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for ISO/IEC 11581-5

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Introductory note

This document is the result of work carried out by ISO/IEC JTC 1/SC35/WG 2 members at their meeting in Nara in May 2000. It includes comments received from the National P-members Bodies of SC 35 on Document ISO/IEC JTC 1/SC 35 N0137. It is in response to ISO/IEC JTC 1/SC 35 Resolution 15 adopted at the combined ISO/IEC JTC 1/SC35 Plenary and WG meetings (16^{th} -232^{nd} May 2000).

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P-members have an obligation to vote

ISO/IEC JTC 1/SC 35 Title : Information technology – User interfaces Secretariat : AFNOR – France -	Circulated to P-members of the committee for voting

Please send this form, duly completed, to the secretariat indicated above.

Final DIS 11581-5

Title : Information technology - User system interfaces and symbols - Icon symbols and functions - Part 5: Tool icons.

Please put a cross in the appropriate box(es)

Approval of the draft :

☐ as presented

☐ with comments as given below (use separate page as annex, if necessary)

- ☐ general
- ☐ technical
- ☐ editorial

It should be appropriate to check the terminology used in this Committee Draft against International Standards already published in this field.

☐ **Disapproval of the draft for reasons below (use separate page as annex, if necessary)**

- ☐ Acceptance of these reasons and appropriate changes in the text will change our vote to approval

☐ **Abstention (for reasons below)**

P-member voting:

Date : Signature :

Reference number of working document: **ISO/IEC JTC1/SC 35 N 547**

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Secretariat: ANSI

Information technology — User system interfaces and symbols — Icon symbols and functions —

Part 5: Tool icons

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Contents

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 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.

International Standard ISO/IEC 11581-5 was prepared by Joint Technical Committee ISO/IEC JTC1, Information Technology, Subcommittee SC 35, User Interfaces, Working Group 2, User Interface Interaction

ISO/IEC 11581 consists of the following parts under the general title Information technology - User system interfaces and symbols - Icon symbols and functions:

— *Part 1: Icon — General*

— *Part 2: Object icons*

— *Part 3: Pointer icons*

— *Part 4: Control icons*

— *Part 5: Tool icons*

— *Part 6: Action icons*

Introduction

Tools are the subset of the interactive icons that modify graphical or text elements of an application by association with real life tool objects. Tool icons represent tool functions such as drawing, painting, or modifying graphical elements. ISO/IEC 11581-5 specifies the presentation and operation of tools.

Information technology — User system interfaces and symbols — Icon symbols and functions —

Part 5: Tool icons

1 Scope

ISO/IEC 11581 applies to icons that are shown on a screen, that users can manipulate and interact with, and that represent data or computer system functions. ISO/IEC 11581-5 addresses only tool icons. Tool icons represent functions by association with real life tools. ISO/IEC 11581-5 describes user interaction with and appearance of tools on the screen. It also specifies the relationship between tools and pointers. Other types of icons are covered in other parts of the standard and are listed in the Foreword.

2 Conformance

A system, application, or set of one or more icons conforms to ISO/IEC 11581-5 if all tool icons available to the user in the system or application conform to clauses 5 and 6.1 of ISO/IEC 11581-1 and to clause 6.1 of ISO/IEC 11581-3, and to clauses 5 and 6.1 of ISO/IEC 11581-5.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 11581. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 11581 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 11581-1 Information technology — *User system interfaces and symbols — Icon symbols* and functions — *Part 1:Icons — General*

ISO/IEC 11581-2 Information technology — *User system interfaces and symbols — Icon symbols* and functions — *Part 2:Object icons*

ISO/IEC 11581-3 Information technology — *User system interfaces and symbols — Icon symbols* and functions — *Part 3:Pointer icons*

ISO/IEC 11581-4 Information technology — *User system interfaces and symbols — Icon symbols* and functions — *Part 4:Control icons*

ISO/IEC 11581-6 Information technology — *User system interfaces and symbols — Icon symbols* and functions — *Part 6:Action icons*

4 Definitions

For the purposes of this part of ISO/IEC 11581, the definitions given in ISO/IEC 11581-1, ISO/IEC 11581-2, IISO/IEC 11581-3 and ISO/IEC 11581-4 and the following definitions apply.

4.1 Tool palette

bounded area displaying a matrix of available tools from which user makes a selection.

4.2 Tool pointer

changed graphic of the pointer resulting from the selection of the corresponding tool from the tool palette.

