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AMENDMENT 1
1996-12-15

Information technology — User system interfaces — Dialogue interaction —

Part 1:
Cursor control for text editing

AMENDMENT 1: Macro cursor control

Technologies de l'information — Interfaces de systèmes de l'utilisateur — Interaction par le dialogue —

Partie 1: Commande du curseur pour l'édition de texte

AMENDEMENT 1: Commande du «Macro curseur»

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Reference number
ISO/IEC 10741-1:1995/Amd.1:1996(E)

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. 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.

Amendment 1 to International Standard ISO/IEC 10741-1:1995 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee 18, *Document processing and related communication*.

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Information technology — User system interfaces — Dialogue interaction —

Part 1:
Cursor control for text editing

AMENDMENT 1: Macro cursor control

Replace the text of clause 2 by:

An application claming conformance to this part of ISO/IEC 10741 shall conform to clauses 5, 6, 7, 8, 8.1 and 8.2 (conditional).

Add the following three new definitions:

4.20 frame: The text bounded by the edges of the screen or the window in which a part of the document is displayed to the user.

4.21 macro cursor control: User ability to move the cursor more than one increment at a time.

Note - The increment unit is application dependent; typically, a character is the increment unit in text editing.

4.22 page: A part of the document which will be presented as a single unit. The extent of the part to be presented is determined by the application. Typically this area corresponds to a physical page or a hypertext node.

Add the following two new clauses:

8 Macro cursor control for linear text editing realized through keyboard keys or analogous devices

Macro movements of the cursor are implemented through activation of user input functions. This part of ISO/IEC 10741 does not specify what input device is to be used to effect the specified macro movements. However, if keyboard keys are used, they shall be located in the editing zone of the keyboard as specified in ISO/IEC 9995-5. If symbols are used to indicate functions they shall be in accordance with ISO/IEC 9995-7, whether the implementation uses the keyboard keys or analogous devices.

ISO/IEC 10741 specifies that some macro movement functions are mandatory and that some are optional. Further, it makes recommendations for how both kinds of functions should be implemented.

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8.1 Mandatory macro cursor control functions

The functions in 8.1.1 to 8.1.6 shall be available to the user of Latin-based languages text editing applications through activation of keys. Clause 9 describes recommended ways that these functions may be implemented.

8.1.1 Next word

Activating the "next word" function shall move the cursor to the first character of the word following the current word. If the cursor is positioned at the last word on the last line of the active document, activating the "next word" function shall move the cursor to the end of the document. If the cursor is positioned at the end of the document, activating the "next word" function shall not move the cursor.

8.1.2 Previous word

Activating the "previous word" function shall move the cursor to the first character of the current word, or, if the cursor is already positioned at the first character of that word, it shall move to the first character of the word preceding the current word. If the cursor is positioned at the beginning of the document, activating the "previous word" function shall not move the cursor.

8.1.3 Beginning of line

Activating the "beginning of line" function shall move the cursor to the beginning of the current line. If the cursor is positioned at the beginning of a line, activating the "beginning of line" function shall not move the cursor.

8.1.4 End of line

Activating the "end of line" function shall move the cursor to the end of the current line. If the cursor is positioned at the end of a line, activating the "end of line" function shall not move the cursor.

8.1.5 Beginning of document

Activating the "beginning of document" function shall move the cursor to the beginning of the first line of the active document. If the cursor is positioned at the beginning of the first line, activating the "beginning of document" function shall not move the cursor.

8.1.6 End of document

Activating the "end of document" function shall move the cursor to the end of the last line of the active document. If the cursor is positioned at the end of the last line, activating the "end of document" function shall not move the cursor.

8.2 Conditional (optional) macro cursor movement functions

The functions in 8.2.1 to 8.2.6 are implemented in many word processing and text editing applications. They are optional to systems conforming to this part of ISO/IEC 10741, but if included they shall conform to subclauses 8.2.1 to 8.2.6. Clause 9 describes recommended ways that these optional functions may be implemented.

