ECMA EUROPEAN COMPUTER MANUFACTURERS ASSOCIATION

STANDARD ECMA-94

8-BIT SINGLE-BYTE CODED GRAPHIC CHARACTER SETS

LATIN ALPHABETS No. 1 TO No. 4

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BRIEF HISTORY

The adoption of ECMA-6 (ISO 646) as the agreed international 7-bit code for information interchange had led to the development of many national, international and application-oriented versions of this code which are in wide used today.

These versions have a number of limitations generally inherent to the size of the code:

- they do not provide all graphic characters which may be needed,
- for some characters, specially for accented letters, it is necessary to resort to BACKSPACE sequences, which creates problems when processing data containing such composite characters,
- interchange among different versions is practically limited to the 82 common graphic characters.

With the advent of 8-bit coding it was possible to increase the number of graphic characters. ISO 6937/2, for example, provides a character set covering the requirements of most languages based on the Latin alphabet. This character set, although well suited for text communication, is difficult to use for processing as some graphic characters are represented by one and others by two bit combinations.

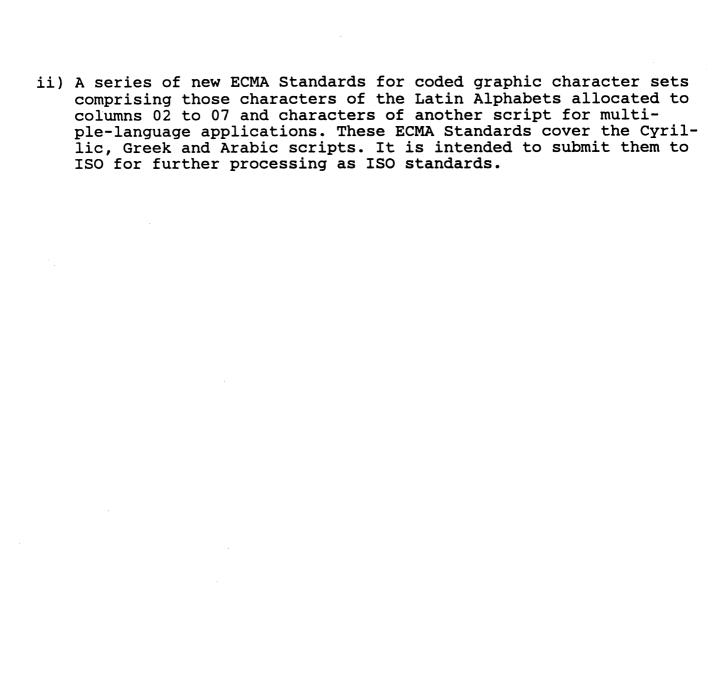
Thus the need was recognized for coded graphic character sets, each of which:

- is the same for all users of a given area,
- provides single-byte coding of all graphic characters thus permitting easy processing,
- takes into account character sets used in the industry.

Since 1982 the urgency of the need for an 8-bit single-byte coded character set was recognized in ECMA as well as in ANSI/X3L2 and numerous working papers were exchanged between the two groups. In February 1984 ECMA TC1 submitted to ISO/TC97/SC2 a proposal for such a coded character set. At its meeting of April 1984 SC2 decided to submit to TC97 a proposal for a new item of work for this topic. Technical discussions during and after this meeting led TC1 to adopt the coding scheme proposed by X3L2. International Standard ISO 8859/1 is based on this joint ANSI/ECMA proposal. ECMA published its corresponding Standard ECMA-94 in March 1985.

After this first publication, the work of ECMA TC1 on further coded graphic character sets has led to the following results:

i) The present second Edition of Standard ECMA-94 comprising four coded graphic character sets for the Latin script, identified as Latin Alphabets No 1 to No 4. These alphabets have a number of characters in common, in particular those allocated to columns 02 to 07. Latin Alphabet No 2 has been submitted to ISO and is the subject of ISO 8859/2.



Adopted as an ECMA Standard by the General Assembly of June 26,

1986.

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1. SCOPE

This ECMA Standard defines four 8-bit coded graphic character sets identified as Latin Alphabets No 1 to No 4, and specifies the coded representation of each character by means of a single 8-bit byte.

Characters common to two or more sets are allocated to the same code position. None of these characters are "non-spacing".

The use of control functions, such as BACKSPACE or CARRIAGE RETURN for the coded representation of composite characters is prohibited by this Standard.

