

Accessibility Architecture

Title	Accessibility Policy
Category	Accessibility Architecture
Date Adopted	(DRAFT)
Date of Last Revision	August 22, 2001

A. Authority

Section 86-1506 (6). "(The Nebraska Information Technology Commission shall) adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel created in Section 86-1511."

B. Purpose and Objectives

The purpose of this document is to define and clarify policies, standards, and guidelines that will help agencies meet the needs of people with disabilities.

LB 352 (2000) required the Commission for the Blind and Visually Impaired, the Nebraska Information Technology Commission, and the Chief Information Officer to develop a technology access clause by January 1, 2001. The Technology Access Clause applies to all purchases of information technology. The clause includes the following provisions:

"The intent and purpose of these standards is to ensure that the needs of Nebraskans with disabilities are met through reasonable accommodation of the information technology products and services of the state. Future information technology products, systems, and services including data, voice, and video technologies, as well as information dissemination methods, will comply with the following standards to the greatest degree possible.

1. Effective, interactive control and use of the technology including, but not limited to, the operating system, applications programs, and format of the data presented must be readily achievable by individuals with disabilities. The intent is to make sure that all newly procured information technology equipment; software and services can be upgraded, replaced or augmented to accommodate individuals with disabilities.
2. Information technology made accessible for individuals with disabilities must be compatible with technology used by other individuals with whom the individual with a disability must interact.
3. Information technology made accessible for individuals with disabilities must be able to be integrated into networks used to share communications among employees, program participants, and the public.
4. Information technology made accessible for individuals with disabilities must have the capability of providing equivalent access to telecommunications or other interconnected network services used by the general population.
5. These provisions do not prohibit the purchase or use of an information technology product that does not meet these standards provided that:
 - a. There is no available means by which the product can be made accessible and there is no alternate product that is or can be made accessible; or
 - b. The information manipulated or presented by the product is inherently unalterable in nature (i.e., its meaning cannot be preserved if it is conveyed in an alternative manner).

Accessibility Architecture

- c. The information technology products or services are used in conjunction with an existing information technology system, and modifying the existing system to become accessible would create an undue burden.
- d. The agency is able to modify or replace the information technology product with one that will accommodate the needs of individuals with disabilities.

"When development, procurement, maintenance, or use of electronic and information technology does not meet these standards, individuals with disabilities will be provided with the information and data involved by an alternative means of access."

The primary objectives of accessibility standards and guidelines include:

- 1. Where feasible, people with disabilities can use the same information technology systems as people without disabilities;
- 2. Early planning for accessibility will make it easier to provide reasonable accommodations when information technology systems are not accessible.

C. Standards and Guidelines**1. FUNCTIONAL PERFORMANCE CRITERIA (SECTION 1194.31)****a. General-Alternative Access**

- (1) At least one mode of operation and information retrieval that does not require user vision shall be provided, or support for Assistive Technology used by people who are blind or visually impaired shall be provided.
- (2) At least one mode of operation and information retrieval that does not require visual acuity greater than 20/70 shall be provided in audio and enlarged print output working together or independently, or support for Assistive Technology used by people who are visually impaired shall be provided.
- (3) At least one mode of operation and information retrieval that does not require user hearing shall be provided, or support for Assistive Technology used by people who are deaf or hard of hearing shall be provided.
- (4) Where audio information is important for the use of a product, at least one mode of operation and information retrieval shall be provided in an enhanced auditory fashion, or support for assistive hearing devices shall be provided.
- (5) At least one mode of operation and information retrieval that does not require user speech shall be provided, or support for Assistive Technology used by people with disabilities shall be provided.
- (6) At least one mode of operation and information retrieval that does not require fine motor control or simultaneous actions and that is operable with limited reach and strength shall be provided.

2. SOFTWARE APPLICATIONS AND OPERATING SYSTEMS (SECTION 1194.21)**a. Navigation**

Accessibility Architecture

- (1) When software is designed to run on a system that has a keyboard, product functions shall be executable from a keyboard where the function itself or the result of performing a function can be discerned textually.
- (2) A well defined, on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that Assistive Technology can track focus and focus changes.
- b. Image / Information Display
 - (1) 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.
 - (2) 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.
 - (3) Textual information shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input caret location, and text attributes.
 - (4) Software shall not use flashing or blinking text, objects, or other elements having a flash or blink frequency greater than 2 Hz and lower than 55 Hz.
- c. Compatibility.
 - (1) Applications shall not disrupt or disable activated features of other products that are identified as accessibility features, where those features are developed and documented according to industry standards. 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.
- d. Use of Color
 - (1) Applications shall not override user selected contrast and color selections and other individual display attributes.
 - (2) Color-coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
 - (3) When a product permits a user to adjust color and contrast settings, a variety of color selections capable of producing a range of contrast levels shall be provided.
- e. Animation
 - (1) When animation is displayed, the information shall be displayable in at least one non-animated presentation mode at the option of the user.
- f. Forms.
 - (1) When electronic forms are used, the form shall allow people using Assistive Technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

