Voice Recognition users must have a means to control the animation
Supported By	Dragon
Recommended Evaluation Criteria	The use of voice input must be available to control the animation by stopping it or slowing it down.
Testing Method	Use voice input only to stop animation, slow it down, control speaking or any other characteristics inherent within the animation.

Speech

Section 508 Requirement 1194.21.h.5	If speech accompanies an animation, there must be a synchronized addition of text that is functionally equivalent to the displayed animation for users who are deaf/hard of hearing.
Supported By	JAWS Deaf/Hard of Hearing
Recommended Evaluation Criteria	Speech and text must appear on the same screen and be synchronized.
Testing Method	Test to see whether any speech associated with an animation also has text that is directly associated with the animation on the screen.

Blinking

Ability to Stop

Section 508 Requirement 1194.21.j.1	Low vision users who also use screen readers must be able to understand the selection of the color names through the screen reader by using the keyboard to navigate to them.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Any color selection must be keyboard navigable for selection purposes.
Testing Method	Use the keyboard to navigate through color palettes or other types of pick lists.

Index to SSA's Guide to Applying Section 508 Standards

Section 508 Requirement 1194.21.k.1	Any on-screen flashing/blinking must have the ability to be disabled.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	A control or setting must be provided to adjust or stop flashing/blinking.
Testing Method	Use the keyboard to adjust or stop flashing/blinking elements on a screen.

Text Alternative

Section 508 Requirement 1194.21.k.2	Any flashing/blinking that conveys meaning must have an accessible text alternative.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	When stopped or adjusted the flashing/blinking must have a text description of the action.
Testing Method	Use the keyboard and screen reader to test information being conveyed by flashing/blinking elements.

Red

Section 508 Requirement 1194.22.j.2	All colors depicted for color choices must have accompanying text descriptions.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Any color palettes or other means of selecting colors must have alt text relating the color image to indicated the shade of color.
Testing Method	Use the screen reader to access a color palette or list of colors and listen for the text equivalent.

Flashing and Flicker

*See also: Blinking

Multimedia

Text Alternative

Section 508 Requirement 1194.22.b.1	Multimedia presentation must have a text alternative.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Any type of multimedia presentation must have a text alternative.
Testing Method	Use AT to access the content of multimedia presentations.

Ability to Change Text/Color

Section 508 Requirement 1194.22.b.2	Text must be sizable; background and foreground colors must be modifiable.
Supported By	MAGic
Recommended Evaluation Criteria	Multimedia elements must be sizable and colors must be modifiable. If this is not possible, then equivalent text alternatives must be provided.
Testing Method	Use the Windows Display/Appearance/Advance options to size and change the colors.

Ability to Control via Keyboard/Voice

Section 508 Requirement 1194.22.b.3	Multimedia presentation must be able to be stopped by configuration settings or keyboard control.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	User preferences or keyboard access must be provided to stop or create an alternative appearance for multimedia presentation.
Testing Method	Use the keyboard or configuration settings to stop or create an alternative view for multimedia presentations.

Section 508 Requirement 1194.22.b.6	Voice input users must be able to control the presentation using voice.
Supported By	Dragon
Recommended Evaluation Criteria	Voice input must be able to start or stop a presentation and to control any other parts of the presentations (volume, speed, etc.)
Testing Method	Use voice input to control all aspects of a multimedia presentation.

Keyboard Access

Section 508 Requirement 1194.21.a.10	The keyboard must be used to open list boxes, open and close tree structures, and navigate to the next logical item in proper order ²¹ .
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Standard windows-based keystrokes must be used for consistency to navigating standard controls.
Testing Method	Use ALT + DownArrow or F4 to open list boxes; plus key, space bar or an equivalent opens tree structures; arrow keys or tabs navigate

²¹ See Appendix A for keyboard usage requirements

Sound Association

Section 508 Requirement 1194.22.b.4	Sound or voice associated with presentations must have the ability to be turned off.
Supported By	JAWS
Recommended Evaluation Criteria	Sound or voice associated with multimedia presentations must have a keystroke or configuration setting to turn it on or off.
Testing Method	Use the keyboard or configuration setting to turn speech and/or sounds that accompany multimedia presentations on or off.

Text-Only Equivalent Pages

Equivalent Content

Section 508 Requirement 1194.21.a.3	Tab indices must be assigned to significant ²² text information, directional cues, and error text information, or a comparable access method must be attained.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	All information necessary to complete a form or application must retain focus so that the information is seen or spoken.
Testing Method	<ul style="list-style-type: none">• Tab through text areas to see static text areasOR• Listen to focus on static text areas

Equivalent Navigation

Section 508 Requirement 1194.21.f.2	AT must be able to attain focus to textual elements in order to speak or gain focus.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Speaking textual elements and tracking to text must be made available to the assistive technologies.
Testing Method	Tab indices must be assigned to textual elements and thus be "tabbable" when navigating through screens.

²² "Significant" is defined as information that is absolutely necessary in order to productively and accurately fill out information on a form.

Browsers

Menu Bars and Toolbars

Section 508 Requirement 1194.21.b.1	Menu bars and toolbars cannot be removed unless equivalent functionality is provided as an alternative.
Supported By	JAWS MAGic
Recommended Evaluation Criteria	Menu bars must be present or contain alternatives for Accessibility Options or View options.
Testing Method	<ul style="list-style-type: none">• Ignore colors, fonts and font sizes from the browser. Size the text from small to large through the browser.• Be able to change colors and fonts through the browser.

Reserved Words

Section 508 Requirement 1194.21.a.9	Browser reserved words, like but not limited to Help, Favorites, and View, if used within the application must have a modifier word providing voice input users a unique command.
Supported By	Dragon
Recommended Evaluation Criteria	Application developed keywords must not conflict with browser reserved words.
Testing Method	Use voice commands to test developed keywords.

