
**Information technology — User
interface icons —**

Part 41:
**Data structure to be used by the ISO/
IEC JTC 1/SC 35 icon database**

Technologies de l'information — Icônes d'interface utilisateur —

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Partie 41: Structure de données pour la base de données d'icônes du
ISO/IEC JTC 1/SC 35*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

ISO/IEC/TS 11581 consists of the following parts, under the general title *Information technology — User interface icons*:

- *Part 1: Introduction to and overview of icon standards* [Technical Report]
- *Part 2: Object icons*¹⁾
- *Part 3: Pointer icons*¹⁾
- *Part 5: Tool icons*¹⁾
- *Part 6: Action icons*
- *Part 10: Framework and general guidance*
- *Part 40: Management of icon registration*
- *Part 41: Data structure to be used by the ISO/IEC JTC 1/SC 35 icon database* [Technical Specification]

1) The main element of the title of this part was changed on publication of Parts 1, 10 and 40. It is intended that, upon revision, the main element of this title will be aligned with the main element of the titles of Parts 1, 10 and 40.

Introduction

Icons are used on Information and Communications Technology (ICT) products to facilitate interaction with their users. Icons can provide a language-independent means of communicating information to the user.

This part of ISO/IEC 11581 provides a data structure to be used by the ISO/IEC JTC 1/SC 35 icon database that is being managed by ISO/IEC 11581-40. This data structure is based on the framework provided in ISO/IEC 11581-10.

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Information technology — User interface icons —

Part 41:

Data structure to be used by the ISO/IEC JTC 1/SC 35 icon database

1 Scope

This part of ISO/IEC 11581 provides guidance for developers and designers creating and/or using icons and provides a basis for the standardization of icons. It also provides a framework for creating future International Standards dealing with icons as parts of the ISO/IEC 11581 series and for identifying icon-related information to be used in any accompanying icon registries. It is intended to be used with ISO/IEC 11581-40 to create a registry of icons.

This part of ISO/IEC 11581 recognizes that icons are more than just symbols used on computer screens. Icons are interaction objects used by computer interfaces to accomplish various purposes. Icons can be rendered in various forms, including graphics, audio, tactile/haptic, or any combination thereof. This versatility in rendition can provide greater accessibility to their underlying functionalities.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 639-3, *Codes for the representation of names of languages — Part 3: Alpha-3 code for comprehensive coverage of languages*

ISO/IEC 11581-10:2010, *Information technology — User interface icons — Part 10: Framework and general guidance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11581-10 apply.

4 Data structure overview

4.1 Entity-relationship structure

[Figure 1](#) provides an entity-relationship diagram for the ISO/IEC JTC 1/SC 35 icon database.