NOTE A tool is an icon whose selection changes the function and shape of the pointer to perform a task with the associated tool depicted by the icon graphic. (From ISO/IEC 11581-1 clause 4.17)

5 Conceptual construction of tools

The conceptual construction of tools is similar to that shown for object icons in clause 5 of ISO/IEC 11581-2. The metaphor is that of pushing a button to invoke the associated functionality.

6 Tool requirements and recommendations

When a tool is selected from the palette, the pointer changes its shape to the corresponding tool pointer. The subclauses below describe requirements and recommendations for tools and their corresponding tool pointers. Tool pointers inherit requirements and recommendations of pointers described in clause 6 of ISO/IEC 11581-3.

6.1 Requirements

The tool in the palette shall indicate to the user its associated function. At the same time the corresponding pointer shall confirm selection and prompt the user for the next available action.

6.1.1 Arrangement

All tools shall be grouped together in one or more tool palettes. Related tools shall be arranged adjacently within the tool palette. Other types of the icons from other part of this standard shall not be incorporated in the tool palette.

6.1.2 Selection

The selection of a tool shall be made by selecting function with the pointer. Selections from the tool palette shall be mutually exclusive.

6.1.3 Feedback

When selected, the tool in a palette shall show its selected state.

NOTE The pointer should change its shape to confirm the selection and reflect the function associated with the selected tool. (see ISO/IEC 11581-3 clause 6.1.5)

6.1.4 Sensitive region and hot spot

Each tool on a palette shall have a sensitive region, typically an invisible overlay over the entire cell containing the tool graphic. The tool pointer shall have a hot spot. The hot spot of a tool pointer shall be intuitive and natural to the user. (The hot spot of the tool pointer is similar to that shown in clause 6.1.3 of ISO/IEC 11581-3)

6.1.5 Orientation

There shall be consistent orientation between all the graphics in a tool palette. Where appropriate, there shall be visual consistency in the orientation of the tool palette graphic and the tool pointer graphic.

6.2 Recommendations

6.2.1 Metaphor

The metaphor represented by the tool graphics should be directly related to the functionality of the tool.

6.2.2 Typeface

A simple typeface should be employed if letters, numbers, punctuation marks, and mathematical symbols are used as integrated elements of the tool.

6.2.3 Colour

The tool pointers should be black or white on a transparent background. The tools on the tool palette may be coloured but should be of similar visual weight when unselected.

6.2.4 Feedback

The change of shape from the default pointer to the tool pointer should be consistent and predictable by the user.

7 Icon specifications

The following specifications for tools are developed based on clause 5. The illustrations represent the basic graphics for the tool subject to global variations (see ISO/IEC 11581-1, clause 6.3) and the specific variations given in this clause, listed for each tool where appropriate.

Tools specified in this clause fall into two categories:

- Creation tools used for inputting text and graphics (7.1)
- Manipulation tools used for grouping and editing objects (7.2)

The categories fall into further subcategories as follows.

Creation tools (7.1):

- Text creation (7.1.1)
- Line and shape creation (7.1.2)
- Area creation (7.1.3)

Manipulation tools (7.2)

- Area selection(7.2.1)
- Object manipulation (7.2.2)
- Overview control (7.2.3)

A graphics for all categories are shown bounded by a grey cell. The size of the cell and the location of the tool within it are shown for illustration only, and are implementation dependent.

7.1 Creation tools

7.1.1 Text creation

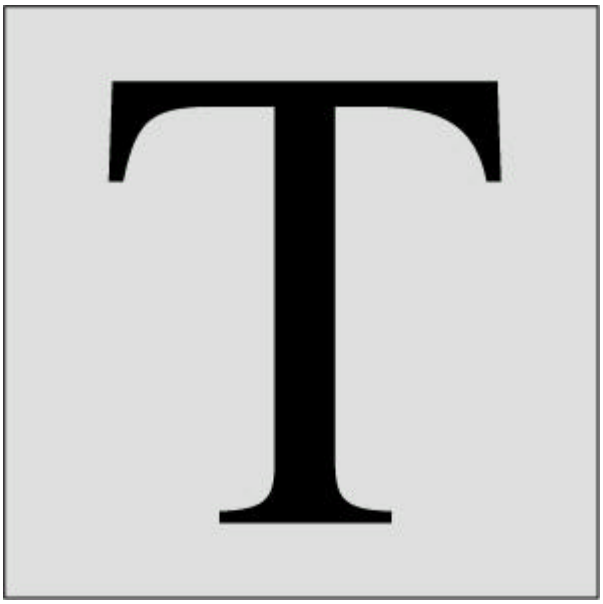
7.1.1.1 Text input

Primary function. To input or edit text in the area identified by the text pointer.

