Information technology — Guidelines for the preparation of programming language standards — Amendment #1

Élément introductif — Élément central — Élément complémentaire

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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 main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

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Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

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Amendment 1 to Technical Report ISO/IEC TR 10176:1999 was prepared by Joint Technical Committee ISO/IEC JTC 1, Information technology, Subcommittee SC 22, Programming languages, their environments and system software interfaces.
Introduction

This amendment corrects errors in the TR 10176, Annex A.

The table of characters to be used for identifiers in programming languages is based on ISO/IEC 10646-1:1993 including amendments 1 through 7.

When the second edition of ISO/IEC 10646-1 will be issued, Annex A of TR 10176 will have to be amended again to allow the newly coded characters, that meet the requirements, to be used for identifiers in programming languages.
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1 Scope

Replace the text of Annex A with the following text.

Annex A

Recommended extended repertoire for user-defined identifiers

The recommended extended repertoire consists of those characters which collectively can be used to generate
word-like identifiers for most natural languages of the world. This list comprises the letters (combining or not),
syllables, and ideographs from ISO/IEC 10646-1, together with the modifier letters and marks conventionally used
as parts of words. The list excludes punctuation and symbols not generally included in words or considered
appropriate for use in identifiers. Also excluded are most presentation forms of letters and a number of compatibility
characters. The inclusion of combining characters corresponds to those allowed under a level 2 implementation of
ISO/IEC 10646-1. These are the minimum required to do a reasonable job of representing word-like identifiers in
Hebrew, Arabic, and scripts of South and Southeast Asia, which make general use of combining marks. However,
combining marks for level 3 implementations of ISO/IEC 10646-1 are not included in the list, so as to avoid the
problem of alternative representations of identifiers.

Attention is drawn to the fact that using the extended repertoire for identifiers may impact source code portability,
since the presence of these characters in program text may not be supported on systems that implement less than
the full repertoire of ISO/IEC 10646-1.

The character repertoire listed in this annex is based on the ISO/IEC 10646-1:1993 with its COR 1 and AMD 1
through 9. It is subject to expansion in the future, to track future amendments to the standard. However, characters
currently listed in this Annex will not be removed from the recommended extended repertoire in future revisions.

The character repertoire listed in this annex should be conceived of as a recommendation for the minimum
extended repertoire for use in user-defined identifiers. Each programming language standard or implementation of
the standard can extend the repertoire at the adaptation, in accordance with established practice of identifier usage
for the language and any additional user requirements that may be present. For example, the C language should
allow U003F LOW LINE in addition to the character repertoire listed below; COBOL should allow U002D HYPHEN-
MINUS as well; Java allows a rather large extension to support a level 3 implementation of 10646-1. Some
programming language standards may allow half- or full-width compatibility characters from ISO/IEC 10646-1, and
some of the standards, e.g. COBOL, may recognize these characters in a width-insensitive manner.

Programming language standards generally have restrictions on what characters may be allowed as the first
character of an identifier. For example, digits are often constrained from appearing as the first character of an
identifier. To assist in their identification, the decimal digits in ISO/IEC 10646-1 are separately noted in the list
below. In addition, combining characters should not appear as the first character of an identifier. To maximize the
chances of interoperability between programming languages (as for example, when linking compiled objects
between languages), programming language standards and their implementations should follow these restrictions
when making use of the extended repertoire for user-defined identifiers.
The recommended characters consist of the following characters of ISO/IEC 10646-1, using their code values in hexadecimal form. Combining characters for scripts are separated out and marked with a "C" following the respective script entries.

Latin: 0041-005A, 0061-007A, 00AA, 00BA, 00C0-00D6, 00D8-00F6, 00F8-01F5, 01FA-0217, 0250-02A8, 1E00-1E9B, 1EA0-1EF9, 207F

Greek: 0386, 0388-038A, 038C, 038E-03A1, 03A3-03CE, 03D0-03D6, 03DA, 03DC, 03DE, 03E0, 03E2-03F3, 1F00-1F15, 1F18-1F1D, 1F20-1F45, 1F48-1F4D, 1F50-1F57, 1F59, 1F5B, 1F5D, 1F5F-1F7D, 1F80-1FB4, 1FB6-1FBC, 1FC2-1FC4, 1FC6-1FC7, 1FD0-1FD3, 1FD6-1FDB, 1FE0-1FEC, 1FF2-1FF4, 1FF6-1FFF

Cyrillic: 0401-040C, 040E-044F, 0451-045C, 045E-0481, 0490-04C4, 04C7-04D8, 04D0-04EB, 04EE-04F5, 04F8-04F9

Armenian: 0531-0556, 0561-0587

Hebrew: 05D0-05E2, 05F0-05F2

Hebrew (C): 05B0-05B9, 05BB-05BD, 05BF, 05C1-05C2

Arabic: 0621-063A, 0640-064A, 0671-067B, 06BA06BE, 06C0-06CE, 06D0-06D3, 06D5, 06E5-06E6

