

## Welcome!

### Section 508 Best Practices Webinar Series

- The session is scheduled to begin at 1:00pm Eastern Time.
- We will be testing sound quality periodically.
- Audio and visuals are provided through the on-line webinar system. This session is closed captioned. Individuals may also listen via telephone by dialing:  
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- \*\* Closed Captioning is not visible via the Mobile App and has limited accessibility for screen reader and Voiceover users.

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- You may type and submit questions in the Chat Area Text Box or press Control-M and enter text in the Chat Area.
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- If you are listening by phone and not logged in to the webinar, you may ask questions by emailing them to: [info@adaconferences.org](mailto:info@adaconferences.org)
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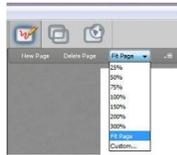
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The default is "fit page".



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- Each panel may be detached using the  icon in the upper right corner of each panel.

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## Welcome

This webinar is part of a series showcasing "Best Practices in Federal Section 508 Implementation". Other presentations can be viewed at:

- [www.adaconferences.org/CIO/archives](http://www.adaconferences.org/CIO/archives) and
- [fedlink.org/allqual/resource-shared-webinars.cfm](http://fedlink.org/allqual/resource-shared-webinars.cfm)
- A best practice is a policy, process, procedure or technique proven effective over time and repeatable by multiple agencies.
- A best practice is generalized so that diverse agencies may use it in their own organizations but specific enough to provide useful guidance and instruction.
- The CIO Council's Accessibility Community of Practice has published a library of 508 Best Practices at [www.Section508.gov](http://www.Section508.gov).

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## Section 508 Best Practices Webinar Dates for 2017

Webinars dates are bi-monthly during 2017:

- January, March, May, July, September, November

Next Webinar: November 28, 2017

- Topic: W3C WCAG 2.0 Resources
- Time: 1:00 to 2:30 p.m. Eastern

This webinar series is a collaborative program between the Accessibility Community of Practice of the CIO Council and The U.S. Access Board.

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## Revised Section 508 Chapter 5 Software (including Mobile)

Bruce Bailey, IT Accessibility Specialist  
Timothy Creagan, Senior Accessibility Specialist

September 26, 2017

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## This Webinar is Fifth in a Series

Introduction and overview of the Revised Standards:

- Section 508 Refresh — ICT Final Standards and Guidelines (2017)
  - [January 31, 2017 - program 11610](#)

Discussion of the new requirements for documents and websites:

- WCAG 2.0 and the Revised Section 508 Standards
  - [March 28, 2017 - program 110612](#)

Overall comparison, with a focus on application and scoping:

- Old versus New: Original Section 508 Standards (2000) compared to the Revised Section 508 Standards (2017)
  - [May 30, 2017 - program 110613](#)

Overview of hardware requirements, with comparison to original 508 Standards:

- Revised Section 508 Chapter 4 Hardware (including Mobile)
  - [July 25, 2017 - program 110614](#)

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## Agenda

Today's webinar focuses on the software accessibility requirements from Chapter 5:

- How do the Revised 508 Standards (2017) compare with the Original 508 Standards (2000)?
- What is familiar? What has changed? What is new?
- How do the Revised 508 Standards software requirements apply to mobile?

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## Overview of Major Changes

Revised Standards are organized by function, not product type.

Revised Standards make reference to external industry consensus standards as needed.

Formatting of Revised Standards borrows from industry consensus standards.

- Seven chapters, Chapter 5 is Software
- Sections in each chapter use title and a three digit identifier
  - E.g., 502 Interoperability With Assistive Technology

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## Structure and Formatting of the Revised Standards

- The first section in each chapter is a general charging statement
- Sections have subsections, using a decimal
  - The first subsection in each section is a general statement
  - Subsections have the substantive requirements
  - Subsections may have exceptions (specific to that subsection)
  - Subsections may have their own subsections
- Examples:
  - 501 General
  - 501.1 Scope
  - 502 Interoperability With Assistive Technology
  - 502.1 General
  - 502.2 Documented Accessibility Features

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## Structure and Formatting, Continued

Revised Standards address two statutes:

- Section 508 of the Rehabilitation Act
- Section 255 of the Telecommunications Act

Two different Chapters 1 and 2:

