INTERNATIONAL STANDARD

ISO/IEC 24786

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Information technology — User interfaces — Accessible user interface for accessibility settings

Technologies de l'information — Interfaces utilisateurs — Interface utilisateur accessible pour le paramétrage de l'accessibilité

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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ISO/IEC 24786 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

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Introduction

People with disabilities (e.g. visual, hearing, physical) can experience difficulties in accessing computers and other information/communication technology (ICT) devices. Accessible user interfaces, as described in this International Standard, can help them to operate computers.

In order to effectively operate accessible user interfaces, users need to be able to adjust accessibility settings prior to use. If this is not possible, some people will not be able to access these devices without help from another party.

This International Standard will make the information technologies more accessible by ensuring that people with disabilities can adjust accessibility settings by themselves.

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Information technology — User interfaces — Accessible user interface for accessibility settings

1 Scope

This International Standard specifies requirements and recommendations for making accessibility settings accessible. It provides guidance on specific accessibility settings. It specifies how to access and operate the accessibility setting mode, and how to directly activate specific accessibility features.

This International Standard applies to all operating system user interfaces on computers, but can also be applied to other types of information/communication technology, where appropriate.

This International Standard does not apply to the user interface before the operating system is loaded and active.

2 Conformance

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The computer is conformant to ISO/IEC 24786 Level 1 if it meets all requirements of Clause 5, but does not meet all recommendations of Clause 5.
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The computer is conformant to ISO/IEC 24786 Level 2 if it meets all requirements and recommendations of
Clause 5. ISO/IEC 24786:2009
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3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 2382-1:1993, *Information technology — Vocabulary — Part 1: Fundamental terms*

ISO 9241-171:2008, *Ergonomics of human-system interaction — Part 171: Guidance on software accessibility*

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE   The terms StickyKeys™, SlowKeys™, BounceKeys™, FilterKeys™, MouseKeys™, RepeatKeys™, ToggleKeys™, SoundSentry™, and ShowSounds™ are all trademarks of the University of Wisconsin. However, use of the terms is permitted freely, without royalty or license, to describe user interface features that have the functionality and behaviour described in this International Standard.

4.1
accessibility feature
feature (etc.) that is specifically designed to increase the usability of products for those experiencing disabilities

[ISO 9241-171:2008]

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4.2
accessibility setting
setting to make the user interface more accessible for people with disabilities

EXAMPLE   A setting is provided to turn large text or screen magnification ON for people with low vision.

4.3
accessibility setting mode
mode where the user adjusts accessibility settings

NOTE   A user can access almost all the accessibility settings and adjustments for the accessibility features through this mode.

4.4
auditory feedback
function that allows individuals to hear whether their operations (e.g. key input) have been accepted by the computer

NOTE   Auditory feedback includes beep sound with key input, alarm sound, etc.

4.5
BounceKeys™
function that only accepts a single keystroke at a time from a key

NOTE   BounceKeys™ is designed for users with tremor that causes them to inadvertently strike a key extra times when pressing or releasing the key. Once a key is released it will not accept another stroke of the same key until a (user-settable) period of time has passed. BounceKeys™ has no effect on how quickly a person can type a different key. [ISO 9241-171:2008, Annex E]

4.6
computer
functional unit that can perform substantial computations, including numerous arithmetic operations and logic operations, without human intervention [ISO/IEC 2382-1:1993, 01.03.03]

4.7
FilterKeys™
BounceKeys™ and SlowKeys™ features combined as a package

NOTE   The term FilterKeys™ is sometimes used for the BounceKeys™ and SlowKeys™ features packaged together. It is acceptable to make these two features mutually exclusive. However, they can also both be active at the same time (though SlowKeys™ will dominate). [ISO 9241-171:2008, Annex E]

4.8
MouseKeys™
function that allows the user to use the keys on the numeric keypad to control the mouse cursor on screen and to operate the mouse buttons

NOTE   MouseKeys™ is designed for users who are physically unable to use a mouse accurately (or at all). [ISO 9241-171:2008, Annex E]

4.9
on-screen keyboard
software that presents a keyboard on the display screen that is operable by a pointing device and that generates input that is identical to that which comes from a physical keyboard

NOTE   In ISO 9241-171:2008, 3.19, on-screen keyboard is given as an example of a keyboard emulator.

