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

Part 1: Icons — General

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Technologies de l'information — Interfaces pour système utilisateur et symboles — Symboles et fonctions d'icônes —

Partie 1: Icônes — Généralités

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 11581 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 11581-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

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

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— *Part 1: Icons — General*

— *Part 2: Object icons*

— *Part 3: Pointer icons*

— *Part 4: Control icons*

— *Part 5: Tool icons*

— *Part 6: Action icons*

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Introduction

Icons are used on visual display terminals (VDTs, or screens) to facilitate interaction between computer-based applications (software products) and their users. Icon graphics can provide a language-independent means of communicating information to the user. They are part of a graphical interface that can facilitate the user's ability to learn, understand, and remember functional elements of the system, and aid in the manipulation of these elements.

Typically, a graphical user interface draws on a user's environment to provide a metaphorical representation of the user's tasks. A metaphor provides an analogy to concepts already familiar to the user, from which the user can deduce the system's use and behaviour. Icons can express the metaphor directly, as graphical representations of the metaphorical objects. They may also directly represent a physical object.

Icons are distinguished from other symbols on screens by the fact that they represent underlying system functions. Icons represent the objects, pointers, controls and tools making up the domain of an application and that users manipulate in doing their jobs. They can also represent status indicators used by the computer system to give information to the user and to mediate user interactions with software applications.

Figure 1 shows how the parts of ISO/IEC 11581 are organized. Symbols primarily intended for use on equipment other than screens are standardized in ISO 7000, ISO 7001, and IEC 60417.

Although different types of icons are distinguished for clarity, ISO/IEC 11581 does not imply that these types of symbols are disjoint. For example, a single icon may be simultaneously a pointer and a status indicator, or a status indicator may change to a pointer icon when the cursor is moved over a window that contains a different process.

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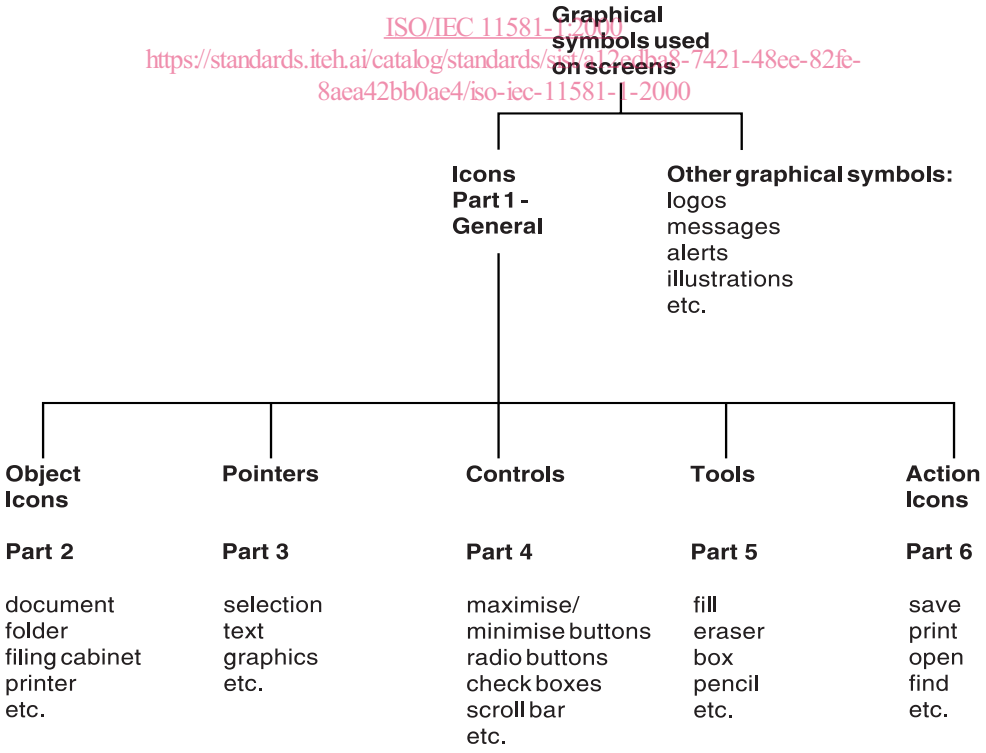

Figure 1 — Organization of ISO/IEC 11581

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

Part 1: Icons — General

1 Scope

ISO/IEC 11581 applies to software products providing office applications such as document production, desktop publishing, finance, and planning that present their functions via a graphical user interface.

ISO/IEC 11581 applies to software products for people who are familiar with office work but who are at present not necessarily familiar with computer-based applications.

ISO/IEC 11581 is meant to be used by persons involved in the design, implementation, and evaluation of icons for graphical user interfaces to computer-based office applications, and by procurers of systems that employ such interfaces.

