VA Section 508 Platform Hardware Standards Checklist

This checklist is for Chapter 4 of the final rule. When internal reference numbers are used (i.e. 402.2) they refer to the specific paragraph in the final rule 401.1 (Chapter 4 Section 402 subsection 2). External reference numbers are contained in Chapter 7: Reference Standards of the final rule. The final rule is located at: https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/final-rule

Scope. The requirements of Chapter 4 shall apply to Information and Communication Technology (ICT) that is hardware where required by 508 Chapter 2 (Scoping Requirements), 255 Chapter 2 (Scoping Requirements), and where otherwise referenced in any other chapter of the Revised 508 Standards or Revised 255 Guidelines.

EXCEPTION: Hardware that is assistive technology shall not be required to conform to the requirements of this chapter.

E402.1 General. ICT with closed functionality shall be operable without requiring the user to attach or install assistive technology other than personal headsets or other audio couplers, and shall conform to Section 508, Chapter 4, 402.

E402.2 Speech-Output Enabled, General. ICT with a display screen shall be speech-output enabled for full and independent use by individuals with vision impairments.

EXCEPTIONS:

1. Variable message signs conforming to Section 508, Chapter 4, 402.5 shall not be required to be speech-output enabled.

2. Speech output shall not be required where ICT display screens only provide status indicators and those indicators conform to Section 508, Chapter 4, 409.

3. Where speech output cannot be supported due to constraints in available memory or processor capability, ICT shall be permitted to conform to Section 508, Chapter 4, 409 in lieu of 402.2.

4. Audible tones shall be permitted instead of speech output where the content of user input is not displayed as entered for security purposes, including, but not limited to, asterisks representing personal identification numbers.

5. Speech output shall not be required for: the machine location; date and time of transaction; customer account number; and the machine identifier or label.

6. Speech output shall not be required for advertisements and other similar information unless they convey information that can be used for the transaction being conducted.

E205.4 Accessibility Standard. Electronic content shall conform to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference). For referenced standards, including the Web Content Accessibility Guidelines and Section 255 of the Communications Act, See Chapter 7 - https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/final-rule/text-of-the-standards-and-guidelines#E102-referenced-standards. The Web Content Accessibility Guidelines (WCAG) references are located at http://www.w3.org/WAI/WCAG20/quickref/

Severity Level Grading Criteria

Critical: This issue results in severe barriers for users with disabilities, either because content is blocked or functionality is inoperable. It causes global issues across the project because people with disabilities are unable to use it. This violation must be resolved before content/functionality can be considered fully compliant. Remediation should be a top priority.

High: This issue results in significant barriers for individuals with disabilities. Some important content/functionality is not accessible. Users of Assistive Technology may not be able to access all content and/or functionality. Remediation should be a priority.

Medium: This issue results in some barriers for individuals with disabilities but will not prevent them from accessing fundamental elements or content. This violation must be resolved before content/functionality can be considered fully compliant.

Low: This issue causes minimal impact for users with disabilities. This may be a technical violation of the law but doesn't make the content inaccessible. This content/functionality should be remediated in order to be considered fully compliant, but remediation can be given a low priority.