2. FIELD OF APPLICATION

These sets of graphic characters are intended for use in data and text processing applications and may also be used for information interchange. They are suitable for use in a version of an 8-bit code according to ECMA-35 or ECMA-43.

A specific field of application is indicated for each character set.

3. CONFORMANCE

A set of graphic characters is in conformance with this Standard if it comprises all graphic characters specified for one of the Latin Alphabets to the exclusion of any other and and if their coded representations are those specified by this Standard. Any claim of conformance shall specify the Latin Alphabet implemented.

4. REFERENCES

ECMA-6 : 7-bit Input/Output Coded Character Set

ECMA-35 : Code Extension Techniques

ECMA-43 : 8-bit Coded Character Set - Structure and Rules

ECMA-48 : Control Functions

ECMA-113: 8-bit Single-Byte Coded Graphic Character Set -

Latin/Cyrillic Alphabet

ECMA-114: 8-bit Single-Byte Coded Graphic Character Set -

Latin/Arabic Alphabet

ECMA- : 8-bit Single-Byte Coded Graphic Character Set -

Latin/Greek Alphabet (in preparation)

5. DEFINITIONS

For the purpose of this Standard the following definitions apply:

5.1 Bit Combinations; Byte

An ordered set of bits that represents a character or is used as a part of the representation of a character.

5.2 Character

A member of a set of elements used for the organization, control or representation of data.

5.3 Coded Character Set; Code

A set of unambiguous rules that establishes a character set and the one-to-one relationship between each character of the set and its coded representation.

5.4 Code Table

A table showing the character allocated to each bit combination in a code.

5.5 Graphic Character

A character, other than a control function, that has a visual representation normally handwritten, printed or displayed, and that has a coded representation consisting of one or more bit combinations.

Note 1

In this Standard a single bit combination is used to represent each graphic character.

5.6 Graphic Symbol

A visual representation of a graphic character.

5.7 Position

That part of a code table identified by its column and row co-ordinates.

6. NOTATION, CODE TABLE AND NAMES

6.1 Notation

The bits of the bit combinations of the 8-bit code are identified by b_8 , b_7 , b_6 , b_5 , b_4 , b_3 , b_2 and b_1 , where b_8 is the highest-order, or most-significant bit and b_1 is the lowest-order, or least-significant bit.

The bit combinations may be interpreted to represent numbers in binary notation by attributing the following weights to the individual bits:

Bit	b ₈	b ₇	b ₆	b ₅	b ₄	b ₃	b ₂	b ₁
Weight	128	64	32	16	8	4	2	1

Using these weights, the bit combinations of the 8-bit code are interpreted to represent numbers in the range 0 to 255.

In this Standard, the bit combinations are identified by notations of the form xx/yy, where xx and yy are numbers in the range 00 to 15. The correspondence between the notations of the form xx/yy and the bit combinations consisting of the bits b_8 to b_1 , is as follows:

- xx is the number represented by b_8 , b_7 , b_6 and b_5 where these bits are given the weights 8, 4, 2 and 1 respectively;
- yy is the number represented by b_4 , b_3 , b_2 and b_1 where these bits are given the weights 8, 4, 2 and 1 respectively.

6.2 Layout of the Code Tables

Each 8-bit code table consists of 256 positions arranged in 16 columns and 16 rows. The columns and the rows are numbered 00 to 15.

The code table positions are identified by notations of the form xx/yy, where xx is the column number and yy is the row number.

The positions of the code table are in one-to-one correspondence with the bit combinations of the code. The notation of a code table position, of the form xx/yy, is the same as that of the corresponding bit combination.

6.3 Names and Meanings

This Standard assigns at least one name to each character. In addition, it specifies a graphic symbol for each graphic character. By convention only capital letters, the graphic symbols of small letters and hyphens are used for writing the names of the characters.

The names chosen to denote graphic characters are intended to reflect their customary meaning. However, except for SPACE (SP), NO-BREAK SPACE (NBSP) and SOFT HYPHEN (SHY), this Standard does not define and does not restrict the meanings of graphic characters. Neither does it specify a particular style or font design for imaging graphic characters.

6.3.1 SPACE (SP)

This character may be interpreted as a graphic character, a control character or as both. As a graphic character it has the visual representation consisting of the absence of a graphic symbol.

6.3.2 NO-BREAK SPACE (NBSP)

A graphic character the visual representation of which consists of the absence of a graphic symbol, for use when a line break is to be prevented in the text as presented.