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Other parts of ISO/IEC 11581 contain:

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— graphics of commonly used icons, and

— descriptions of the functionality of the icons.

This part of ISO/IEC 11581-1 provides a framework for the development and design of icons and their application on screens capable of displaying graphics as well as text. It contains:

— general requirements and recommendations for icons;

— global variations to the graphical representations of icons.

2 Conformance

A system, application, or set of one or more icon(s) conforms to this part of ISO/IEC 11581 if all icons available to the user in the computer system, application or set conform to clause 5 and subclause 6.1.

3 Normative reference

The following normative document contains 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 edition of the normative document 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 9241-3:1992, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 3: Visual display requirements.*

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4 Terms and definitions

For the purposes of this part of ISO/IEC 11581, the following terms and definitions apply.

4.1
action icon
icon, which acts upon a selected source and/or target, and provides a single step access to functions typically also available via a menu

4.2
application
collection of functions with which a user can perform a task

4.3
comprehensibility
ease with which the meaning of an icon is understood

4.4
control icon
graphic, often analogous to physical controls such as dials, radio buttons, which allow a user to directly manipulate data, other objects or their attributes

4.5
discriminability
ease with which a given icon can be distinguished from other icons that might occur in close spatial, temporal, or contextual proximity

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4.6
graphic
graphical representation of a specific instance of a generic object

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See Figure 2

4.7
icon
graphic displayed on the screen of a visual display that represents a function of the computer system

4.8
icon function
capability of the computer system represented by an icon

4.9
learnability
ease with which the system function represented by an icon can be recalled after it has been understood

4.10
legibility
ease with which the graphic detail of an icon can be discerned

4.11
metaphor
act of relating to concepts already familiar to users and from which users can derive the computer system's use and behaviour

NOTE For example, a picture of a file cabinet is used to represent an electronic storage device on the basis that both objects have in common the function of storing documents; a picture of a paper document is used to represent a data file on the basis that both objects have in common the function of containing data.

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4.12
object icon
icon that represents a function by association with an object, and that can be moved and opened

NOTE The association between the object icon and its function may be metaphorical, e.g., when a folder graphic is used to represent a subdirectory, or direct, e.g., when a printer graphic is used to represent a printer.

4.13
open
action that displays a view of an object and allows access to its contents

4.14
pointer icon
icon that is logically attached to a physical input device, and that the user manipulates to interact with other screen elements

4.15
recognisability
ease with which it is possible to identify an icon based on previous experience with the same or similar icons

4.16
sensitive region
area of the icon that responds to user input

4.17
status indicator
icon that represents the current condition of a computer system function or of a computer system dialogue

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4.18
tool icon
icon whose selection changes the function and shape of the pointer icon to perform a task associated with the tool depicted by the icon graphic

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5 Conceptual framework

Conforming icons shall enable the user to relate the graphic of the icon to the function of the icon as specified in this clause and illustrated by the framework in Figure 2 and the table in Figure 3. The framework shows how icon graphics can be developed to support the intended user interpretation of the implemented icon, that is, to support an interpretation that represents the function associated with the icon.

NOTE An example of a non-conforming icon would be the use of a guillotine graphic for the function 'execute'. The icon would rely on the double meaning of the word in English and does not convey the meaning of 'execute' as used in the context of a computer system.

5.1 Metaphor

An icon provides a visual link between a function and an object in a metaphoric environment (e.g. a desktop). That environment provides the conceptual link between the graphical symbol displayed and the function it represents.

5.2 Function

The function is the capability of the computer system represented by the icon. Icons also have other properties, including behaviour. This behaviour may be an effect of user interaction or it may represent a change in computer system state.