Specific instance. The letter “T”

Components. A normal weight, serifed, capital letter “T” or another generic letter.

Graphic.



Corresponding tool pointer. Text pointer specified in clause 8.1 of ISO/IEC 11581-3 should be applied.

7.1.2 Line and shape creation

7.1.2.1 Straight line draw

Primary function. To draw a straight, constant width line.

Specific instance. A line segment.

Components. A diagonal line segment.

Graphic.

Corresponding tool pointer. The default pointer or the cross-hair pointer specified in clauses 7 and 8.3 of ISO/IEC 11581-3.

7.1.2.2 Freehand draw

Primary function. To draw constant width, unconstrained line

Specific instance. A freehand line.

Components. An irregular, curved line.

Graphic.

Corresponding tool pointer. The default pointer or the cross-hair pointer specified in clauses 7 and 8.3 of ISO/IEC 11581-3.

7.1.2.3 Arc draw

Primary function. To draw an arc.

Specific instance. An arc.

Components. An arc segment.

Graphic.

Corresponding tool pointer. The default pointer or the cross-hair pointer specified in clauses 7 and 8.3 of ISO/IEC 11581-3.

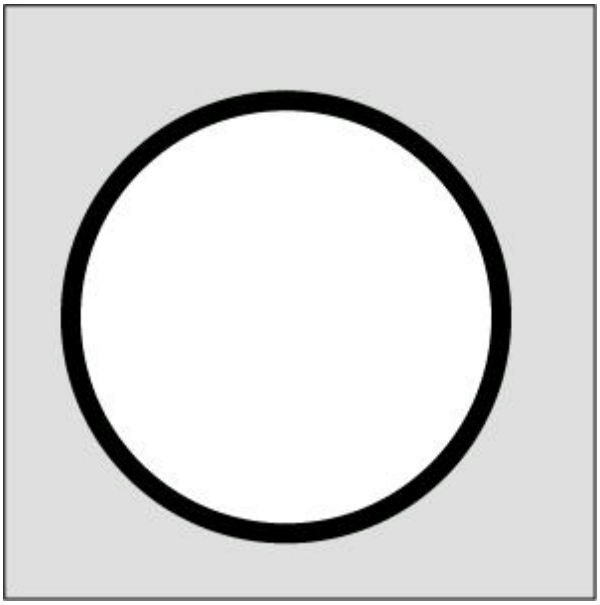
7.1.2.4 Circle draw

Primary function. To draw a circle.

Specific instance. A circle

Components. An outline circle.

Graphic.



Specific variations. Outline or filled circle, depending on the available functionality.

Corresponding tool pointer. The default pointer or the cross-hair pointer specified in clause 7 and 8.3 of ISO/IEC 11581-3.

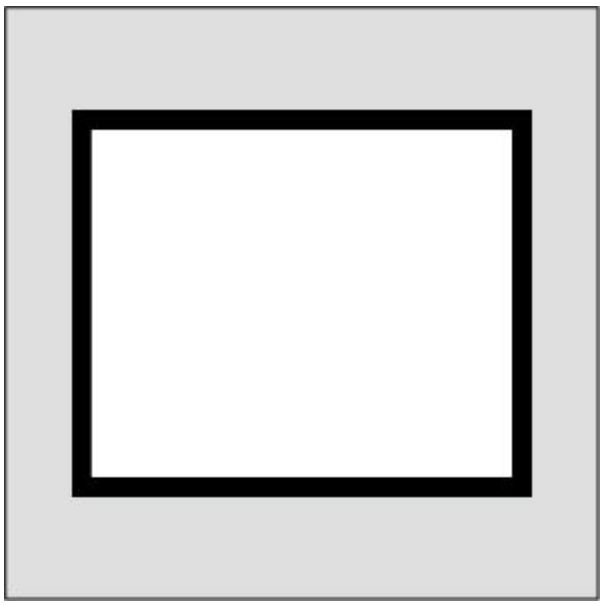
7.1.2.5 Rectangle draw

Primary function. To draw a rectangle.

Specific instance. A rectangle.

Components. An outline rectangle.

Graphic.



Specific variations. Outline or filled circle, depending on the available functionality.

Corresponding tool pointer. The default pointer or the cross-hair pointer specified in clauses 7 and 8.3 of ISO/IEC 11581-3.

7.1.2.6 Polygon draw

Primary function. To create an irregular polygon.

