Guidelines for Accessibility and Usability of Information Technology Standard

From the Office of the Chief Information Officer, State of Minnesota

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Guideline Statement

These guidelines are for the v3.0 edition of the [Minnesota State Accessibility and Usability of Information Technology Standard](#) ("Accessibility Standard"), and are informative and not normative. The Office of Accessibility intends to regularly update this document to address questions as they arise. Please visit the "Standards" page of the [Office of Accessibility website (mn.gov/mnit/accessibility)](#) to ensure access to the latest version.

Overview

This document supplements the State Accessibility Standard. Information includes:

- Roles & Responsibilities
- Applicability
- Policies
- Understanding the standard
- Process
- Related Information

Roles & Responsibilities

The Office of Accessibility, housed within Minnesota IT Services (MNIT), is charged with providing guidance, support, training, and related resources so that state agencies may make their operations and services accessible and usable. The chief information accessibility officer (CIAO) heads the Office of Accessibility.

All State of Minnesota personnel are expected to support and adhere to the accessibility standard. As of January 2015, all MNIT position descriptions should include accessibility as a responsibility.

The State chief information officer (CIO) is statutorily charged with requiring state agencies to adhere to the standards. ([16E.03, subd 9](#))

Applicability

The standard applies to all information and communication (ICT) technology acquired or developed for all departments, agencies, offices, councils, boards, commissions and other entities in the State of Minnesota executive branch including:

- Websites, including electronic documents, video and multi-media
- Content created in electronic format, including emails, text documents, spreadsheets, presentations, and social media
- Software applications, including internal and public-facing applications
- IT products, including telecommunication, multimedia, and individual desktop and laptop computers.

The Minnesota Accessibility Standard impacts every aspect of State operations involving information technology, from creating electronic documents to procuring new technology and services. Here are some sample activities that require adherence to the Standard:

- Procurement
- Hardware or software design/development/testing
- Project management
- IT Service design
- Document and other content creation
- Video production
- Website design/development/testing
- Quality assurance
- Event planning.

Policies

The State CIO issues a policy to adopt the state accessibility standard, which applies to all executive branch agencies.

Agencies can also institute policies at the agency level. Some agencies or departments may have to institute culture change in order to effectively adopt and implement the standard. Policies can be useful tools for instilling such change. The value of policies is that they are often accompanied by specific practices/processes. Here are some examples:

- **Accessibility policy:** An agency-wide policy statement that references an accompanying issue resolution process and contact information. Such a policy also helps address potential issues that may arise from

the recent legislation concerning the accessibility of public documents and continuing education materials.

- **Webcast/webinar policy:** Whenever an agency provides a webcast or webinar, whether internal or external, the policy helps direct the providers to determine how to ensure accessibility services and accommodations are provided as needed.
- **Procurement policy:** MNIT and the Minnesota Department of Administration (ADM) incorporate accessibility in their procurement practices. However, agencies may want to consider a policy to ensure that accessibility be factored into early requirements and design, as well as smaller procurements that do not go through MNIT or ADM processes.

For sample policies and related information, agencies can consult with their accessibility coordinators or the office of accessibility.

Understanding the Standard

General

1. **Accommodations. Accommodations are, as defined by law (in the Americans with Disabilities Act or ADA), modification or adjustment to a position or workplace. Assistive technology such as screen readers, screen magnifiers, and other similar tools are common examples of accommodations.** Following the accessibility standard does not eliminate or preclude the possibility of a request for accommodation.
    - Some accommodations leverage accessibility, such as screen readers or screen magnifiers.
    - Web applications that do not accept the system accessibility features may require an accommodation. 503.2 in Section 508 lists an exception to application accessibility requirements in which "applications that are designed to be isolated from their underlying platform software" do not need to permit users' platform settings for color, contrast, font type, font size, and focus cursor. As a result, some users may require assistive technology or other accommodations in order to operate such web applications.
2. **Contents of the standard.** The Minnesota State Accessibility and Usability of Information Technology Standard incorporates Section 508 "as qualified" as well as the Web Content Accessibility Guidelines, (WCAG) 2.0, AA. The state standard itemizes those (minimal) qualifications. This guideline document provides additional information.
3. **Primacy.** When there is a conflict between the state accessibility standard and Section 508, the state standard supersedes Section 508.
4. **WCAG reference.** WCAG 2.0 is contained within Section 508. The state standard references separately because state law references WCAG 2.0, AA as a baseline. Also, distinguishing WCAG from Section 508 allows for possible updates to WCAG documentation that may not be addressed in Section 508.
5. **Assistive technology (AT)** is not required to conform to accessibility rules, as they are designed to perform specific functions that may be exclusionary to other types of users.
6. **External sites.** When contracting with an external site for services in which little to no modifications are required, the site is still covered by the standard. Examples include travel arrangement services and

