
**Information technology — Procedures for
registration of cultural elements**

*Technologies de l'information — Procédures pour l'enregistrement des
éléments culturels*

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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.

International Standard ISO/IEC 15897 was prepared by the Technical Committee CEN/TC 304 "Character Set Technology" (as CEN ENV 12005), and it was adopted under a special "fast-track" procedure by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

Annexes A, C and E form a normative part of this International Standard. Annexes B, D, F, G and H are for information only.

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Introduction

Cultural differences throughout the world make it necessary to adopt IT-equipment to each local culture. Standard methods, being developed by ISO/IEC JTC1/SC22, make such adoption easier. Registering the local conventions in a globally available registry make it still easier. CEN/TC304 was the first committee to start work on such a registry and the European prestandard ENV 12005:1996 was the result. This International Standard is the result of the fast-track of DS/ENV 12005, a Danish Standards Association standards publication equivalent to CEN ENV 12005.

This International Standard sets out the procedures for registering cultural elements, both as narrative text and in a more formal manner, using the techniques of ISO/IEC 9945-2 POSIX Shell and Utilities. The registration will be free-of-charge and the results will also be freely available on the network at the address <http://www.dkuug.dk/cultreg/>. This will make information on cultural conventions freely and easily available to producers in the IT market. Some of these conventions can even be implemented automatically by downloading the formal POSIX specifications.

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Information technology - Procedures for registration of cultural elements

1 Scope

This International Standard specifies the procedures to be followed in preparing, publishing and maintaining a register of cultural specifications for computer use, including freeform narrative cultural elements specifications, and POSIX Locales and Charmaps conforming to ISO/IEC 9945-2. The registry is in printed and electronic form, and the text of the cultural specifications are recorded in a way that is independent of any coded character set.

Each cultural element registration shall have unique identifiers in a particular standard format defined below in 6.8. A numeric identifier and a token identifier shall be assigned to each registered cultural element specification, POSIX Locale, Charmap and Repertoire-map. These identifiers are for unique identification of the cultural specification, and intended to be used with POSIX locale handling mechanisms and possibly other locale and charmap usage, such as in programming languages, database handling and communication protocols and for identification and specification by human operators.

The field of application of this International Standard is to provide reference for implementers, procurers, users, and standardization organizations, to determine cultural requirements in a given cultural environment. Registered items using certain POSIX formal specification methods can also be used by the POSIX Operating System and other software capable of using such specifications.

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2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 639:1988, *Code for the representation of names of languages*.

ISO/IEC 646:1991, *Information technology - ISO 7-bit coded character set for information interchange*.

ISO/IEC 2022:1994, *Information technology - Character code structure and extension techniques*.

ISO 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*.

ISO 4217:1995, *Codes for the representation of currencies and funds*.

ISO 8601:1988, *Data elements and interchange formats - Information interchange - Representation of dates and times.*

ISO/IEC 8824:1990, *Information technology - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1).*

ISO/IEC 8825:1990, *Information technology - Open Systems Interconnection - Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).*

ISO/IEC 9945-2:1993, *Information technology - Portable Operating System Interface (POSIX) Part 2: Shell and Utilities.*

ISO/IEC 10646-1, *Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 Locale: the definition of the subset of the environment of a user that depends on language and cultural conventions (see 2.5 of the POSIX standard for a specification of the locale file format)

3.2 Charmap: a text file describing a coded character set (see 2.4 of the POSIX standard for a description of the Charmap file format)

3.3 Text File: a file that contains characters organized into one or more lines

3.4 Cultural Element: a data item for computer use that may vary dependent on language, territory, or other cultural circumstances

3.5 Cultural Specification: either a Narrative Cultural Specification, a related POSIX Locale or a POSIX Charmap or a Repertoiremap

3.6 Narrative Cultural Specification: a narrative description for computer use of culturally dependent information, further described in 6.2

3.7 Repertoiremap: a definition of a mapping between character names and characters for the repertoire of characters used in a Locale, further described in 6.9.

3.8 Profile (of a standard): a set of specifications of values of parameters in the standard, selections of optional items of the standard, or the recommendations concerning implementation-related matters of the standard.

4 Registration authority

The Registration Authority shall maintain a register of Cultural Specifications and their numeric and token identifiers. The contents of this register shall be available to ISO/IEC JTC 1 members and to the general public, both in printed and electronic form (for example, text files, postscript and/or fax format).