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8.2.1 Next paragraph

Activating the "next paragraph" function shall move the cursor to the first character of the next paragraph. If the cursor is positioned in the last paragraph of the active document, activating the "next paragraph" function shall move the cursor to the end of the document.

8.2.2 Previous paragraph

Activating the "previous paragraph" function shall move the cursor to the position of the first character of the current paragraph. If the cursor is positioned at the first character of a paragraph, activating "previous paragraph" shall move the cursor to the first character of the previous paragraph. If the cursor is positioned in the first paragraph of the active document, activating the "previous paragraph" function shall move the cursor to the beginning of the document.

8.2.3 Next text

Activating the "next text" function shall display the following contiguous part of the document in the frame. The size of each contiguous part is determined by the application; typically it is either the entire visible portion of the frame or half of it. The cursor shall retain its original position in the frame. If the target position is affected by formatting or if it is not available, the frame shall move so that the cursor is in a position that is closest to the target position. The target position shall be retained until a function other than "next text" or "previous text" is invoked. If the cursor is positioned in the last line of the last view frame, activating the "next text" function shall not move the cursor.

8.2.4 Previous text

Activating the "previous text" function shall display the previous contiguous part of the document in the frame. The size of each contiguous part is determined by the application; typically it is either the entire visible portion of the frame or half of it. The cursor shall retain its original position in the frame. If the target position is affected by formatting or if it is not available, the cursor shall move to the first available position that is closest to the target position. The target position shall be retained until a function other than "next text" or "previous text" is invoked. If the cursor is positioned in the first line at the beginning of the document, activating the "previous text" function shall not move the cursor.

8.2.5 Next page

Activating the "next page" function shall display the first part of the following page and shall move the cursor to the beginning of the page. The size of a page is determined by the application or the user. If the cursor is positioned in the last page of the document, activating the "next page" function shall not move the cursor.

8.2.6 Previous page

Activating the "previous page" function shall display the first part of the previous page and shall move the cursor to the beginning of the page. If the cursor is positioned in the first page of the document, activating the "previous page" function shall not move the cursor.

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9 Recommended activation of functions for macro cursor control

The functions required for macro cursor control may be activated through function assigned to keyboard keys, screen menus, touch screen areas, or any other appropriately labelled device.

The labels in quotes in subclauses 9.1 to 9.12 represent functions already implemented by many systems. These functions may be mapped to keyboard keys, icon buttons, or other screen symbols. Functions defined in this part of ISO/IEC 10741 should be implemented as described in subclauses 9.1 to 9.12.

9.1 Next word

The "next word" function should be activated by simultaneous activation of "control" and "cursor right" functions.

9.2 Previous word

The "previous word" function should be activated by simultaneous activation of "control" and "cursor left" functions.

9.3 Beginning of line

The "beginning of line" function should be activated by "beginning(home)" function.

9.4 End of line

The "end of line" function should be activated by "end" function.

9.5 Beginning of document

The "beginning of document" function should be activated by simultaneous activation of "control" and "beginning(home)" functions.

9.6 End of document

The "end of document" function should be activated by simultaneous activation of "control" and "end" functions.

9.7 Next paragraph

The "next paragraph" function should be activated by simultaneous activation of "control" and "cursor down" functions.

9.8 Previous paragraph

The "previous paragraph" function should be activated by simultaneous activation of "control" and "cursor up" functions.

9.9 Next text

The "next text" function should be activated by "next page(pg dn)" function.

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9.10 Previous text

The "previous text" function should be activated by "previous page(pg up)" function.

9.11 Next page

The "next page" function should be activated by simultaneous activation of "control" and "next page(pg dn)" functions.

9.12 Previous page

The "previous page" function should be activated by simultaneous activation of "control" and "previous page(pg up)" functions.

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International Standard ISO/IEC 10741-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology.*

ISO/IEC 10741 consists of the following parts under the general title *Information technology — User system interfaces — Dialogue interaction:*

Part 1: Cursor control for text editing

Part 2: Cursor control for spreadsheets

Annex A of this part of ISO/IEC 10741 is for information only.