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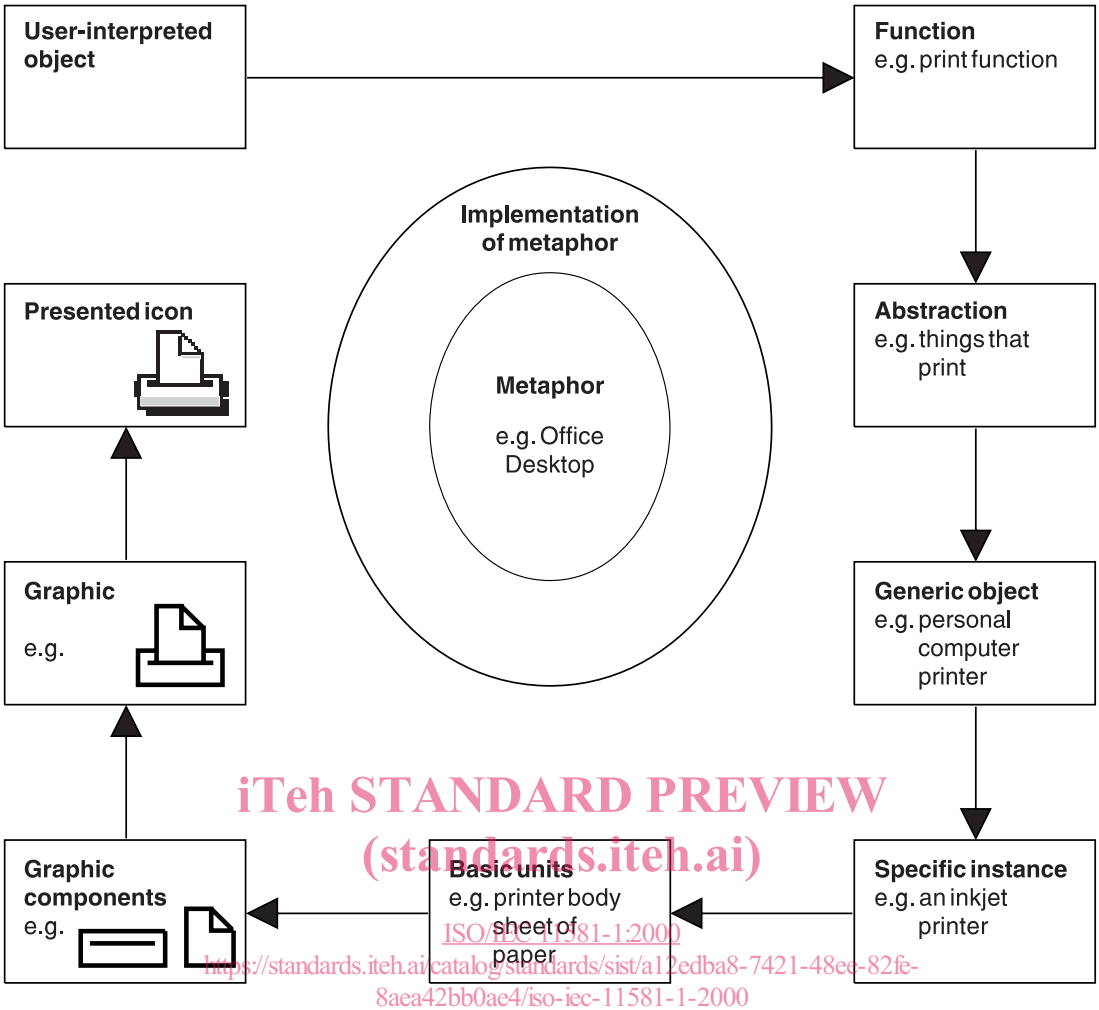

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Figure 2 — Framework used to specify icons

5.3 Abstraction

The abstraction is the conceptual representation of the function in terms of the general class of objects that could support the function.

5.4 Generic object

The generic object is a particular class of object that could perform the function.

5.5 Specific instance

The specific instance is a realisation of the generic object, corresponding to a particular object in the metaphoric environment.

5.6 Basic units

Basic units are the conceptual parts of the specific object that may be used to draw graphic components.

5.7 Graphic components

The graphic components are the visible representation of the basic units necessary to construct an icon.

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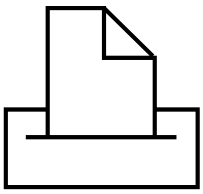
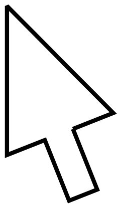
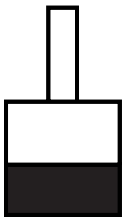
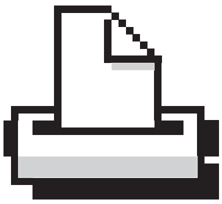
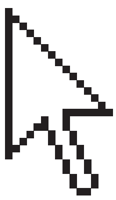
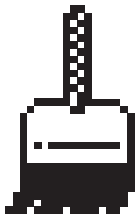
	Example 1	Example 2	Example 3
5.2 Function	Print function	Selection	Filling a graphic
5.3 Abstraction	Things that print	Means of pointing	Tools for filling an area with colour or surface pattern
5.4 Generic object	Personal computer printer	Arrow	Brush
5.5 Specific instance	An inkjet printer	An outlined, single-headed arrow	A house painter's brush
5.6 Basic units	Printer body, sheet of paper	Head and body of an arrow	Handle, applicator
5.7 Graphic components	Rectangular box with a slot, and a document icon	Triangular shape in a right angle placement on a rectangle	A tall rectangle joined to a square. The square is divided horizontally, the lower half filled in a solid colour
5.8 Graphic			
5.9 Presented icon			

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Figure 3 — Examples of conceptual framework components

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