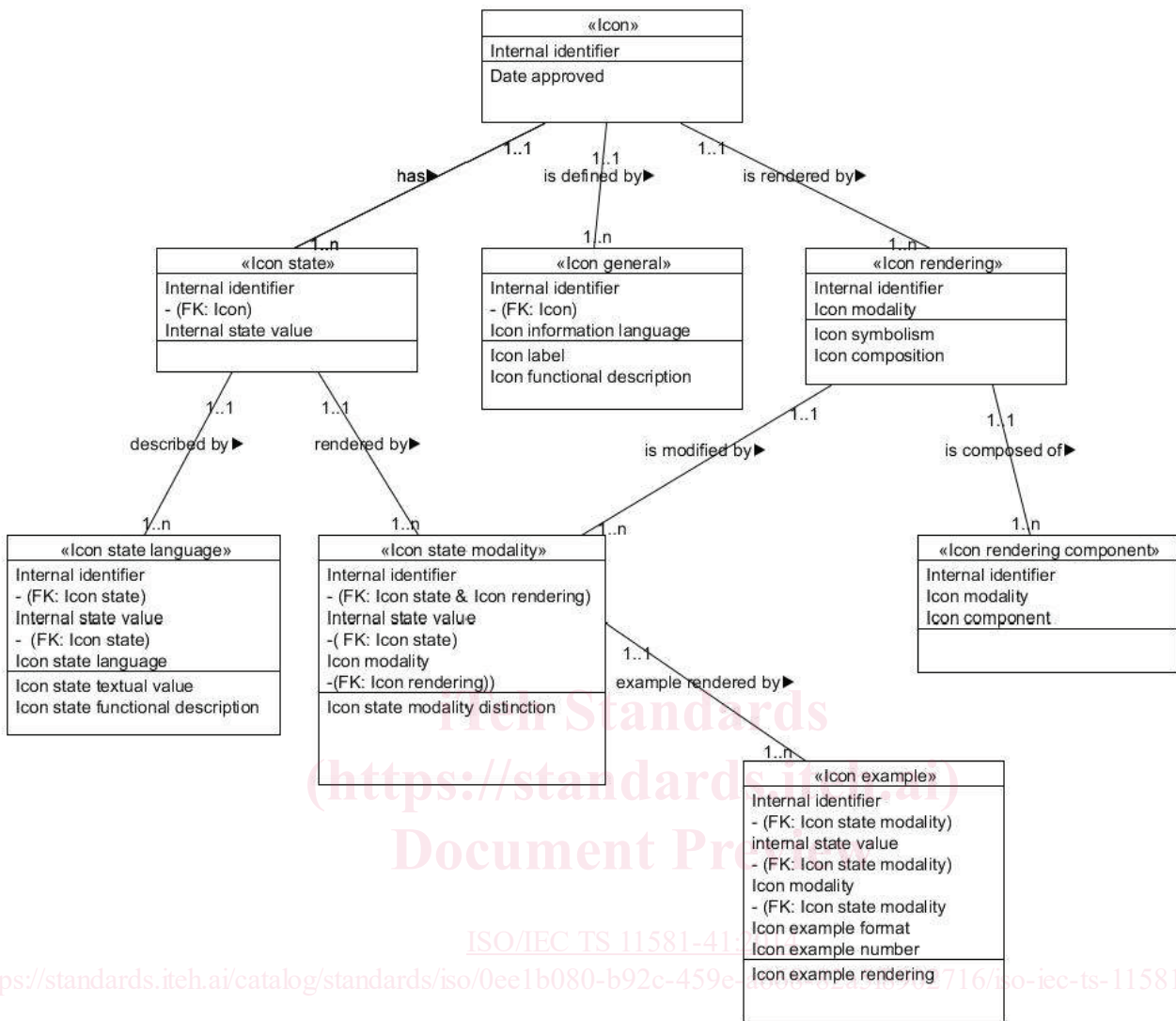


Figure 1 — Entity-relationship diagram for the ISO/IEC JTC 1/SC 35 icon database

Figure 1 uses a variation on basic entity-relationship diagramming conventions. Specifically, it uses the following conventions:

- tables are indicated by boxes, with a top, middle, and bottom section;
- table names are contained within double brackets (e.g. <<table name>>) and are located in the top section of a box;
- names of primary key attributes are contained within the middle section of a table box, and foreign key constraints are indicated below the primary key attribute name, as indicated by “- (FK: file name of where the foreign key applies);
- names of non-key attributes are contained in the bottom section of a table box;
- relationships are indicated as lines connecting table boxes, with information on the intended multiplicity or the relationship (of a complete entry for a give icon) at either end of the line.

NOTE Multiplicity is discussed in 4.3.

4.2 Records in the ISO/IEC JTC 1/SC 35 icon database for each icon

Each icon in the ISO/IEC JTC 1/SC 35 icon database shall have:

- a) one icon record;
- b) one or more icon general records;
- c) one or more icon state records;
- d) one or more icon state language records;
- e) one or more icon state modality records;
- f) one or more icon rendering records;
- g) one or more icon rendering component records;
- h) one or more sample icon records.

4.3 Multiplicity of records in the ISO/IEC JTC1/SC35 icon database

4.3.1 Icon state records

Each icon in the ISO/IEC JTC 1/SC 35 icon database shall have one or more states defined for it.

Each state of an icon shall be defined by:

- a) an icon state record;
- b) one or more icon state language records;
- c) one or more icon state modality records;
- d) one or more sample icon records.

NOTE All icons have at least one of the two states: AVAILABLE or UNAVAILABLE. Additional states include: SELECTED and ACTIVATED. Further states can be defined based on information within this part of ISO/IEC 11581 and within ISO/IEC 11581-10.

4.3.2 Icon rendering records

Each icon in the ISO/IEC JTC 1/SC 35 icon database shall have one graphical rendering defined for it and may have additional renderings defined for alternate modalities (e.g. auditory, tactile).

Each rendering of an icon shall be defined by

- a) an icon rendering record,
- b) one or more icon rendering component records, and
- c) one or more sample icon records for each state of the icon.

5 General icon attributes

5.1 Internal identifier

5.1.1 Required internal identifier

Each icon in the ISO/IEC JTC 1/SC 35 icon database shall have a unique internal identifier that shall be used for all records relating to that icon.

NOTE Guidance on internal identifiers is provided in ISO/IEC 11581-10:2010, 8.1.1 to 8.1.3.

5.1.2 Internal identifier data structure

An internal identifier shall be a single attribute of INTEGER data type with capacity to handle all possible five digit values.

5.1.3 Internal identifier data values

The internal identifier of an icon shall be sequentially assigned (starting from 1), based on the order of approving icons being inserted into the ISO/IEC JTC 1/SC 35 icon database.

NOTE Internal identifiers with values greater than 90 000 are reserved for use by developers for icons that are not within the ISO/IEC JTC 1/SC 35 icon database.

5.1.4 Reuse of internal identifier data values

The internal identifier of an icon that has been deleted from the ISO/IEC JTC 1/SC 35 icon database shall not be reused for any other icon.

If an icon is reinserted into the ISO/IEC JTC 1/SC 35 icon database after having been deleted it shall be given its previously assigned internal identifier.

5.2 Date icon approved

5.2.1 Required date icon approved

Each icon shall have a date icon approved to indicate the latest date on which the data on records relating to that icon contained within the ISO/IEC JTC 1/SC 35 icon database was approved/confirmed for standardization.

NOTE This includes dates where any modifications were approved.

5.2.2 Date icon approved data structure

Date icon approved language shall be a single attribute of a DATE data type.

5.3 Icon definition language

5.3.1 Icon definition language data structure

Icon definition language shall be a single attribute of a CHARACTER data type with a fixed capacity of three characters.

NOTE Icon definition language values are used to implement alternate languages as identified in ISO/IEC 11581-10:2010, 8.2.6.