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Introduction

This part of ISO/IEC 10741 specifies how incremental cursor control is effected as a result of user interaction with a text editor. Cursor control in form filling and spread sheet applications, cursor control in editing other forms of text such as graphics, and cursor control in manipulating simple and complex documents are not covered in this part of ISO/IEC 10741.

The clauses in this part of ISO/IEC 10741 are basic to a set of proposed standards dealing with user/computer dialogue interaction.

The specifications in ISO/IEC 10741 are consistent with the three ways in which text editing data may be considered:

- the internal data structure (the internal computer storage),
- the displayed data (the interface presented by the computer system to the user), and
- the conceptual data structure (the user's interpretation of what is presented).

Cursor control identifies and changes the location of user/system interaction through a change in focus. The accurate and appropriate mapping of the user's focus and intent to the active position displayed by the system and the processing of the internal data structure is the objective of cursor display and control. The ease of changing the focus and the predictability of the results are central to the user's comfort level and sense of control.

Some text editors implement formatting controls that are part of the text string in the internal data structure and that are displayed or available to be displayed to the user as a part of the displayed data. Other text editors implement formatting control as a separate function that creates a template controlling the output of the text string. The specifications in this part of ISO/IEC 10741 permit both types of formatting control implementation.

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Information technology — User system interfaces — Dialogue interaction —

Part 1: Cursor control for text editing

1 Scope

This part of ISO/IEC 10741 defines how a number of system capabilities for cursor control in text editing systems shall be initiated, controlled, and monitored by users by means of cursor control functions. It covers bounded linear text and open page text mode editing.

The scope of this part of ISO/IEC 10741 is limited to text editing of left-to-right writing styles by use of keyboard keys or other input devices, but the principles delineated may be applicable to text in other scripting styles. Cursor control in right-to-left and top-to-bottom writing styles may be the subject of future standardization.

This part of ISO/IEC 10741 applies only to information systems that display text to a user for editing on a screen. It concerns the human user of the application, but is intended to be used by those who design and develop computer applications. It will also assist procurers in specifying a harmonized and consistent user interface.

2 Conformance

An application claiming conformance to this part of ISO/IEC 10741 shall conform to clauses 5, 6, and 7.

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3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10741. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10741 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 9241-3:1992, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 3: Visual display requirements.*

ISO/IEC 9995-5:1994, *Information technology —Keyboard layouts for text and office systems —Part 5: Editing section.*

ISO/IEC 9995-7:1994, *Information technology — Keyboard layouts for text and office systems — Part 7: Symbols used to represent functions.*

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4 Definitions

For the purposes of this part of ISO/IEC 10741, the following definitions apply.

4.1 active document: Document that contains the current cursor or selection marker. It is a (possibly empty) body of text that is ready to receive input.

4.2 active position: Character position that will display the graphic symbol representing the next graphic character, or relative to which the next control function [1] will be executed .

Note — The external indication of the active position in an active document is the cursor.

4.3 beginning of line: First position of the line that could be occupied by a graphic character.

4.4 between-objects cursor: Cursor that visibly identifies the boundary immediately prior to the active position.

4.5 bounded linear text mode: Mode in which it is only possible to move the cursor among existing characters or formatting or presentation indicators, within the active document. For example, the cursor cannot be moved beyond the last character of a line.

4.6 character: Member of a set of elements used for the organization, control, or representation of data [2].

4.7 character path: Sequential order of character positions along a line of presented data [2].

4.8 co-located cursor: Cursor that occupies the active position.

4.9 cursor: Special indicator used in a display to mark the active position.

Note - The word "cursor" should not be confused with "pointer," which is reserved for indicating the symbol controlled by the mouse or other input device to change the point of focus (for example, the cursor) on a graphical user interface [3].

4.10 editing: Modification of content or layout of text. Editing processes include creation, insertion, deletion, and re-arrangement of text.

4.11 end of line: 1) In bounded linear text mode the character position after the last graphic character or formatting or presentation indicator. If the line is empty, the end of line is the same as the beginning of line. 2) In open page text mode, the last position in the line that could be occupied by a graphic character.