- Application and Administration (E101 through E103)
- Scoping Requirements (E201 through E208)
- Application and scoping precede technical requirements

Chapters 1 and 2 apply to all ICT, including software

- E.g., E202.3 National Security Systems
  - Applies to software that is part of a weapons control system
  - This exception is found in Chapter 2, *not* Chapter 5

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## High Level Comparison

### Original (2000)

- 1194.2 Application
  
- 1194.21 Software applications and operating systems

### Revised (2017)

- 508 Chapter 2: Scoping Requirements
  - E207 Software
- Chapter 5: Software
  - Specific requirements for operating systems distinct from those for other types of software

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## Scoping of Software from Chapter 2

E207 Software

- E207.1 *General*. Where components of ICT are software and transmit information or have a user interface, such components shall conform to E207 and the requirements in Chapter 5.

EXCEPTION: Software that is assistive technology and that supports the accessibility services of the platform shall not be required to conform to the requirements in Chapter 5.

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## Software Accessibility Requirements Start with WCAG 2.0 Level AA

### E207 Software

- E207.2 *WCAG Conformance*. User interface components, as well as the content of platforms and applications, shall conform to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1).

### Exceptions to E207.2 and the requirements in E207.2.1 and E207.3:

- Software that is assistive technology need not conform
- Four SC relating to pages within a set of web pages do not apply
- Directs readers to substitute “web page” for “software”
- Where non-web software requires multiple steps to accomplish an activity, the intent behind WCAG 2.0 Conformance Requirement 3 Complete Processes applies

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## Ten of Twelve Original 508 Provisions Incorporated into WCAG 2.0!

### Original (2000) § 1194.21 “Software applications and operating systems”

- 1194.21 (a)
- 1194.21 (c)
- 1194.21 (d)
- 1194.21 (e)
- 1194.21 (f)
- 1194.21 (h)
- 1194.21 (i)
- 1194.21 (j)
- 1194.21 (k)
- 1194.21 (l)

### Corresponding Success Criteria from WCAG 2.0

- 2.1.1 Keyboard
- 2.4.7 Focus Visible
- 4.1.2 Name, Role, Value
- 3.2.4 Consistent Identification
- 1.4.5 Images of Text
- 2.2.2 Pause, Stop, Hide
- 1.4.1 Use of Color
- 1.4.3 Contrast (Minimum)
- 2.3.1 Three Flashes or Below Threshold
- 3.2.1 On Focus, 3.2.2 On Input, 3.3.1 Error Identification, and 3.3.2 Labels or Instructions

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## Scope of Chapter 5 Software

### 501 Software

- 501.1 *Scope*. The requirements of Chapter 5 shall apply to software 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.

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## Exception for Web Applications (501.1)

Where Web applications do not have access to platform accessibility services and do not include components that have access to platform accessibility services, they shall not be required to conform to 502 or 503 provided that they conform to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1).

- For software that is web software, WCAG 2.0 Level AA conformance is complete and sufficient.
- For all web content, Revised 508 uses WCAG 2.0 Level AA
  - WCAG 2.0 addresses complex web applications as well as static web documents

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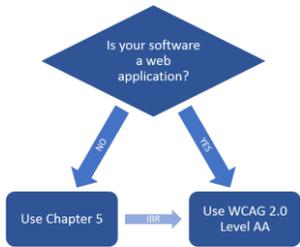
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## Flow Diagram for 501.1 Exception



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## Overview of 502 Interoperability with Assistive Technology

- 502.1 General
- 502.2 Documented Accessibility Features
- 502.3 Accessibility Services
- 502.4 Platform Accessibility Features

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## Interoperability with Assistive Technology

502.1 *General*. Software shall interoperate with assistive technology and shall conform to 502.

- EXCEPTION: ICT conforming to 402 shall not be required to conform to 502.

Software running on systems with Closed Functionality (402) does not work with end-users' AT (since the system is closed to the addition of AT).

Net result is to treat the system as if it is closed hardware (see requirements from 402).

- An example is a desktop computer closed by policy (usually for security purposes).
- Other examples are mobile phones where users cannot add their own AT.

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## 502.2 Documented Accessibility Features

502.2 *Documented Accessibility Features*. Software with platform features defined in platform documentation as accessibility features shall conform to 502.2.