employee award services in which state employees must use vendor sites to book travel or select awards.

- External sites that are not part of a contract, but linked to for informational purposes only (such as a news site) are not required to be accessible provided the link clearly identifies it is an external site.

7. **Exceptions.** For information on exceptions and exemptions to the state standard, refer to the document "Exceptions and Exemptions to Accessibility and Usability of Information Technology Standard" appended to the state standard.[link]

- For information on filing an exception, refer to the Office of Accessibility IT Procurement page. This process continues to evolve as MNIT and the Department of Administration (ADM) work to improve and streamline it.
- Section 508 (in E205.3) listed nine categories of "official business" in defining when non-public electronic content constitutes "official business" and therefore must be accessible. The categories range from emergency notifications to a formal acknowledgement of receipt to intranet content designed as a web page. The state standard omits those categories. Instead:
    i. Agency intranet sites are considered "official business" and all its content and related communications (such as news bulletins) must be accessible.
    ii. Marking a document as final signifies it is now official business and must be accessible.
    iii. While workgroup sites could have non-final content that is not accessible, agencies are advised that if employees do not follow general best practices when creating drafts and other documents for sharing via email or on team sites, several negative scenarios could result:
        1. Employees may have to "out" themselves (against ADA principles) in order to request an accessible document.
        2. After hiring an employee with a disability, agencies may have to spend a significant sum to remediate documents; an avoidable event had the documents been created using accessible templates and principles.

Hardware

1. **Closed systems - general.** Part 402 of Section 508, closed functionality, states "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." In the event that a closed system is not accessible, there needs to be an equally effective alternative.

- An example is a fob for two-factor authentication. If the fob does not provide an alternate readout or a headset jack (to access auditory information), then the providing entity needs to offer a means for the employee to independently perform the same task.

2. **Closed systems - display.** Also in the closed functionality section, 402.4 spells out requirements for "characters on display screens," including font, character height, and so on. In addition to these requirements, creators should also reference the WCAG color contrast standard, 1.4.3, which calls for a ratio of 4.5:1 foreground text to background color.

3. **Biometrics.** Part 403 on biometrics allows an exception to an alternative to biometric means of identification or control when there are two biometric options that use distinctly different biological

characteristics. However, it is strongly recommended that there remain at least one viable, secure, non-biometric means of identification or control.

4. **Operable parts.** Part 407.8 on operable parts addresses the reach height and depth of stationary ICT (such as copiers and multifunction devices). While this part provides some specifics, when stand alone ICT is purchased as part of a larger system, it should be remembered that ADA and other regulations may apply. The ADA coordinator should review the design plan prior to purchase and post installation.

5. **User interface accessibility.** Part 502 of Section 508 addresses interoperability with assistive technology (AT). Subpart 502.4 delves into the features of platforms and platform software (such as Microsoft Windows, Mac OS, and mobile software like iOS). 502.4 references certain sections of the international standard ANSI/HFES 200.2. It is recommended to encourage vendors to refer to the entire ANSI/HFES 200.2 when designing a system so they consider all factors.

Software

1. **"Software"** is a technology that instructs a computer or other technology to perform a task or function. Other terms for software include applications, non-Web software, and platform software. Examples of software functions include:
   a. Launch a program, such as Microsoft Word
   b. Import data from a PDF form
   c. Print a document
   d. Submit a resume
   e. Update an employee time sheet

2. **Platform software** is software that controls or otherwise interacts with hardware or provides services for other software. Microsoft Windows and the Android operating system are two examples of platform software.

3. **Web applications** are a type of software that require a browser for use.