Hardware Success Criteria Checklist

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
402.2.1	HIGH	**Information Displayed On-Screen**. Speech output shall be provided for all information displayed on-screen. • Is text being displayed on-screen? • Is the on-screen text also being broadcast through speech-output enabled hardware?	
402.2.2	CRITICAL	**Transactional Outputs**. Where transactional outputs are provided, the speech output shall audibly provide all information necessary to verify a transaction. • Is speech output being used to convey transactional information? • Does all transactional information displayed on the screen have the ability to be provided through speech output?	
402.2.3	CRITICAL	**Speech Delivery Type and Coordination.** Speech output shall be delivered through a mechanism that is readily available to all users, including, but not limited to, an industry standard connector or a telephone handset. Speech shall be recorded or digitized human, or synthesized. Speech output shall be coordinated with information displayed on the screen • Does the user have the ability to connect to the audio information via an industry standard connector? • If sound is used, is it coordinated with information displayed on the screen? • If speech output is used, is the voice recorded or digitized human or synthesized?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
402.2.4	MEDIUM	**User Control**. Speech output for any single function shall be automatically interrupted when a transaction is selected. Speech output shall be capable of being repeated and paused. • Is speech output automatically interrupted when a transaction is selected? • Does the user have the ability to pause the speech output? • Does the user have the ability to replay the speech output?	
402.2.5	MEDIUM	**Braille Instructions.** Where speech output is required by Section 508, Chapter 4, 402.2, braille instructions for initiating the speech mode of operation shall be provided. Braille shall be contracted and shall conform to 36 CFR part 1191, Appendix D, Section 703.3.1. EXCEPTION: Devices for personal use shall not be required to conform to Section 508, Chapter 4, 402.2.5. • Is speech output required by Section 508, Chapter 4, 402.2? • Do any of the exceptions not apply? • Are braille instructions provided on how to initiate speech mode of operation? • If braille is uncontracted does it conform to 36 CFR part 1191, Appendix D, Section 703.3.1?	
402.3.1	MEDIUM	**Private Listening**. Where ICT provides private listening, it shall provide a mode of operation for controlling the volume. Where ICT delivers output by an audio transducer typically held up to the ear, a means for effective magnetic wireless coupling to hearing technologies shall be provided. • Is private listening provided? • Does private listening provide a method to control the volume?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
402.3.2	HIGH	**Non-private Listening.** Where ICT provides non-private listening, incremental volume control shall be provided with output amplification up to a level of at least 65 dB. A function shall be provided to automatically reset the volume to the default level after every use. • Does the ICT provide non-private listening? • Is the volume controllable up to at least 65dB?	
402.4	MEDIUM	**Characters on Display Screens**. At least one mode of characters displayed on the screen shall be in a sans serif font. Where ICT does not provide a screen enlargement feature, characters shall be 3/16 inch (4.8 mm) high minimum based on the uppercase letter "I". Characters shall contrast with their background with either light characters on a dark background or dark characters on a light background.. • Is at least one mode of characters displayed in a sans serif font? • If the ICT does not provide a screen enlargement feature, are the characters displayed on the screen at least 3/16"? • Is the contrast sufficient enough that allows a user to distinguish the letters on the background?	
402.5	LOW	**Characters on Variable Message Signs**. Characters on variable message signs shall conform to section 703.7 Variable Message Signs of ICC A117.1-2009 (incorporated by reference, see 702.6.1). • Is the information displayed on the sign large enough to read? • Does the sign flicker at an unhealthy rate, e.g. more than three flashes per second? • Can the user pause the scrolling, moving, or blinking content? • Is there information on the sign conveyed through color only?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
403.1	HIGH	**General.** Where provided, biometrics shall not be the only means for user identification or control. EXCEPTION: Where at least two biometric options that use different biological characteristics are provided, ICT shall be permitted to use biometrics as the only means for user identification or control. • Are biometrics required to log into the equipment? • Are there at least two options of biometric authentication using different biological characteristics present? • If there is only one biometric authentication provided is there another method to access the equipment?	
404.1	LOW	**General.** ICT that transmits or converts information or communication shall not remove non-proprietary information provided for accessibility or shall restore it upon delivery. • Does the ICT transmit or convert information or communication? • Does the ICT remove non-propriety information provided for accessibility? • Does the ICT remove and not restore non-propriety information provided for accessibility?	