4.10
RepeatKeys™
facility to control auto-repeat, repeat onset and repeat rate of keys

NOTE 1   RepeatKeys™ is designed to allow use of computers by people who cannot move quickly enough when pressing keys to keep them from auto-repeating. The facilities to adjust repeat onset, repeat rate and to turn auto-repeat off are usually included as part of most keyboard system settings. If these functions are not included, RepeatKeys™ provides them. RepeatKeys™ also ensures that the repeat delay and repeat interval can be set long enough for users who do not have quick response (if the standard maximum value for either of the regular key repeat settings is not long enough). [ISO 9241-171:2008, Annex E]

NOTE 2   The system settings is a panel or window where the user adjusts OS settings. The name of the system settings differs depending on the OS. Common names for this function include control panel and system preferences.

4.11
screen reader
function that reads the characters and other information on the screen aloud to the user to allow access to the information on screen without viewing the screen

4.12
shortcut
operation which immediately invokes an action without displaying intermediate information (such as menus) or requiring pointer movement or any other user activity

4.13
ShowSounds™
user-configurable system flag that is readable by application software and is intended to inform ShowSounds™-aware applications that all information conveyed audibly should also be conveyed visually

NOTE   ShowSounds™ is a feature for users who cannot clearly hear speech or cannot distinguish between sounds from a computer due to hearing impairment, a noisy environment, or an environment where sound is not allowed, such as a library or classroom. For example, captions can be shown for recorded or synthesized speech, and a message or icon can be displayed when a sound is used to indicate that new mail has arrived. However, captions cannot be provided for speech output where the speech is reading information that is already visually presented on the screen (e.g. screen readers). [ISO 9241-171:2008, Annex E]

4.14
SlowKeys™
function that causes the keyboard to ignore all keys that are bumped or pressed briefly

NOTE   SlowKeys™ is designed for users who have extra, uncontrolled movements that cause them to strike surrounding keys unintentionally when typing. Keystrokes are accepted only if keys are held down for a user-specifiable period of time. [ISO 9241-171:2008, Annex E]

4.15
SoundSentry™
feature providing a visual signal to indicate when the computer is generating a sound

EXAMPLE   screen flash, caption bar flash.

NOTE   SoundSentry™ is a feature for individuals who cannot hear system sounds (due to hearing impairment, a noisy environment, or an environment where sound is not allowed, such as a library or classroom). SoundSentry™ works by monitoring the system sound hardware and providing a user-selectable indication whenever sound activity is detected. Note that this feature cannot usually discriminate between different sounds, identify the sources of sounds, or provide a useful alternative for speech output or information encoded in sounds. Applications can support the ShowSounds™ feature to provide the user with a useful alternative to information conveyed using sound. SoundSentry™ is just a system-level fallback for applications that do not support ShowSounds™. [ISO 9241-171:2008, Annex E]

4.16
StickyKeys™
function that allows users to press key combinations (e.g. Ctrl-Alt-Delete) sequentially rather than having to hold them all down together

NOTE   StickyKeys™ is designed for people who cannot use both hands, or who use a dowel or stick to type. StickyKeys™ works with those keys defined as "modifier" keys, such as the Shift, Alt and Ctrl keys. Usually the StickyKeys™ status is shown on-screen at the user's option. [ISO 9241-171:2008, Annex E]

4.17
Time Out
feature that turns the accessibility features off automatically after an adjustable time when no keyboard or mouse activity occurs