4. All **non-web software** interfaces must:
   a. **Conform to WCAG 2.0 Levels A and AA** as defined in Section 508 part E207.2: 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; and
   b. **Support accessibility throughout all steps**, as defined in Section 508 part E207.3: Where non-Web software requires multiple steps to accomplish an activity, all software related to the activity to be accomplished shall conform to WCAG 2.0 as specified in E207.2.

5. **Non-web software exceptions.** In the "Software" segment of Section 508, part 207.2 lists exceptions for non-web software to WCAG conformance, specifically: 2.4.1 Bypass Blocks; 2.4.5 Multiple Ways; 3.2.3 Consistent Navigation; and 3.2.4 Consistent Identification. These four WCAG success criteria (SC) specifically apply to web content. The Section 508 writers determined that it was difficult to reliably require these SC for non-web software applications. The State of Minnesota concurs and supports these exceptions. Some examples:
   a. A common use of bypass blocks (SC 2.4.1) would be a skip link at the top of a web page to enable keyboard users to bypass page menus to advance to content. Since non-web software typically does not divide into multiple pages within the same menu structure, this requirement would not be useful.

b. The "multiple ways" criteria (2.4.5) specifically references methods to "locate a Web page within a set of Web pages." A typical application of this requirement in a web page could be providing both a means through a mouse via a menu and a means through a keyboard shortcut. As with bypass blocks, this is an unlikely and potentially unwieldy requirement for non-web software. First, the standard would have to substitute "software" for "web page." The resulting requirement would read "locate a software within a set of softwares." Second, other WCAG and Section 508 criteria already address the need to enable users to launch an application via keyboard or assistive technology (AT).

c. The "consistent navigation" issue (WCAG SC 3.2.3) is moot for the same reasons as the "bypass blocks" issue – in that there are unlikely to be "multiple pages" within a non-web application.

d. The "consistent identification" issue most commonly arises when the same object, such as a button or form field, is labeled differently on separate web pages within a web site. It is conceivable a similar issue could arise within a software program, but the issue can still be addressed by other WCAG criteria.

6. **Authoring tools** (part 504 in Section 508) includes the statement "Authoring tools shall permit authors the option of overriding information required for accessibility." The intent of this statement is to enable authors to improve on the tool's default values. For example, a tool may automatically make all images show focus. Some images may be intended as background, and the author can override the tool's defaults to ensure the background images do not receive focus.

- The section on PDF export requirements (504.22) states that authoring tools capable of exporting PDF files to the ISO standard equivalent to PDF 1.7 should also be capable of creating PDF/UA files. PDF/UA. PDF/UA, also an ISO standard, provides a set of requirements for universally accessible PDF documents.

- Examples of such authoring tools are the "Acrobat" tool in the Microsoft Word ribbon, "Save as PDF" functions in any document application, and third-party tools designed to output software reports as PDFs.

- Currently, the Office of Accessibility does not have a recommended best practice for creating PDF/UA documents. Current practices measure PDF accessibility through the appropriate WCAG 2.0 success criteria.

Webcasts and Webinars

Standards requirements regarding webcasts and webinars are scattered throughout Section 508 and WCAG 2.0. There is no dedicated section as the field encompasses hardware, software, and telecommunications. The Office of Accessibility website is the best resource for up-to-date information on ensuring accessible webcast and webinar services. In brief:

- All recorded videos and related multimedia must be captioned.
- Announcements to live media must provide attendees with the opportunity to request captioning. Otherwise, it must be captioned.
- Audio description should either be built into the program audio or added, like captions, in the post-production process.

- Auto-play must be off – that is, the user decides when to start the program.
- All multimedia and media controls must be accessible. In other words, users must be able to manage all controls via keyboard, and users of assistive technology must have the ability to manage the multimedia.

Process

Accessibility needs to be considered at the beginning of any process, such as when defining a project or developing requirements. Failure to account for accessibility when planning or implementing a project or activity can negatively impact the proper estimation of resources, timeline, and costs. Whether a project moves into internal development or a procurement, all members of the team (project manager, developer, quality assurance, etc.) need to be able to properly account for accessibility issues. Failure to do this can result in delayed projects, cost overruns, and inaccessible products.