Non-HTML Formats

ActiveX Controls

Tracking with Braille Displays

Section 508 Requirement 1194.22.m.4	PDF documents and forms, Java applets, ActiveX controls and any other plug-ins must track with Braille displays.
Supported By	JAWS
Recommended Evaluation Criteria	The Braille display must display position on the screen and also display Braille equivalence to speech.
Testing Method	Look at the Braille display or JAWS Braille Viewer to verify that Braille is being displayed that supports JAWS speech and positional information is shown.

Must Meet Software Requirements

Section 508 Requirement 1194.22.m.6	ActiveX controls must comply with all applicable section of 1194.24.a-l.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Applications that include ActiveX controls (Intranet eForms) must comply with the key elements of 1194.21, including but not limited to keyboard access, focus, exposure of elements, color changing, and access to electronic forms apply. Any added "dll's" to enhance speech must be compatible and not conflict with the screen reader. Compliant operation with Braille displays is also mandatory.
Testing Method	Use normal testing methodologies for testing application when looking at ActiveX controls. Pay particular attention to Braille display as this has been problematic in the past. There are some JAWS configuration manager settings that can be used to enhance accessibility. ²³

e-Learning and Flash Players

*See also: Multimedia
 Plug-Ins

²³ See ActiveX Manager.doc

Java Applets

Tracking with Braille Displays

Section 508 Requirement 1194.22.m.4	PDF documents and forms, Java applets, ActiveX controls and any other plug-ins must track with Braille displays.
Supported By	JAWS
Recommended Evaluation Criteria	The Braille display must display position on the screen and also display Braille equivalence to speech.
Testing Method	Look at the Braille display or JAWS Braille Viewer to verify that Braille is being displayed that supports JAWS speech and positional information is shown.

Must Meet Software Requirements

Section 508 Requirement 1194.22.m.5	Java applets must comply with 1194.21.a-l
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Java applets must speak, track and be voice accessible as any other application or screen element.
Testing Method	<ul style="list-style-type: none">• The current Sun JRE and Java Access Bridge must be installed properly for JAWS and MAGic to speak and track properly. See the Sun Accessibility web page to understand configuration issues.²⁴• For Oracle based applets, the current version of the JInitiator and proper installation of the files contained in the Java Access Bridge are essential. See the Oracle white paper on installation guidelines.²⁵ <p>Test these applets with the Assistive Technologies using the same testing methodologies for application testing , stressing keyboard access, focus, elements being exposed color changing, electronic forms, etc.</p>

²⁴ <http://www.sun.com/access/>

²⁵ <http://www.oracle.com/accessibility/apps02.html>

PDF

Logical Reading Order

Section 508 Requirement 1194.22.m.1	PDF forms meant to be printed and not filled in online must speak in a logical reading order. That is, fields must speak as fields in the order they appear on the form.
Supported By	JAWS
Recommended Evaluation Criteria	Non-fillable PDF forms must speak from left to right and top to bottom. Multi-line fields take precedence in the reading order and therefore, must speak its content in it entirety before subsequent fields. See 344ha-520.pdf.
Testing Method	Use the Down Arrow key to navigate through the application. The screen reader must speak non-fillable forms in a field by field format in a left to right and top to bottom navigational flow.

Clarity when Magnified

Section 508 Requirement 1194.22.m.2	PDF documents and forms must retain the same clarity with screen magnification software, as they do when not magnified.
Supported By	MAGic
Recommended Evaluation Criteria	When magnification is increased, characters must not be blurred and images no pixilated.
Testing Method	<ul style="list-style-type: none">• Verify that smoothing is turned on through the Adobe Reader or Acrobat program.• Navigate through the application with screen magnification levels at 6-8X.• Check for blurring or difficulty in seeing the document or form.

Must Meet Software Requirements

Section 508 Requirement 1194.22.m.3	PDF fillable forms must comply with 1194.21.a-l.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	All software requirements apply to a fillable, including but not limited to keyboard access, a well-defined visual focus, all the elements exposed to the assistive technology, ability to changes colors and electronic form compatibility with AT.
Testing Method	Tab through the form to ensure that all elements speak track and are accessible by voice input. A PDF fillable form follows the same Testing Method as a testing an application.

Tracking with Braille Displays

Section 508 Requirement 1194.22.m.4	PDF documents and forms, Java applets, ActiveX controls and any other plug-ins must track with Braille displays.
Supported By	JAWS
Recommended Evaluation Criteria	The Braille display must display position on the screen and also display Braille equivalence to speech.
Testing Method	Look at the Braille display or JAWS Braille Viewer to verify that Braille is being displayed that supports JAWS speech and positional information is shown.

Plug-Ins

Tracking with Braille Displays

Section 508 Requirement 1194.22.m.4	PDF documents and forms, Java applets, ActiveX controls and any other plug-ins must track with Braille displays.
Supported By	JAWS
Recommended Evaluation Criteria	The Braille display must display position on the screen and also display Braille equivalence to speech.
Testing Method	Look at the Braille display or JAWS Braille Viewer to verify that Braille is being displayed that supports JAWS speech and positional information is shown.

Must Meet Software Requirements

Section 508 Requirement 1194.22.m.7	Any other plug-ins, including Flash, e-Learning players, or multimedia programs must also be compliant with 1194.21 software requirements.
Supported By	JAWS MAGic Dragon
Recommended Evaluation Criteria	Any current or future plug-ins must comply with all elements of the software requirements.
Testing Method	Test plug-ins like any other application or screen element.