Accessibility Architecture

3. WEB-BASED INTERNET INFORMATION AND APPLICATIONS (SECTION 1194.22)
 - a. Navigation
 - (1) Redundant text links shall be provided for each active region of a server-side image map.
 - (2) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.
 - (3) Row and column headers shall be identified for data tables.
 - (4) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.
 - (5) Frames shall be titled with text that facilitates frame identification and navigation.
 - (6) A method shall be provided that permits users to skip repetitive navigation links.
 - b. Image / Information Display
 - (1) Documents shall be organized so they are readable without requiring an associated style sheet.
 - (2) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
 - (3) A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
 - (4) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by Assistive Technology.
 - (5) When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with the provisions of Section 2 (Software Applications and Operating Systems), above.
 - c. Information Display Alternatives
 - (1) A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).
 - (2) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
 - (3) Use of Color
 - (a) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
 - (4) Forms
 - (a) When electronic forms are designed to be completed on-line, the form shall allow people using Assistive Technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.
 - (5) Timed Responses.
 - (a) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

Accessibility Architecture

4. TELECOMMUNICATIONS PRODUCTS (SECTION 1194.23)
 - a. Image / Information Display
 - (1) Where provided, caller identification and similar telecommunications functions shall also be available for users of TTYs, and for users who cannot see displays.
 - (2) Products that transmit or conduct information or communication shall pass through cross-manufacturer, non-proprietary, industry-standard codes, translation protocols, formats or other information necessary to provide the information or communication in a usable format. Technologies which use encoding, signal compression, format transformation, or similar techniques shall not remove information needed for access or shall restore it upon delivery.
 - b. Technology Links Compatibility
 - (1) Telecommunications products or systems, which offer voice communication but do not include TTY functionality, shall provide a standard non-acoustic connection point for TTYs. Microphones shall be capable of being turned on and off to allow the user to intermix speech with TTY use.
 - (2) Telecommunications products, which include voice communication functionality, shall support all commonly used cross-manufacturer non-proprietary standard TTY signal protocols.
 - (3) Where a telecommunications product delivers output by an audio transducer which is normally held up to the ear, a means for effective magnetic wireless coupling to hearing technologies shall be provided.
 - (4) Interference to hearing technologies (including hearing aids, cochlear implants, and assistive listening devices) shall be reduced to the lowest possible level that allows a user of hearing technologies to utilize the telecommunications product.
 - c. Volume Control
 - (1) For transmitted voice signals, telecommunications products shall provide a gain adjustable up to a minimum of 20 dB. For incremental volume control, at least one intermediate step of 12 dB of gain shall be provided.
 - (2) If the telecommunications product allows a user to adjust the receive volume, a function shall be provided to automatically reset the volume to the default level after every use.
 - d. Voice Mail
 - (1) Voice mail, auto-attendant, and interactive voice response telecommunications systems shall be usable by TTY users with their TTYs.
 - (2) Voice mail, messaging, auto-attendant, and interactive voice response telecommunications systems that require a response from a user within a time interval, shall give an alert when the time interval is about to run out, and shall provide sufficient time for the user to indicate more time is required.
 - e. Controls or Keys / Physical Operation

Accessibility Architecture

- (1) Products, which have mechanically operated controls or keys, shall comply with the following: Controls and Keys shall be tactilely discernible without activating the controls or keys.
- (2) Products which have mechanically operated controls or keys shall comply with the following: Controls and Keys shall be operable with one hand and shall not require tight grasping, pinching, twisting of the wrist. The force required to activate controls and keys shall be 5 lbs. (22.2N) maximum.
- (3) Products, which have mechanically operated controls or keys, shall comply with the following: If key repeat is supported, the delay before repeat shall be adjustable to at least 2 seconds. Key repeat rate shall be adjustable to 2 seconds per character.
- (4) Products which have mechanically operated controls or keys shall comply with the following: The status of all locking or toggle controls or keys shall be visually discernible, and discernible either through touch or sound.