Specific instance. A Polygon.

Components. An irregular, outline polygon.

Graphic.

Specific variations. Outline or filled polygon, depending on the available functionality.

Corresponding tool pointer. The default pointer or the cross-hair pointer specified in clauses 7 and 8.3 of ISO/IEC 11581-3.

7.1.3 Area creation

7.1.3.1 Flood fill

Primary function. To fill a bounded area of an image with the preselected pattern and colour.

Specific instance. A paint bucket.

Components.

- Bucket. An angled rectangle with curved lower corners.
- Handle. A line shaped as an inverted U with a small circle at the visible end.
- Flowing paint. A broad, curved line flowing from the paint bucket.

Graphic.

Corresponding tool pointer.

- The same graphic as the tool but it can be left or right-hand oriented.
- The hot spot should be the lowest tip of the flowing paint.

7.1.3.2 Colour pick-up

Primary function. To select a colour already used as part of the image.

Specific instance. A pipette as typically used to pick-up a small amount of liquid.

Components.

- Tube. A thin angled rectangle narrowed at the lower end, with calibrations along one side.
- Cap. A balloon shaped bulb in a solid colour.

Graphic.

Corresponding tool pointer.

- The same graphic image as the tool but it can be left or right-hand oriented.
- The hot spot should be at the lowest tip of the tube.

7.1.3.3 Erase

Primary function. To erase areas within the bitmap image.

NOTE The effective size and shape of the corresponding pointer should be user selectable.

Specific instance. An eraser.

Components. A three dimensional, rectangular block.

Graphic.

Corresponding tool pointer.

- A two dimensional, regular shaped pointer, e.g. a square or circle, but it can be left or right-hand oriented.
- In this instance the hot spot is typically the entire pointer shape.

7.1.3.4 Brush paint

Primary function. To create broad, freehand lines.

Specific instance. A broad paint brush, typically used for painting large areas.

Components.

- Handle. A tall rectangle.
- Brush. A square divided horizontally in half, the lower half filled in a solid colour.

Graphic.

Corresponding tool pointer.

- The pointer shape should correspond to the line style required, e.g. a square, circle, or short diagonal line and be selectable by the user.
- The hot spot should be intuitive to the user.

7.1.3.5 Gradation fill

Primary function. To fill a bounded area of an image with a selected gradation pattern.

Specific instance. Gradation.

Components. A rectangular box containing a gradated pattern.

Graphic.

Corresponding tool pointer. the same tool pointer as for “Flood fill” (see clause 7.1.3.1).

7.1.3.6 Spray paint

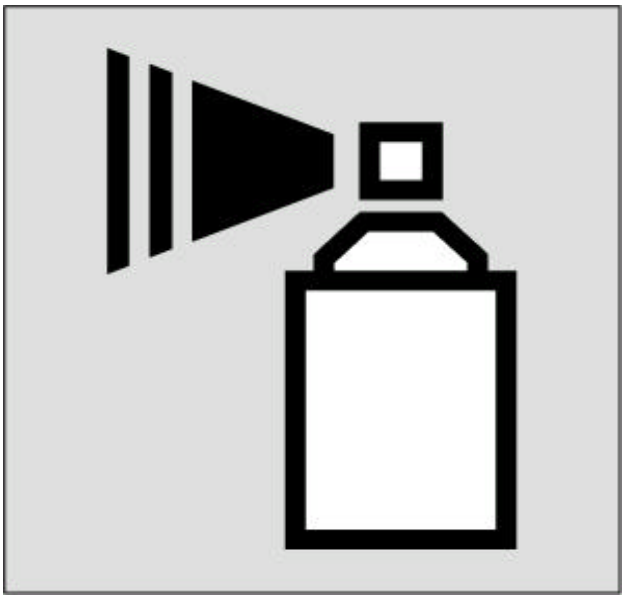
Primary function. To spray paint an area with colour to create an irregular effect.

Specific instance. An aerosol spray can.

Components.

- Spray can. A tall rectangle surmounted with a trapezium and a small square above that.
- Spray mist. A gradated triangular area.

Graphic.



Corresponding tool pointer.

- The same graphic as the tool without spray jet. But it can be left or right-hand oriented.
- The hot spot should be at the tip of the spray nozzle.
- The size of the spray area and its density should be selectable by the user.

7.2 Manipulation tools

7.2.1 Area selection

7.2.1.1 Rectangular area select

Primary function. To select a rectangular area containing objects and images.