The ISO and IEC councils shall designate a Registration Authority for this International Standard. The initial registration Authority is designated to be:

The Danish UNIX-systems User Group (DKUUG)
Fruebjergvej 3
DK-2100 København Ø
Danmark
Fax: +45 3920-8948
email: culturalregister@dkuug.dk
web: <http://www.dkuug.dk/cultreg/>

With regard to the assignment of numeric and token identifiers to Cultural Specifications, and of subsequent additions of Cultural Specifications to the register, the responsibilities of the Registration Authority shall be

- a) to receive from Sponsoring Authorities proposals of Cultural Specifications and associated token identifiers;
- b) to ascertain that each proposal complies with clause 6;
- c) in the case of a POSIX Locale, to ascertain that the POSIX Locale and the corresponding Narrative Cultural Specification are not in contradiction;
- d) to circulate proposals to ISO/IEC JTC1/SC22 members and liaisons, with the proposed identifiers for a three month period for information and comments;
- e) to forward the comments received to the Sponsoring Authority for possible integration in the final documents;
- f) in the case of comments, to optionally receive from the Sponsoring Authority revised proposals addressing the comments received;
- g) to assign to the Cultural Specification appropriate token identifiers based on the information given by the Sponsoring Authority, and to assign to the Cultural Specification the next available number to be used as a numeric identifier when the proposal complies with the rules, unless the Cultural Specification is identical to one already registered, in which case the new token identifiers shall be added to the existing registration;
- h) to promulgate to all ISO/IEC JTC 1 members and liaisons the Cultural Specifications registered and the identifiers assigned;
- i) to inform the appropriate Sponsoring Authority when a proposal does not comply to the rules.

The contents of an individual registration shall never be changed or deleted once it has been registered (except for name additions). Even the correction of editorial errors will make a new registration necessary. This is contrasted with a standard which must be reviewed and/or revised periodically. When a standard is revised that has been used as basis for a Narrative Cultural Specification, a POSIX Locale, Charmap, or Repertoiremap, these are not changed in the register. If a Sponsoring Authority desires recognition of such a revision, a new registration shall be made by following the normal procedures.

5 Sponsoring authorities

5.1 Proposals for registration of Cultural Specifications may be made only by the following bodies, which, for the purpose of this International Standard, are considered Sponsoring Authorities:

- a) Any Member Body or Associated Member Body of CEN or ISO/IEC JTC1, for proposals related to the territories for which they have authority;
- b) ISO/IEC JTC1/SC22 for proposals related to wider regions.

Sponsoring Authorities may submit proposals for registration of the types POSIX Char-maps and Repertoiremaps to support their other Cultural Specifications.

Proposals from other sources must be referred for consideration to the Sponsoring Authorities as noted below.

5.2 The responsibilities of the Sponsoring Authorities shall be:

- a) to receive proposals concerning Cultural Specifications from their respective countries or organizations;
- b) to make certain that proposals follow the rules for definitions outlined in clause 6;
- c) in the case of a POSIX Locale, to make certain that Narrative Cultural Specification and the derived POSIX Locale are not in contradiction;
- d) to effect such rationalization or coordination of all proposals under consideration as they may desire;
- e) to forward to the Registration Authority those proposals that have their support;
- f) to make known within their respective countries or organizations the result of the registration procedure as transmitted to them by the Registration Authority.

6 Rules for proposals

Four types of Cultural Specifications can be registered according to this International Standard:

1. Narrative Cultural Specification
2. POSIX Locale
3. POSIX Charmap
4. POSIX Repertoiremap

The relation between the types is the following:

1. The Narrative Cultural Specification shall specify cultural conventions in narrative English, and may give equivalent specifications in other languages. It may thus address issues which have not yet been codified by formal methods for specifications of cultural conventions. If parts of a Narrative Cultural Specification have been specified also in POSIX Locale or Charmap format, this Locale or Charmap shall be referenced in the specification.

Types 2, 3 and 4 are for POSIX specification of cultural elements defined in ISO/IEC 9945-2.

2. The POSIX Locale shall specify in formal POSIX syntax some aspects of a Narrative Cultural Specification, and shall refer to a corresponding Narrative Cultural Specification. The POSIX Locale shall refer to the Repertoiremap being used, and should also list a number of POSIX Charmaps that it can use.