5. VIDEO AND MULTI-MEDIA PRODUCTS (SECTION 1194.24)**a. TV**

- (1) All analog television displays 13 inches and larger, and computer equipment that includes analog television receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals. As soon as practicable, but not later than July 1, 2002, wide screen digital television (DTV) displays measuring at least 7.8 inches vertically, DTV sets with conventional displays measuring at least 13 inches vertically, and stand-alone DTV tuners, whether or not they are marketed with display screens, and computer equipment that includes DTV receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals.
- (2) Television tuners, including tuner cards for use in computers, shall be equipped with secondary audio program playback circuitry.

b. Video & Multi-Media

- (1) All training and informational video and multimedia productions which support the agency's mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.
- (2) All training and informational video and multimedia productions, which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described.
- (3) Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent.

6. SELF-CONTAINED, CLOSED PRODUCTS (SECTION 1194.25)

- a. Self-contained products shall be usable by people with disabilities without requiring an end-user to attach Assistive Technology to the product. Personal headsets for private listening are not Assistive Technology.
- b. Response Time

Accessibility Architecture

- (1) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.
- c. Controls or Keys / Physical Operation
 - (1) Where a product utilizes touch screens or contact-sensitive controls, an input method shall be provided that complies with the provisions in Section 4.e, above.
 - (2) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.
- d. Audio / Voice Output
 - (1) When products provide auditory output, the audio signal shall be provided at a standard signal level through an industry standard connector that will allow for private listening. The product must provide the ability to interrupt, pause, and restart the audio at anytime.
 - (2) When products deliver voice output in a public area, incremental volume control shall be provided with output amplification up to a level of at least 65 dB. Where the ambient noise level of the environment is above 45 dB, a volume gain of at least 20 dB above the ambient level shall be user selectable. A function shall be provided to automatically reset the volume to the default level after every use.
- (3) Use of Color
 - (a) Color-coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
 - (b) When a product permits a user to adjust color and contrast settings, a range of color selections capable of producing a variety of contrast levels shall be provided.
- (4) Image / Information Display
 - (a) Products shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
- (5) Location Accessibility
 - (a) Products which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following: The position of any operable control shall be determined with respect to a vertical plane, which is 48 inches in length, centered on the operable control, and at the maximum protrusion of the product within the 48 inch length on products which are freestanding, non-portable, and intended to be used in one location and which have operable controls.
 - (b) Products which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following: Where any operable control is 10 inches or less behind the reference plane, the height shall be 54 inches maximum and 15 inches minimum above the floor.
 - (c) Products which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following: Where any operable control is more than 10 inches

Accessibility Architecture

and not more than 24 inches behind the reference plane, the height shall be 46 inches maximum and 15 inches minimum above the floor.

- (d) Products, which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following: Operable controls shall not be more than 24 inches behind the reference plane.

7. DESKTOP AND PORTABLE COMPUTERS (SECTION 1194.26)

- a. Where provided, at least one of each type of expansion slots, ports and connectors shall comply with publicly available industry standards.
- b. Controls or Keys / Physical Operation
 - (1) All mechanically operated controls and keys shall comply with the provisions of Section 4.3, above.
 - (2) If a product utilizes touch screens or touch-operated controls, an input method shall be provided that complies with the provisions of section 4.3, above.
- c. When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.

D. Key Definitions

1. Agency shall mean any governmental entity, including state government, local government, or third party entities under contract to the agency.
2. Alternate formats are usable by people with disabilities and may include, but are not limited to, Braille, ASCII text, large print, recorded audio, and electronic formats that comply with this part.
3. Alternate methods are different means of providing information, including product documentation, to people with disabilities. Alternate methods may include, but are not limited to, voice, fax, relay service, TTY, Internet posting, captioning, text-to-speech synthesis, and audio description.
4. Assistive technology includes any item, piece of equipment, or system, whether acquired commercially, modified, or customized, that is commonly used to increase, maintain, or improve functional capabilities of individuals with disabilities.
5. Electronic and information technology includes information technology and any equipment or interconnected system or subsystem of equipment, that is used in the creation, conversion, or duplication of data or information. The term electronic and information technology includes, but is not limited to, telecommunications products (such as telephones) information kiosks, and transaction machines, World Wide Web sites, multimedia, and office equipment such as copies and fax machines. The term does not include any equipment that contains embedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where

Accessibility Architecture

information technology is integral to its operation, are not information technology.