Arabic (C): 064B-0652, 0670, 06D6-06DC, 06E7-06E8, 06EA06ED

Devanagari: 0905-0939, 0950, 0958-0961

Devanagari (C): 0901-0903, 093E-094D, 0951-0952, 0962-0963

Bengali: 0985-098C, 098F-0990, 0993-099B, 099D-09A8, 09AA-09B0, 09B2, 09B6-09B9, 09DC-09DD, 09DF-09E1, 09F0-09F1

Bengali (C): 0981-0983, 098E-09C4, 09C7-09C8, 09CB-09CD, 09E2-09E3

Gurmukhi: 0A05-0A0A, 0A0F-0A10, 0A13-0A28, 0A2A-0A30, 0A32-0A33, 0A35-0A36, 0A38-0A39, 0A59-0A5C, 0A5E-0A74

Gurmukhi (C): 0A02, 0A3E-0A42, 0A47-0A48, 0A4B-0A4D

Gujarati: 0A85-0A8C, 0A8D, 0A8F-0A91, 0A93-0A9A, 0AA-0AB0, 0AB2-0AB3, 0AB5-0AB9, 0ABD, 0AD0, 0AE0

Gujarati (C): 0A81-0A83, 0A8E-0AC5, 0AC7-0AC9, 0ACB-0ACD

Oriya: 0B05-0B0C, 0B0F-0B10, 0B13-0B2B, 0B2A-0B30, 0B32-0B33, 0B36-0B39, 0B5C-0B5D, 0B5F-0B61

Oriya (C): 0B01-0B03, 0B3E-0B43, 0B47-0B48, 0B4B-0B4D

Tamil: 0B85-0B88, 0B8E-0B90, 0B92-0B95, 0B99-0B9A, 0B9C, 0B9E-0B9F, 0BA3-0BA4, 0BA8-0BAA, 0BAE-0BB5, 0BB7-0BB9

Tamil (C): 0B82-0B83, 0BBE-0BC2, 0BC6-0BC8, 0BCA-0BCD
Telugu: 0C05-0C0C, 0C0E-0C10, 0C12-0C28, 0C2A-0C33, 0C35-0C39, 0C60-0C61
Telugu (C): 0C01-0C03, 0C3E-0C44, 0C46-0C48, 0C4A-0C4D
Kannada: 0C85-0C8C, 0C8E-0C90, 0C92-0CA8, 0CAA-0CB3, 0CB5-0CB9, 0CDE, 0CE0-0CE1
Kannada (C): 0C82-0C83, 0CBE-0CC4, 0CC6-0CC8, 0CCA0CCD
Malayalam: 0D05-0D0C, 0D0E-0D10, 0D12-0D28, 0D2A-0D39, 0D60-0D61
Malayalam (C): 0D02-0D03, 0D3E-0D43, 0D46-0D48, 0D4A-0D4D,
Thai: 0E01-0E30, 0E32-0E33, 0E40-0E46, 0E50-0E59
Thai (C): 0E31, 0E34-0E3A, 0E47-0E4E
Lao: 0E81-0E82, 0E84, 0E87-0E88, 0E8A, 0E8D, 0E94-0E97, 0E99-0E9F, 0EA1-0EA3, 0EA5, 0EA7, 0EAA-0EAB, 0EAD-0EAE, 0EB0, 0EB2-0EB3, 0EBD, 0EC0-0EC4, 0EC6, 0EDC-0EDD
Lao (C): 0EB1, 0EB4-0EB9, 0EBB-0EBC, 0EC8-0ECD,
Tibetan: 0F00, 0F40-0F47, 0F49-0F69, 0F88-0F8B,
Tibetan (C): 0F18-0F19, 0F35, 0F37, 0F39, 0F71-0F84, 0F86-0F87, 0F90-0F95, 0F97, 0F99-0FAD, 0FB1-0FB7, 0FB9
Georgian: 10A0-10C5, 10D0-10F6
Hiragana: 3041-3093
Katakana: 30A1-30F6, 30FB-30FC
Bopomofo: 3105-312C
Hangul: AC00-D7A3
CJK Unified Ideographs: 4E00-9FA5
Digits: 0030-0039, 0660-0669, 06F0-06F9, 0966-096F, 09E6-09EF, 0AE6-0AEF, 0BE6-0BEF, 0C66-0C6F, 0CE6-0CEF, 0D66-0D6F, 0E50-0E59, 0ED0-0ED9, 0F20-0F29
Special characters: 0085, 02B0-02B8, 02BB, 02BD-02C1, 02D0-02D1, 02E0-02E4, 037A, 0559, 093D, 0B3D, 1FBE, 203F-2040, 2102, 2107, 210A-2113, 2115, 2118-211D, 2124, 2126, 2128, 212A-2131, 2133-2138, 2160-2182, 3005-3007, 3021-3029