Note - A carriage return, and a software carriage return that is automatically inserted by a text editing system for word wrapping, are special cases of formatting characters. A character cursor can move onto these characters but a between-objects cursor cannot move over them. That is, in bounded text mode, a between-objects cursor moves after visible or formatting characters but before a (software and/or hardware) carriage return. A character cursor can move to a (software and/or hardware) carriage return.

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4.12 formatting or presentation indicator: Indicator of a function that affects the layout or appearance of the text. The indicator has a visual representation that can be operated on as a unit.

Note - Examples of formatting or presentation indicators can be the words " TAB," "INDENT," "RIGHT-JUSTIFY," and " BOLD". Whether these examples are formatting or presentation indicators is application dependent.

4.13 graphic character: Character that has a visual representation normally displayed, handwritten, or printed.

Note — A SPACE is a graphic character.

4.14 incremental cursor control: User-controlled function that moves the cursor in increments dictated by the application. In character-based text editing, the increment is typically one character in the horizontal direction and one line in the vertical direction.

4.15 input: User action taken in order to do editing.

4.16 mode: Manner in which user instructions to the system are interpreted. Modes are those states of a system in which user actions result in a specific set of outcomes, some of which may be peculiar to those states. Qualifiers of the word "mode" are used to indicate the specific state intended.

4.17 open page text mode: Mode in which the cursor may move anywhere within a rectangular work area.

Note — In open page text mode, the work area is analogous to sheets of paper. The user may, for example, directly create notes in the margin of a document. Typically, this mode is implemented by prefilling the work area with spaces.

4.18 selection marker: Visual differentiation of (perhaps multiple and contiguous) character(s) or formatting or presentation indicator(s) that represents the current focus.

4.19 target position: When moving the cursor up or down, the horizontal position on the line that is closest to the original horizontal starting position.

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5 Cursor presentation

The cursor that indicates the active position in an active document shall be either a between-objects cursor immediately to the left of the active position, or a cursor co-located with the active position. The appearance of the cursor may be used to differentiate between insert and type-over mode.

5.1 Co-located cursor

A co-located cursor shall consist of a visible indication that makes the cursor position distinguishable from other positions in the text (for example, by highlighting, underlining, or color-inversion).

5.2 Between-objects cursor

A between-objects cursor shall consist of a visible indicator (for example, a line perpendicular to the direction of the character path or a caret) that is distinguishable from the text characters.

5.3 Cursor blinking rate

If a blinking cursor is provided, the cursor blinking rate shall be in accordance with 6.22 and 6.23 of ISO 9241-3. It should be possible to switch off the blinking of the cursor. The stable cursor need not be the same type or shape as the blinking cursor.

5.4 Current view

The cursor shall be visible at the end of any operation that establishes the cursor location.

> Note — The cursor need not be located in view in the beginning of an operation, (e.g., when the cursor has been moved out of view).

6 User cursor control

It shall be possible for the user to establish the location of the cursor at any permissible character position. When the user activates any cursor control function, and the active position is changed, there shall be system feedback to the user. It is recommended that this feedback be visible on the screen at all times. However, this part of ISO/IEC 10741 does not exclude implementations where the feedback is realized on currently invisible formatting or presentation indicators that are available to the user for display.

The cursor, or the selection marker realized as visually differentiated objects, shall reflect the current active position. Movement of the cursor shall have no effect on the content or format of the active document.

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Incremental cursor control by means of four basic user controls shall be provided. The four basic controls correspond to cursor up, cursor down, cursor left, and cursor right.

Note - It is also possible to move the cursor by controlling it with the pointer of a graphical user interface.

6.1 Cursor control mechanism

Cursor control shall be available through a keyboard or some other input device. When incremental cursor control is implemented through a keyboard, the implementation shall provide the functions through a set(s) of four keys positioned and marked as specified in ISO/IEC 9995-5 and ISO/IEC 9995-7.