For all the detail that make up the Minnesota Accessibility Standard, there is no single prescriptive pathway to accessibility. Every device, application, interface, and document presents different requirements and challenges.

Agencies should have multiple Accessibility Coordinators – an agency employee and a MNIT partner employee. Coordinators are listed on the SharePoint site (link following next paragraph). Contact the Office of Accessibility with any questions about your agency's coordinators.

ADA Coordinators are responsible for guidance and support with respect to ADA law. ADA coordinators are the best resource for answers to questions about reasonable accommodations and related issues.

For the latest information and tools, reference the state accessibility website and the Office of Accessibility SharePoint site (for internal use only; non-executive branch government employees can request "partner" access by sending an email to MNITAccessibility@state.mn.us). Of particular note:

- When procuring a product, reference the procurement guidance on the accessibility website, including Voluntary Product Accessibility Template (VPAT®) and Policy Driven Adoption for Accessibility (PDAA) materials.
- When creating or uploading electronic documents, reference the Electronic Documents section of the MNIT website for training and other resources. All executive branch employees should have the ability to open accessible, agency-branded document templates from within the "File>New" (keyboard access: Alt, F, N) function of Word and PowerPoint. If this is not available at your agency, contact the MNIT Communications team for sample templates.
- When developing a technology, reference the Websites and Applications section. It provides a range of resources, from color contrast checkers to mobile development tools.
- For video, webcasts, and related multimedia, check out the Multimedia section for information on captioning, audio description, and other related technologies.
- Everyone is encouraged to subscribe to the Office of Accessibility newsletter to stay abreast of training and other resource opportunities.

Measurement/Testing

"Accessibility" can be difficult to define because the end goal is ensuring any individual, regardless of disability, is able to perform all necessary functions and obtain any needed information. So while checklists are important for developers, testers, and content creators, both automated and manual testing remain necessary to ensure the final product is accessible.

Testing for accessibility requires different techniques and tools for web applications, non-web software, and web pages that are not applications.

- The accessibility of web pages and web applications are governed by WCAG 2.0, AA
- Platform software and software tools that are part of the platform system are governed first by 502 (interoperability with assistive technology) and 503 (applications) of Section 508, and then by WCAG 2.0 where applicable.

Accessibility testing is distinct from user experience testing. Accessibility testing follows proscribed testing protocols and correlates failures or defects with specific criteria such as the WCAG success criteria. User testing is the practice of observing user experiences, such as having assistive technology users demonstrate their experiences navigating a site or application. Automated tests provide only a partial picture of a technology's accessibility; they offer value in providing a measurable index, particularly during an iterative development process. Manual tests are critical in accurately assessing accessibility by simulating the user experience. One of the simplest and most effective ways to test an application is to see if you can perform all functions without a mouse. Other manual tests may include running a color contrast tester or using assistive technology (AT) such as screen readers or screen magnifiers.

Few systems are completely accessible. The goal is continuous improvement. In addition, upgrades and patches must not break existing accessibility.

The Office of Accessibility is working with agency partners to develop testing guidelines for documents, websites, and applications. For information on available testing tools and processes, visit the "Development/Testing" tab of the Websites and Applications section of the MNIT Accessibility website. There may also be additional information on the Office of Accessibility SharePoint site. These sites are continuously updated, so revisit them regularly.

Agencies are also strongly encouraged to consider accessibility testing by qualified vendors as part of a procurement strategy as a means of obtaining third party input on a vendor's products and/or services.

Related Information

- Executive Order 14-14 (PDF) on the employment of people with disabilities
- Executive Order 14-07 (PDF) on the use of plain language
- Section 508 (Final Rule) of the Rehabilitation Act of 1973
- Quick reference to the Web Content Accessibility Guidelines (WCAG) 2.0
- Understanding WCAG 2.0

- Office of Accessibility: public resources
- Office of Accessibility: private (SharePoint) resources
- Accessibility and Usability of Information Technology Standard

History

Version	Description	Date
1.0	Original, issued with updated (4/29/2011) standard document	04/29/2011
2.0	Updated to support updated (10/03/2013) standard document	November 2013
3.0	Updated to support 2018 version of standard document	April 2018

Contact

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