NOTE   Time Out is intended to be used on public or shared computers, such as those in libraries, bookstores, etc., where a user might leave the computer with an access feature turned on, thus potentially confusing the next user or leading people to think the computer was broken. [ISO 9241-171:2008, Annex E]

4.18
ToggleKeys™
feature alerting the user when a toggle key has been locked or unlocked

NOTE   ToggleKeys™ is a feature for users who cannot see the visual keyboard status indicators for locking (toggle) keys such as CapsLock, ScrollLock, NumLock, etc. ToggleKeys™ provides an auditory signal, such as a high beep, to alert the user that a toggle key such as the CapsLock has been locked, and a separate signal, such as a low beep, to alert the user that a toggle key has been unlocked. [ISO 9241-171:2008, Annex E]

4.19
visual emphasis
function that allows users to change the visual aspects to improve visibility

NOTE   Visual emphasis includes adjustment of character size, screen magnification, contrast, luminance, color balance, color tone inverse, gradation, etc.

4.20
visual feedback
function that allows users to know visually whether their operations (e.g. key input) have been accepted by the computer

NOTE   Visual feedback includes the key indicators when StickyKeys™ is enabled, visual indication when an on-screen key is pressed, etc.

4.21
voice operation
function that allows users to operate a computer with voice commands through a microphone (e.g. the voice command "Switch to Mail" activates the email application)

NOTE   The voice commands usually follow an activation keyword (e.g. "Computer!") in order to be distinguished from other speech that is not intended as a voice command.

5   Requirements and recommendations

5.1   Accessibility setting mode

5.1.1   Accessibility setting mode before login

The user should be able to access the accessibility setting mode from the login mode. In this case, the accessibility setting mode may not contain all of the setting items but it should contain at least the setting items to turn on and off the following functions; StickyKeys™, SlowKeys™, BounceKeys™, on-screen keyboard, voice operation, visual emphasis, and screen reader.

NOTE   This is a recommendation to provide the user access to the accessibility setting mode from the login screen. After login, the computer provides the accessibility setting features as described in Clause 5.1.2.

5.1.2 Contents and interface of the accessibility setting mode

The accessibility setting mode provides the access to the setting items described in Clause 5.2 except shortcuts.

The followings are requirements and recommendations for the user interface of the accessibility setting mode.

a) Keyboard access to all setting items shall be provided.

b) The keyboard access shall not require a user to press two or more keys simultaneously.

c) Pointing device access to all setting items shall be provided.

d) Text size in the setting dialogs shall be twice or more of the usual size.

e) Descriptions of setting items in the natural language shall be presented on screen.

f) Notification of the results of operations shall be provided to the user in both auditory and visual manner.

g) If two different access-feature options are settable at the same point in time, the keys to activate them should not be close to one another.

h) Voice operation access to all setting items should be provided.

i) Natural language should be used for voice operation and screen reader.

j) Text on the screen should be sans-serif letters.

k) Luminance of text on the screen should be at least five times higher than background.

l) Pictograms should be presented on screen for description of setting items.

NOTE   In g), Keys A, S, and D are adjacent in QWERTY keyboard. The keyboard access uses A, D, and G rather than A, S, and D, because some user might accidentally hit an adjacent key in the A, S, D case.

5.1.3 Access procedure

5.1.3.1 GUI operation

The following is the requirement of GUI operation to access the accessibility setting mode.

The system settings shall provide access to the accessibility setting mode.

NOTE   The system settings is a panel or window where the user adjusts OS settings. The name of system settings differs depending on OS. Some common names for this function include: control panel and system preferences.

5.1.3.2 Keyboard operation

The followings are the requirements and recommendation of keyboard operation to access the accessibility setting mode.

a) On systems that have an operating system-specific key for invoking commands, pressing this key together with "U" shall provide access to the accessibility setting mode.

b) Operating systems should provide a mechanism for users to define a key sequence (not involving the operating system-specific key) as an alternative way to invoke the accessibility setting mode.