6.2 Bounded linear text mode

6.2.1 Cursor left function. Activating the cursor left function shall cause the cursor to move one character position, or one intervening formatting or presentation indicator, to the left except:

— if the cursor is at the beginning of line in any line other than the first line of the document, the cursor shall move to the end of the preceding line.

— if the cursor is at the beginning of a document, the cursor shall not move.

6.2.2 Cursor right function. Activating the cursor right function shall cause the cursor to move one character position, or one intervening formatting or presentation indicator, to the right except:

— if the cursor is at the end of line in any line other than the last line of the document, the cursor shall move to the beginning of the next line.

— if the cursor is at the end of a document, the cursor shall not move.

6.2.3 Cursor up function. Activating the cursor up function shall cause the cursor to move up one line except where the cursor is on the top line of a document when it shall not move.

The cursor shall move to a graphic character or to a formatting or presentation indicator that is in the closest horizontal position above the cursor position at the beginning of the sequence of cursor up or cursor down operation(s). In particular:

— if the target position is affected by formatting, the cursor shall move to the closest potentially active position in the target line.

— if the line above has insufficient graphic characters or formatting or presentation indicators to extend to the target position, the cursor shall move to the end of that line.

— in proportional text systems with between-objects cursor, if the target position is equidistant between two potential new positions, the target position shall be the one located after the character.

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The horizontal target position in the line shall be retained by the system until an action other than cursor up or cursor down has been activated. Until the starting position has been reset, subsequent use of cursor up or cursor down shall attempt to align the cursor with the original horizontal position.

6.2.4 Cursor down function. Activating the cursor down function shall cause the cursor to move down one line, except where the cursor is on the bottom line of a document when it shall not move.

The cursor shall move to a graphic character or a formatting or presentation indicator that is in the closest horizontal position below the cursor position at the beginning of the sequence of cursor up or cursor down operation(s). In particular:

— if the target position is affected by formatting, the cursor shall move to the closest potentially active position in the target line.

— if the line below has insufficient graphic characters or formatting or presentation indicators to extend to the target position, the cursor shall move to the end of that line.

— in proportional text systems with between-objects cursor, if the target position is equidistant between two potential new positions, the target position shall be the one located after the character.

The horizontal target position in the line shall be retained by the system until an action other than cursor up or cursor down has been activated. Until the starting position has been reset, subsequent use of cursor up or cursor down shall attempt to align the cursor with the original horizontal position.

6.3 Open page text mode

6.3.1 Cursor left function. Activating the cursor left function shall cause the cursor to move one character position, or one intervening formatting or presentation indicator, to the left except:

— if the cursor is at the beginning of line in any line other than the first line of the document, the cursor shall move to the last character position of the preceding line.

— if the cursor is at the beginning of a document, the cursor shall not move.

6.3.2 Cursor right function. Activating the cursor right function shall cause the cursor to move one character position, or one intervening formatting or presentation indicator, to the right except:

— if the cursor is at the end of line in any line other than the last line of the document, the cursor shall move to the first character position of the next line.

— if the cursor is at the end of a document, the cursor shall not move.

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6.3.3 Cursor up function. Activating the cursor up function shall cause the cursor to move up one line, retaining the horizontal line position, except where the cursor is on the top line of a document when it shall not move.

6.3.4 Cursor down function. Activating the cursor down function shall cause the cursor to move down one line, retaining the horizontal line position, except where the cursor is on the bottom line of a document when it shall not move.

7 System cursor control

7.1 Initial position

When a document is created or a document without an active position is retrieved, the cursor and active position shall be positioned at the beginning of the document.

7.2 Conservation of active position

The active position in an active document shall remain constant unless the user takes an action intended to cause active position relocation. The active position may be conserved during periods when a document is inactive.

7.3 Cursor position after text modification or movement

At the conclusion of any operation that modifies text by adding, replacing, or deleting, the cursor shall consistently be positioned either at the end or at the beginning of the modification.

At the conclusion of any operation that moves text (e.g., block movement), the cursor shall consistently be positioned either at the end or at the beginning of the moved text.

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Annex A
(informative)
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[1)] To be published

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