405.1	LOW	**General**. The same degree of privacy of input and output shall be provided to all individuals. When speech output required by 402.2 is enabled, the screen shall not blank automatically. • Does the screen blank when speech output is enabled?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
406.1	HIGH	**General.** Where data connections used for input and output are provided, at least one of each type of connection shall conform to industry standard non-proprietary formats.. • Does the equipment use data connections? • Is there at least one of each type of connection that conforms to industry standard non-proprietary formats?	
407.2	HIGH	**Contrast**. Where provided, keys and controls shall contrast visually from background surfaces. Characters and symbols shall contrast visually from background surfaces with either light characters or symbols on a dark background or dark characters or symbols on a light background. • Are there keyboard keys or controls being used? • Do the keyboard keys or controls contrast with the background? • Do the keyboard keys or controls have either light characters or symbols on a dark background or do they have dark characters or symbols on a light background?	
407.3.1	CRITICAL	**Tactilely Discernible**. Input controls shall be operable by touch and tactilely discernible without activation.. • Does the equipment have input controls? • Do the input controls provide tactilely different feel so the user understands them? • Does the user have a way of determining where certain keys are located so as to know the rest of the input control layout? • Can the user discern the tactile controls without activating them?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.3.2	HIGH	**Alphabetic Keys.** Where provided, individual alphabetic keys shall be arranged in a QWERTY-based keyboard layout and the "F" and "J" keys shall be tactilely distinct from the other keys. • Are the keys laid out in a QWERTY format? • Are the "F" and "J" keys tactilely distinct from the other keys?	
407.3.3	HIGH	**Numeric Keys.** Where provided, numeric keys shall be arranged in a 12-key ascending or descending keypad layout. The number five key shall be tactilely distinct from the other keys. Where the ICT provides an alphabetic overlay on numeric keys, the relationships between letters and digits shall conform to ITU-T Recommendation E.161 (incorporated by reference, see 702.7.1). • Is the number five key tactilely distinct from the other number keys? • Does the keyboard use an alphabetic overlay on the number keys? • Do the alphabetic overlay keys conform to ITU-T Recommendation E.161?	
407.4	HIGH	**Key Repeat.** Where a keyboard with key repeat is provided, the delay before the key repeat feature is activated shall be fixed at, or adjustable to, 2 seconds minimum. • Is there a keyboard with key repeat provided? • Is the key repeat delay adjustable to 2 seconds minimum?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.5	CRITICAL	**Timed Response.** Where a timed response is required, the user shall be alerted visually, as well as by touch or sound, and shall be given the opportunity to indicate that more time is needed. • Did the application time out without notification? • Did the timeout notification whether visually, sensory, or audibly display for less than 20 seconds? • Does the application provide a method to request more time?	
407.6	MEDIUM	**Operation.** At least one mode of operation shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum. • Can the equipment be operated with only one hand? • Does the equipment allow for operation without tight grasping, pinching, or twisting of the wrist? • Does the equipment allow for operation without requiring more than 5 pounds of force?	
407.7	LOW	**Tickets, Fare Cards, and Keycards.** Where tickets, fare cards, or keycards are provided, they shall have an orientation that is tactilely discernible if orientation is important to further use of the ticket, fare card, or keycard. • Is the orientation of the fare card, keycard, or ticket important for the use of that item? • Does fare card, keycard, or ticket have a tactilely discernable method of the cards orientation?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.8	MEDIUM	**Reach Height and Depth.** At least one of each type of operable part of stationary ICT shall be at a height conforming to 407.8.2 or 407.8.3 according to its position established by the vertical reference plane specified in Section 508, Chapter 4, 407.8.1 for a side reach or a forward reach. Operable parts used with speech output required by 402.2 shall not be the only type of operable part complying with 407.8 unless that part is the only operable part of its type. • Does the equipment have operable parts? • Does the equipment require a forward reach or a side reach? • Are there only operable parts used with speech output? • Is there more than one operable part used with speech output? • Is at least one of each type of operable part of stationary Information Communications Technology, ICT, shall be at a height conforming to 407.8.2 or 407.8.3?	
407.8.1	MEDIUM	**Vertical Reference Plane.** Operable parts shall be positioned for a side reach or a forward reach determined with respect to a vertical reference plane. The vertical reference plane shall be located in conformance to Section 508, Chapter 4, 407.8.2 or 407.8.3. • Does the equipment have operable parts? • Does the equipment require a forward reach or a side reach? • Is the equipment compliant with Section 508, Chapter 4, 407.8.2 or 407.8.3?	