Specific instance. Setting a bounded area that surrounds the targeted objects or area.

Component. A rectangle made from dotted lines.

Graphic.

Corresponding tool pointer.

- For area selection, the default pointer specified in clause 7 of ISO/IEC 11581-3 should be used.
- For area manipulation, a cross-hair pointer similar to the pointer specified in clause 8 .3 of ISO/IEC 11581-3, but with continuous lines and arrowhead at their ends, should be used.

7.2.1.2 Irregular shaped area select

Primary function. To select an irregular shaped area containing objects and images.

Specific instance. Setting a bounded area that surrounds the targeted object and area.

Component. A freehand shape made from a continuous dotted line.

Graphic.

Corresponding tool pointers.

- For area selection, the default pointer specified in clause 7 of ISO/IEC 11581-3 should be used.
- For area manipulation, a cross-hair pointer similar to the pointer specified in clause 8 .3 of ISO/IEC 11581-3, but with continuous lines and arrow head at their ends, should be used.

7.2.2 Object manipulation

7.2.2.1 Rotate

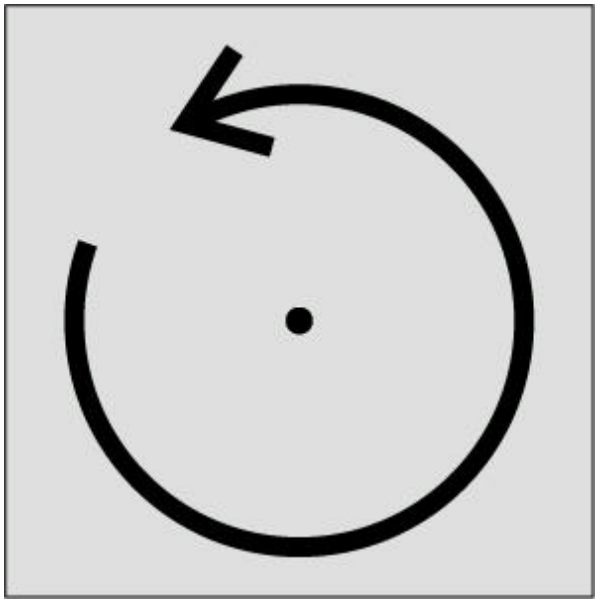
Primary function. To rotate an object.

Specific instance. The track of an object rotating about an axis.

Components..

- An incomplete counter clockwise circle with an arrowhead.
- An axis point.

Graphic.



Specific variation. The incomplete circle and arrowhead may be shown in a clockwise direction.

Corresponding tool pointer. The default pointer specified in clause 7 of ISO/IEC 11581-3.

7.2.2.2 Flip

Primary function. To flip the selected object.

Specific instance. A mirror image.

Components.

- A right-angled, outline triangle.
- A right-angled, solid filled triangle.

NOTE: These components should be arranged to indicate a mirrored image.

Graphic.

Corresponding tool pointer. The default pointer specified in clause 7 of ISO/IEC11581-3.

7.2.2.3 Group

Primary function. To group selected objects for manipulation as a single unit.

Specific instance. A symbol that represents several objects drawn as a grouped object.

Components.

- Two overlapping rectangles.
- Four small solid squares located near the corners of the icon cell.

Graphic.

Corresponding tool pointer. The pointer should be as specified in clause 7.2.1.1.

7.2.2.4 Ungroup

Primary function. To undo the grouping previously applied to the selected objects.

Specific instance. A symbol that represents a grouped object as a cluster of individual objects.

Components.

- Two overlapping rectangles.
- Eight small solid squares located at the corners of the rectangles.

Graphic.

Corresponding tool pointer. The pointer should be as specified in clause 7.2.1.1.

7.2.3 Overview control

7.2.3.1 Background move

Primary function. To move the background “sheet of paper” in any direction.

Specific instance. A human hand.

Components. The rear view of an open, human hand.

Graphic.

Corresponding tool pointer.

- The same graphic as the tool but it can be left or right-hand oriented.
- The hot spot should be at the centre of the hand.

7.2.3.2 Zoom

Primary function. To enlarge or reduce the magnification of a selected area.

Specific instance. A magnifying glass.

Components.

- An outline circle.
- A thick diagonal line attached to the outside of the circle.

Graphic.

Specific variations. A mathematical plus or minus symbol can be added in the centre of the circle to indicate increasing or decreasing the magnification.

Corresponding tool pointer.

- The same graphic as the tool. but it can be left or right-hand oriented
- The hot spot should be at the centre of the circle.