- 502.2.1 User Control of Accessibility Features
- 502.2.2 No Disruption of Accessibility Features

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## New Requirement for Operating Systems: User Control of Accessibility Features

502.2.1 *User Control of Accessibility Features*. Platform software shall provide user control over platform features that are defined in the platform documentation as accessibility features.

- Important because some accessibility features can be disabled by system administrators.
- Applicable to mobile.

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## Familiar Requirement for No Disruption of Accessibility Features

### Excerpt from original § 1194.21 (b)

Applications also shall not disrupt or disable activated features of any operating system that are identified as accessibility features where the application programming interface for those accessibility features has been documented by the manufacturer of the operating system and is available to the product developer.

### Revised 502.2.2 (2017)

502.2.2 *No Disruption of Accessibility Features.* Software shall not disrupt platform features that are defined in the platform documentation as accessibility features.

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## New Requirement for Operating Systems: Accessibility Services

### 502.3 *Accessibility Services.*

- Platform software and software tools that are provided by the platform developer shall provide a documented set of accessibility services that support applications running on the platform to interoperate with assistive technology and shall conform to 502.3.
- Applications that are also platforms shall expose the underlying platform accessibility services or implement other documented accessibility services.

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## Familiar Main Principles for Software Accessibility Services

### Original § 1194.21 (d)

- Sufficient information about a user interface element including the identity, operation and state of the element shall be available to assistive technology.
- When an image represents a program element, the information conveyed by the image must also be available in text.

### Revised 502.3 *Accessibility Services*

- 502.3.1 *Object Information.* The object role, state(s), properties, boundary, name, and description shall be programmatically determinable.
- 502.3.2 *Modification of Object Information.* States and properties that can be set by the user shall be capable of being set programmatically, including through assistive technology.

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## Having a Detailed List for Software Accessibility Services is New

- 502.3.1 Object Information
- 502.3.2 Modification of Object Information
- 502.3.3 Row, Column, and Headers
- 502.3.4 Values
- 502.3.5 Modification of Values
- 502.3.6 Label Relationships
- 502.3.7 Hierarchical Relationships
- 502.3.8 Text
- 502.3.9 Modification of Text
- 502.3.10 List of Actions
- 502.3.11 Actions on Objects
- 502.3.12 Focus Cursor
- 502.3.13 Modification of Focus Cursor
- 502.3.14 Event Notification

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## New Requirement for Operating Systems: Platform Accessibility Features

502.4 *Platform Accessibility Features*. Platforms and platform software shall conform to the requirements in ANSI/HFES 200.2, Human Factors Engineering of Software User Interfaces — Part 2: Accessibility (2008) (incorporated by reference, see 702.4.1) listed below...

- Important because some new platforms omitted accessibility features, at least initially.
- Applicable to mobile.

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## 502.4 Platform Accessibility Features

Requires accessibility features common to modern operating systems:

- A. Enable sequential entry of multiple (chorded) keystrokes (Sticky Keys)
- B. Provide adjustment of delay before key acceptance (Bounce Keys)
- C. Provide adjustment of same-key double-strike acceptance (Filter Keys)
- D. Allow users to choose visual alternative for audio output (Show Sounds)
- E. Synchronize audio equivalents for visual events
- F. Provide speech output services
- G. Display any captions provided

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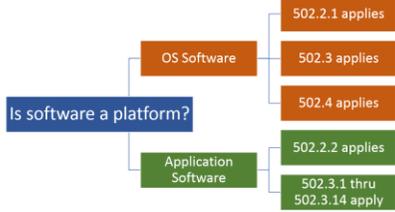
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## Requirements for Operating System (OS) Software as Compared to Ordinary Application Software



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## Overview of 503 Applications

- 503.1 General
  - Applications shall conform to 503.
- 503.2 User Preferences
- 503.3 Alternative User Interfaces
- 503.4 User Controls for Captions and Audio Description
  - 503.4.1 Caption Controls
  - 503.4.2 Audio Description Controls

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## Familiar Requirement to Support User Preferences

**Original (2000) § 1194.21 (g)**  
Applications shall not override user selected contrast and color selections and other individual display attributes.

**Revised (2017) 503.2**  
*User Preferences.* Applications shall permit user preferences from platform settings for color, contrast, font type, font size, and focus cursor.  
**EXCEPTION:** Applications that are designed to be isolated from their underlying platform software, including Web applications, shall not be required to conform to 503.2.