407.8.1.1	MEDIUM	**Vertical Plane for Side Reach.** Where a side reach is provided, the vertical reference plane shall be 48 inches (1220 mm) long minimum. • Does the equipment have user controls? • Are the user controls within a 48 inch vertical plane?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.8.1.2	MEDIUM	**Vertical Plane for Forward Reach.** Where a forward reach is provided, the vertical reference plane shall be 30 inches (760 mm) long minimum. • In order to operate the equipment is a forward reach required? • Is the forward reach in the vertical plane 30 inches or less?	
407.8.2	MEDIUM	**407.8.2 Side Reach.** Operable parts of ICT providing a side reach shall conform to Section 508, Chapter 4, 407.8.2.1 or 407.8.2.2. The vertical reference plane shall be centered on the operable part and placed at the leading edge of the maximum protrusion of the ICT within the length of the vertical reference plane. Where a side reach requires a reach over a portion of the ICT, the height of that portion of the ICT shall be 34 inches (865 mm) maximum. • Is a side reach required to operate the equipment? • Does the required reach required to operate the equipment 34 inches or less?	
407.8.2.1	MEDIUM	**Unobstructed Side Reach.** Where the operable part is located 10 inches (255 mm) or less beyond the vertical reference plane, the operable part shall be 48 inches (1220 mm) high maximum and 15 inches (380 mm) high minimum above the floor. • Are there operable parts of the ICT? • Are the operable parts of the ICT located 10 inches or less beyond the vertical reference plane? • Is the operable part a maximum of 48 inches and a minimum of 15 inches above the floor?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.8.2.2	MEDIUM	**Obstructed Side Reach.** Where the operable part is located beyond the leading edge of the maximum protrusion within the length of the vertical reference plane, the operable part shall conform to Section 508, Chapter 4, 407.8.3.2. The maximum allowable forward rean operable part shall be 25 inches (635 mm). • Are there operable parts of the ICT? • Are the operable parts of the ICT located more than 10 inches but not more than 24 inches beyond the vertical reference plane? • Is the operable part a maximum of 46 inches and a minimum of 15 inches above the floor? • Is the operable part of the ICT located more than 24 inches beyond the vertical reference plane?	
407.8.3	MEDIUM	**Forward Reach.** Operable parts of ICT providing a forward reach shall conform to Section 508, Chapter 4, 407.8.3.1 or 407.8.3.2. The vertical reference plane shall be centered, and intersect with, the operable part. Where a forward reach allows a reach over a portion of the ICT, the height of that portion of the ICT shall be 34 inches (865 mm) maximum. • Are there operable parts of the ICT? • Are the operable parts of the ICT centered with the vertical reference plane? • Is the operable part a maximum of 34 inches high?	
407.8.3.1	MEDIUM	**Unobstructed Forward Reach.** Where the operable part is located at the leading edge of the maximum protrusion within the length of the vertical reference plane of the ICT, the operable part shall be 48 inches (1220 mm) high maximum and 15 inches (380 mm) high minimum above the floor. • Are there operable parts of the ICT? • Are the operable parts of the ICT located at the leading edge of the vertical reference plane? • Is the operable part a maximum of 48 inches and a minimum of 15 inches above the floor?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.8.3.2	MEDIUM	**Obstructed Forward Reach.** Where the operable part is located beyond the leading edge of the maximum protrusion within the length of the vertical reference plane, the operable part shall conform to Section 508, Chapter 4, 407.8.3.2. The maximum allowable forward rean operable part shall be 25 inches (635 mm). • Are there operable parts of the ICT? • Are the operable parts of the ICT located beyond the leading edge of the vertical reference plane? • Is the maximum allowable forward reach to an operable part 25 inches?	
407.8.3.2.1	MEDIUM	**Operable Part Height for ICT with Obstructed Forward Reach.** The height of the operable part shall conform to Table 407.8.3.2.1. Reach Depth: Less than 20 inches (510 mm) Operable Part Height: (1220 mm) maximum Reach Depth: 20 inches (510 mm) to 25 inches (635 mm); Operable Part Height: 44 inches (1120 mm) maximum • Are there operable parts of the ICT? • Does the ICT conform to Table 407.8.3.2.1?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
407.8.3.2.2	MEDIUM	**Knee and Toe Space under ICT with Obstructed Forward Reach.** Knee and toe space under ICT shall be 27 inches (685 mm) high minimum, 25 inches (635 mm) deep maximum, and 30 inches (760 mm) wide minimum and shall be clear of obstructions. **EXCEPTIONS:** 1. Toe space shall be permitted to provide a clear height of 9 inches (230 mm) minimum above the floor and a clear depth of 6 inches (150 mm) maximum from the vertical reference plane toward the leading edge of the ICT. 2. At a depth of 6 inches (150 mm) maximum from the vertical reference plane toward the leading edge of the ICT, space between 9 inches (230 mm) and 27 inches (685 mm) minimum above the floor shall be permitted to reduce at a rate of 1 inch (25 mm) in depth for every 6 inches (150 mm) in height.	
408.2	CRITICAL	**Visibility.** Where stationary ICT provides one or more display screens, at least one of each type of display screen shall be visible from a point located 40 inches (1015 mm) above the floor space where the display screen is viewed. • Is there more than one display? • Is at least one display at least 40 inches above the floor?	