3. The POSIX Charmap shall specify aspects of a Narrative Cultural Specification or a POSIX Locale that relate to coded character sets. A POSIX Charmap shall refer to the POSIX Repertoiremap being used, but need not refer to the POSIX Locales nor the Narrative Cultural Specifications using it.

4. The POSIX Repertoiremap is used as a tool to enable a POSIX Locale or a Narrative Cultural Specification to be independent of coded character sets, and to remove the requirement for POSIX Charmaps when registering a POSIX Locale. It need not refer to other Cultural Specifications.

NOTE: It is the intention to allow other formal specification methods in future revisions of this International Standard when they become standardized methods; for the time being these specifications can be registered as type 1.

The following rules apply when registering a Cultural Specification:

- 6.1** A proposal for registration of a Cultural Specification shall be submitted as a Text File. A Narrative Cultural Specification may alternatively be submitted on white paper of approximate size 297 * 210 mm, with margins of no less than 20 mm.
- 6.2** The format of a Narrative Cultural Specification shall be in ordinary text, and shall contain clauses describing the following cultural elements, which may also be described in a POSIX Locale:

- 1 Alphanumeric deterministic ordering
- 2 Classification of characters
- 3 Numeric formatting
- 4 Monetary formatting
- 5 Date and time conventions
- 6 Affirmative and negative answers

The Narrative Cultural Specification may also include other culturally dependent information, limited to the following list:

- 7 National or cultural Information Technology terminology
- 8 National or cultural profiles of standards
- 9 Character set considerations
- 10 Sorting and searching rules
- 11 Transformation of characters
- 12 Character properties
- 13 Use of special characters
- 14 Character rendition
- 15 Character inputting
- 16 Personal names rules
- 17 Inflection
- 18 Hyphenation
- 19 Spelling
- 20 Numbering, ordinals and measuring systems
- 21 Monetary amounts
- 22 Date and time
- 23 Coding of national entities
- 24 Telephone numbers
- 25 Mail addresses
- 26 Identification of persons and organizations
- 27 Electronic mail addresses
- 28 Payment account numbers
- 29 Keyboard layout
- 30 Man-machine dialogue
- 31 Paper formats
- 32 Typographical conventions

Clauses 10, 12, 20, 21, 22 and 30 are for description of cultural aspects in excess of what can be described in the corresponding POSIX clauses 1, 2, 3, 4, 5 and 6. In clause 9 it is possible to give further information on characters classified in clause 2.

NOTE: Further information about the categories, along with specific examples illustrating their use may be found in annex F and in the Nordic Cultural Requirements on Information Technology (Summary Report) (Annex G, item 1).

Each clause shall begin on a new line after at least one blank line, and each clause shall be introduced by the string "Clause ", followed by a decimal clause number, then a colon and a space, and then the title of the clause, using the titles above where applicable (examples are given in annex D).

The body of the clause shall follow on the succeeding lines. A reference to a clause within the specification shall consist of the string "=> Clause " followed by the clause number. A reference to another specification shall consist of the string "=> Spec. " followed by the registration number of the specification and, optionally, the string " Clause " and a clause number.

The format of the POSIX Locale and Charmap sources shall be conformant to ISO/IEC 9945-2, or for POSIX Locales the technique specified in Annex E.

The format of the POSIX Repertoiremap shall be conformant to 6.9.

- 6.3** The POSIX Locale shall define all standard categories (for example by copying categories of a standard POSIX Locale; examples are given in annex E).
- 6.4** The coded character set of ISO/IEC 646 International Reference Version (ISO 2375 registration number 6) shall be used to represent text for the submitted files. For enhanced network portability it is recommended that only the invariant part of ISO/IEC 646 (ISO 2375 registration number 170), which contains 83 graphical characters (including space), is used. Comments shall be given in the English language, and equivalent comments may also be given in other languages. If characters outside ISO/IEC 646 International Reference Version are needed, character names defined in a Repertoiremap shall be used.
- 6.5** The sources shall be delivered electronically, either via electronic mail or on a diskette to the Registration Authority. Narrative Cultural Specifications may alternately be delivered on paper.
- 6.6** A written application shall accompany the Cultural Specification and be signed by authorized personnel on behalf of the contributing organization. It shall release copyrights of the contributed sources.