6. Equivalent facilitation provides that nothing in this part is intended to prevent the use of designs or technologies as alternatives to those prescribed in this part provided they result in substantially equivalent or greater access to and use of a product for people with disabilities.
7. Information technology is any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. The term information technology includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources.
8. Operable controls are the component of a product that requires physical contact for normal operation. Operable controls include, but are not limited to, mechanically operated controls, input and output trays, card slots, keyboards, or keypads.
9. Product is an electronic and information technology.
10. Self-contained, Closed Products are products that generally have embedded software and are commonly designed in such a fashion that a user cannot easily attach or install assistive technology. These products include, but are not limited to, information kiosks and information transaction machines, copiers, printers, calculators, fax machines, and other similar types of products.
11. Telecommunications are the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.
12. TTY is an abbreviation for teletypewriter. Machinery or equipment that employs interactive text based communications through the transmission of coded signals across the telephone network. TTY's may include, for example, devices known as TDDs (telecommunication display devices) or telecommunication devices for deaf persons) or computers with special modems. TTYs are also called text telephones.
13. Undue burden means significant difficulty or expense. In determining whether an action would result in an undue burden, an agency shall consider all agency resources available to the program or component for which the product is being developed, procured, maintained, or used.

E. ApplicabilityGENERAL STATEMENT

These policies are intended to be sufficiently generic to apply to a wide range of governmental and educational agencies in the State of Nebraska. Each agency or operational entity must develop detailed procedures to implement broad policies and standards. Compliance with these accessibility policies and standards will be a requirement during consideration of funding for any projects requiring review by the NITC. Compliance may be used in audit reviews or budget reviews.

COMPLIANCE AND ENFORCEMENT STATEMENT

Accessibility Architecture

The Governing board or chief administrative officer of each organization must develop internal compliance and enforcement policies as part of its information accessibility efforts. Such policies should be reasonable and effective. The NITC intends to incorporate adherence to accessibility policies as part of its evaluation and prioritization of funding requests. The NITC recommends that the Governor and Legislature give due consideration to requests for accessibility improvements during the budget process.

F. Responsibility

An effective program for accessibility involves cooperation of many different entities. Major participants and their responsibilities include:

1. Nebraska Information Technology Commission. The NITC provides strategic direction for state agencies and educational institutions in the area of information technology. The NITC also has statutory responsibility to adopt minimum technical standards and guidelines for acceptable and cost-effective use of information technology. Implicit in these requirements is the responsibility to promote adequate accessibility for information systems through adoption of policies, standards, and guidelines.
2. Technical Panel Accessibility Work Group. The NITC Technical Panel, with advice from the Accessibility Work Group, has responsibility for recommending accessibility policies and guidelines and making available best practices to operational entities.
3. Assistive Technology Partnership. The Nebraska Assistive Technology Partnership provides training, loan devices and support for accommodations in compliance with Section 508 and the Technology Access Clause. Training and support is available to governmental agencies, schools, businesses, and non-profit organizations.
4. University of Nebraska Accommodation Resource Center. The Accommodation Resource Center (ARC) provides training, loan devices and support for accommodation using assistive technology in both the education and employment environment. The ARC website is <http://ar.unl.edu>
5. Federal Information Technology Accessibility Initiative. The Federal Information Technology Accessibility Initiative (FITA) is an interagency effort, coordinated by the General Services Administration, to offer technical assistance and to provide an information means of cooperation and sharing of information on implementation of Section 508. Questions about 508 standards can be sent to 508@access-board.gov.
6. Web Accessibility Initiative. The Web Accessibility Initiative has created guidelines, which are grouped by priority and are very similar to the final Section 508 rules. The guidelines can be found at <http://www.w3.org/wai>.
7. Agency and Institutional Heads. The highest authority within an agency or institution is responsible for accessibility of information resources that are consistent with this policy. The authority may delegate this responsibility but delegation does not remove the accountability.
8. Information Technology Staff. Technical staff must be aware of the opportunities and responsibility to meet the goals of accessibility of information systems.

Accessibility Architecture**G. *Related Policies, Standards and Guidelines***

1. Nebraska Technology Access Clause
2. Nebraska Technology Access Clause Checklist (Questions to Consider)
 - a. Desktop and Portable Computers
 - b. Video and Multimedia Products
 - c. Software Application and Operating Systems
 - d. Self-Contained, Closed Products
 - e. Telecommunications Products
 - f. Web Page Accessibility Questionnaire
3. Section 504 of the Rehabilitation Act
4. Electronic and Information Technology Accessibility Standards, Architectural and Transportation Barriers Compliance Board, 36 CFR Part 1194 can be found at <http://www.access-board.gov/sec508/508standards.htm>