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## New Requirement for AT

503.3 *Alternative User Interfaces*. Where an application provides an alternative user interface that functions as assistive technology, the application shall use platform and other industry standard accessibility services.

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## New for Software Requirements to Explicitly Support Captioning and Audio Description

503.4 *User Controls for Captions and Audio Description*. Where ICT displays video with synchronized audio, ICT shall provide user controls for closed captions and audio descriptions conforming to 503.4.

503.4.1 *Caption Controls*. Where user controls are provided for volume adjustment...

503.4.2 *Audio Description Controls*. Where user controls are provided for program selection...

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## 504 Authoring Tools is New

504.1 *General*. Where an application is an authoring tool, the application shall conform to 504 to the extent that information required for accessibility is supported by the destination format.

From E103.4 *Defined Terms*:

*Authoring Tool*. Any software, or collection of software components, that can be used by authors, alone or collaboratively, to create or modify content for use by others, including other authors.

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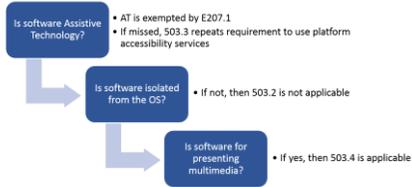
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## Flow Diagram for 503 and 504



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## Overview of 504 Authoring Tools

- 504.1 General
- 504.2 Content Creation or Editing
  - 504.2.1 Preservation of Information Provided for Accessibility in Format Conversion
  - 504.2.2 PDF Export
- 504.3 Prompts
- 504.4 Templates

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## 504.2 Content Creation or Editing

- Authoring tools shall provide a mode of operation to create or edit content that conforms to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1) for all supported features and, as applicable, to file formats supported by the authoring tool.
- Authoring tools shall permit authors the option of overriding information required for accessibility.
- EXCEPTION: Authoring tools shall not be required to conform to 504.2 when used to directly edit plain text source code.

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## Familiar Requirement to Preserve Accessibility Information

**Excerpt from original § 1194.23 (j)**  
...Technologies which use encoding, signal compression, format transformation, or similar techniques shall not remove information needed for access or shall restore it upon delivery.

**Revised 504.2.1 (2017)**  
*Preservation of Information Provided for Accessibility in Format Conversion.* Authoring tools shall, when converting content from one format to another or saving content in multiple formats, preserve the information required for accessibility to the extent that the information is supported by the destination format.

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## New Requirement for Software Featuring PDF Export

**504.2.2 PDF Export.** Authoring tools capable of exporting PDF files that conform to ISO 32000-1:2008 (PDF 1.7) shall also be capable of exporting PDF files that conform to ANSI/AIIM/ISO 14289-1:2016 (PDF/UA-1) (incorporated by reference, see 702.3.1).

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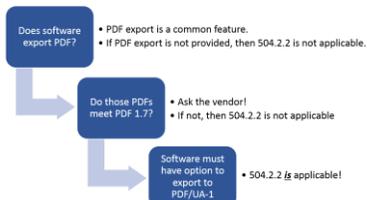
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## Flow Diagram for 504.2.2 Applicability



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### New Requirement that Authoring Tools Provide Accessibility Prompts

504.3 *Prompts*. Authoring tools shall provide a mode of operation that prompts authors to create content that conforms to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1) for supported features and, as applicable, to file formats supported by the authoring tool.

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### New Requirement that Authoring Tools Provide Accessible Templates

504.4 *Templates*. Where templates are provided, templates allowing content creation that conforms to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1) shall be provided for a range of template uses for supported features and, as applicable, to file formats supported by the authoring tool.

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### Mobile Apps are Software



• Use Chapter 5!

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## Resources, Questions and Contact Information

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### .gov Resources

[www.Access-Board.gov](http://www.Access-Board.gov) — Section 508 Standards and Section 255 Guidelines, technical assistance:

- ICT Final rule (2017)
- Webinars – Section 508 Best Practices
- [www.access-board.gov/wcag2-508](http://www.access-board.gov/wcag2-508)
- More guidance material under development

[www.section508.gov](http://www.section508.gov) — GSA government-wide Section 508 Accessibility Program

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### Questions

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