6.7 The written Cultural Specification application shall contain information on the following items:

1. Cultural Specification type number (as in 6.2 above)
2. Organization name of Sponsoring Authority
3. Organization postal address
4. Name of contact person
5. Electronic mail address of the organization, or contact person
6. Telephone number for the organization, in international format.
7. Fax number for the organization, in international format.

For Types 1 and 2, Narrative Cultural Specifications and POSIX Locales:

8. Natural language, as specified in ISO 639
9. Territory, as two-letter form of ISO 3166

For Types 3 and 4, POSIX Charmaps and POSIX Repertoiremaps:

10. Suggested POSIX Charmap or POSIX Repertoiremap name

All applications shall contain information on these items:

11. If not for general use an indication of the intended user audience. The Registration Authority decides on a corresponding identifier element, to be used in the token identifier for the specification.
12. If for use of a special application, a description of the application. The Registration Authority decides on a corresponding identifier element, to be used in the token identifier for the specification.
13. Short name for Sponsoring Authority, for possible use in the token identifier.
14. Revision number consisting of digits and zero or more full stops (".").
15. Revision date in the format according to this example: "1995-02-05" meaning the 5th of February, 1995.

If any of the above information is non-existent, it must be stated in each case; the corresponding string is then the empty string. The default case in 11 and 12 is also represented by an empty string. If required information is not present in ISO 639 or ISO 3166, the relevant Maintenance Authority shall be approached by the Sponsoring Authority to get the needed item registered.

The information in items 8 to 14 is used in the token identifier for the Cultural Specifications. Items 8 to 13 may contain digits 0123456789 and the characters uppercase and lowercase forms of

ABCDEFGHIJKLMNOPQRSTUVWXYZ

Item 10 may also contain the special characters:

/ () * - . : _

Case of letters is not significant in token identifiers.

Annex A specifies a form to be filled out for each Cultural Specification; Annex B gives an example of a filled-out form.

- 6.8** The information in item 8 to 14 is used by the Registration Authority to construct a token identifier for the Cultural Specification according to the following rules.

For Narrative Cultural Specifications and POSIX Locales the token identifier will be:

8_9+11+12,13_14

And for POSIX Charmaps and POSIX Repertoiremaps the token identifier will be:

10+11+12,13_14

where 11 and 12 and preceding pluses shall be omitted when not needed to specify position, and 13 may be omitted after request from the Sponsoring Authority.

NOTE: A combination of a POSIX Locale and a POSIX Charmap may be designated by the Locale identifier and the Charmap identifier separated by a solidus (/).

When referencing a Cultural Specification, the version number or parts thereof taken from the right may be omitted, to refer to the Cultural Specification with the highest digital version number available with the given version number prefix. If the item 13 is an empty string, referencing the token identifier without the preceding comma and items 13 and 14 shall give the Cultural Specification with the highest digital version number.

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NOTE: The version number may be used by the Sponsoring Authority to mark major releases, minor revisions and error corrections. It is recommended that major releases be reflected as the first number, minor revisions in the second number, and error corrections in the third number.

EXAMPLE 1: _EU,CEN_3.5 for the CEN European POSIX Locale

EXAMPLE 2: da_DK,_2.4 for the Danish Standards Danish POSIX Locale

EXAMPLE 3: ISO_8859-1:1987,DS_1.0 for the DS Charmap for ISO 8859-1

- 6.9** POSIX Locale and Charmap sources shall be specified in a way that is independent of coded character sets, using character names. Relation between the character names and characters shall be specified via a Repertoiremap table, giving the character name and the ISO/IEC 10646 canonical encoding in hexadecimal form (with a preceding 'U') and optionally the long ISO/IEC 10646 character name. It is recommended to use, whenever possible, character names specified in ISO/IEC 9945-2 Annex G. The character name and the ISO/IEC 10646 canonical encoding are each surrounded by angle brackets <>, and the fields shall be separated by one or more spaces or tabs on a line. If a right angle bracket or an escape character is used within a name, it shall be preceded by the escape character. The escape character can be redefined from the default reverse solidus (\) with the first line of the Repertoiremap containing the string "escape_char" followed by one or more spaces or tabs and then the escape character.