408.3	CRITICAL	**Flashing.** Where ICT emits lights in flashes, there shall be no more than three flashes in any one-second period. EXCEPTION: Flashes that do not exceed the general flash and red flash thresholds defined in WCAG 2.0 (incorporated by reference, see 702.10.1) are not required to conform to 408.3. • Is flashing displayed on the ICT? • Are there more than three flashes in any one-second period?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
412.2.1	CRITICAL	**Volume Gain for Wireline Telephones.** Volume gain conforming to 47 CFR 68.317 shall be provided on analog and digital wireline telephones. • Are there analog or digital wireline telephones? • Do the analog or wireline telephones have volume gain? • Does the volume gain conform to 47 CGF 68.317?	
412.2.2	CRITICAL	**Volume Gain for Non-Wireline ICT**. A method for increasing volume shall be provided for non-wireline ICT. • Does the ICT include non-wireline? • Is there a method to increase/decrease volume provided?	
412.3	HIGH	**Interference Reduction and Magnetic Coupling.** Where ICT delivers output by a handset or other type of audio transducer that is typically held up to the ear, ICT shall reduce interference with hearing technologies and provide a means for effective magnetic wireless coupling in conformance with 412.3.1 or 412.3.2. • Does the ICT deliver output via handset or other type of transducer? • Is the handset or transducer held up to the ear? • Does the ICT reduce interference with hearing technologies? • Does the ICT allow for magnetic coupling in conformance with 412.3.1 or 412.3.2?	
412.3.1	MEDIUM	**Wireless Handsets.** ICT in the form of wireless handsets shall conform to ANSI/IEEE C63.19-2011 (incorporated by reference, see 702.5.1). • Is there a wireless handset? • Does the handset conform to ANSI/IEEE C63.19-2011?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
412.3.2	MEDIUM	**Wireline Handsets.** ICT in the form of wireline handsets, including cordless handsets, shall conform to TIA-1083-B (incorporated by reference, see 702.9.1). • Is there a wireline handset? • Does the wireline handset conform to TIA-1083-B?	
412.4	MEDIUM	**Digital Encoding of Speech.** ICT in IP-based networks shall transmit and receive speech that is digitally encoded in the manner specified by ITU-T Recommendation G.722.2 (incorporated by reference, see 702.7.2) or IETF RFC 6716 (incorporated by reference, see 702.8.1). • Does the ICT in IP-based networks transmit and receive speech? • Is the digital encoding of speech encoded in the manner specified by ITU-T Recommendation G.722.2 or IETF RFC 6716?	
412.6	HIGH	**Caller ID.** Where provided, caller identification and similar telecommunications functions shall be visible and audible. • Does the equipment provide caller ID information visually? • Does the equipment provide caller ID information audibly?	
412.7	HIGH	**Video Communication.** Where ICT provides real-time video functionality, the quality of the video shall be sufficient to support communication using sign language. • Does the ICT provide real-time video? • Does the ICT provide quality video so as to be able to see sign language?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
413.1.1	CRITICAL	**Decoding and Display of Closed Captions.** Players and displays shall decode closed caption data and support display of captions. • Does the players and display provide for closed captions? • Does the equipment support display of closed captions? • Is the equipment capable of decoding closed captions?	
413.1.2	CRITICAL	**Pass-Through of Closed Caption Data. Cabling and ancillary equipment shall pass through caption data.** • Is closed captioning provided? • Does the cabling and ancillary allow closed captioning?	
414.1.1	MEDIUM	**Digital Television Tuners.** Digital television tuners shall provide audio description processing that conforms to ATSC A/53 Digital Television Standard, Part 5 (2014) (incorporated by reference, see 702.2.1). Digital television tuners shall provide processing of audio description when encoded as a Visually Impaired (VI) associated audio service that is provided as a complete program mix containing audio description according to the ATSC A/53 standard. • Are there audio descriptions included with the Digital Television Tuners? • Are the audio descriptions controllable? • Does the audio descriptions comply with ATSC A/53 standard?	
414.1.2	MEDIUM	**Other ICT.** ICT other than digital television tuners shall provide audio description processing. • Does the ICT provide audio description processing? • Is audio description able to be controlled via keyboard only commands? • Does audio description display visually as well as audible?	

REFERENCE #	SEVERITY LEVEL	HARDWARE SUCCESS CRITERIA	YES / NO / NOT PRESENT
415.1.1	MEDIUM	**Caption Controls.** Where ICT provides operable parts for volume control, ICT shall also provide operable parts for caption selection. • Does the application provide volume control? • Is there a method to control the caption selection?	
415.1.2	MEDIUM	**Audio Description Controls.** Where ICT provides operable parts for program selection, ICT shall also provide operable parts for the selection of audio description. • Are there operable parts for program selection? • Is there a way of controlling these operable parts via keyboard only? • Does the program provide audio description for operable parts for the selection of audio description?	