6.3.3 SOFT HYPHEN (SHY)

A graphic character that is imaged by a graphic symbol identical with, or similar to, that representing HYPHEN, for use when a line break is permitted in the text as presented.

7. SPECIFICATION OF THE FOUR LATIN ALPHABETS

The four Latin Alphabets have 128 common characters, namely the 95 characters allocated to columns 02 to 07 and 33 characters allocated to code positions in columns 10 to 15. For the sake of simplicity the characters allocated to columns 02 to 07 are listed once only.

The characters in columns 10 to 15 are listed for each Latin Alphabet and the complete code table is shown for each of them.

7.1 Characters Allocated to Column 02 to 07 in each Latin Alphabet

Bit Combination	Name
02/00	SPACE
02/01	EXCLAMATION MARK
02/02	QUOTATION MARK
02/03	NUMBER SIGN
02/04	DOLLAR SIGN
02/05	PERCENT SIGN
02/06	AMPERSAND
02/07	APOSTROPHE
02/08	LEFT PARENTHESIS
02/09	RIGHT PARENTHESIS
02/10	ASTERISK
02/11	PLUS SIGN
02/12	COMMA
02/13	HYPHEN, MINUS SIGN
02/14	FULL STOP
02/15	SOLIDUS
03/00	DIGIT ZERO
03/01	DIGIT ONE
03/02	DIGIT TWO
03/03	DIGIT THREE
03/04	DIGIT FOUR
03/05	DIGIT FIVE
03/06	DIGIT SIX
03/07	DIGIT SEVEN
03/08	DIGIT EIGHT
03/09	DIGIT NINE

Bit Combination	Name
03/10	COLON
03/11	SEMICOLON
03/12	LESS-THAN SIGN
03/13	EQUALS SIGN
03/14	GREATER-THAN SIGN
03/15	QUESTION MARK
04/00	COMMERCIAL AT
04/01	CAPITAL LETTER A
04/02	CAPITAL LETTER B
04/03	CAPITAL LETTER C
04/04	CAPITAL LETTER D
04/05	CAPITAL LETTER E
04/06	CAPITAL LETTER F
04/07	CAPITAL LETTER G
04/08	CAPITAL LETTER H
04/09	CAPITAL LETTER I
04/10	CAPITAL LETTER J
04/11	CAPITAL LETTER K
04/12	CAPITAL LETTER L
04/13	CAPITAL LETTER M
04/14	CAPITAL LETTER N
04/15	CAPITAL LETTER O
05/00	CAPITAL LETTER P
05/01	CAPITAL LETTER Q
05/02	CAPITAL LETTER R
05/03	CAPITAL LETTER S
05/04	CAPITAL LETTER T
05/05	CAPITAL LETTER U
05/06	CAPITAL LETTER V
05/07	CAPITAL LETTER W
05/08	CAPITAL LETTER X
05/09	CAPITAL LETTER Y
05/10	CAPITAL LETTER Z
05/11	LEFT SQUARE BRACKET
05/12	REVERSE SOLIDUS
05/13	RIGHT SQUARE BRACKET
05/14	CIRCUMFLEX ACCENT

Bit Combination	Name
05/15	LOW LINE
06/00	GRAVE ACCENT
06/01	SMALL LETTER a
06/02	SMALL LETTER b
06/03	SMALL LETTER C
06/04	SMALL LETTER d
06/05	SMALL LETTER e
06/06	SMALL LETTER f
06/07	SMALL LETTER g
06/08	SMALL LETTER h
06/09	SMALL LETTER i
06/10	SMALL LETTER j
06/11	SMALL LETTER k
06/12	SMALL LETTER 1
06/13	SMALL LETTER m
06/14	SMALL LETTER n
06/15	SMALL LETTER O
07/00	SMALL LETTER p
07/01	SMALL LETTER q
07/02	SMALL LETTER r
07/03	SMALL LETTER s
07/04	SMALL LETTER t
07/05	SMALL LETTER u
07/06	SMALL LETTER V
07/07	SMALL LETTER w
07/08	SMALL LETTER x
07/09	SMALL LETTER Y
07/10	SMALL LETTER z
07/11	LEFT CURLY BRACKET
07/12	VERTICAL LINE
07/13	RIGHT CURLY BRACKET
07/14	TILDE





8. LATIN ALPHABET No. 1

This coded character set shall consist of 191 graphic characters:

- the 95 characters listed in 7.1, and
- the 96 characters listed in 8.2

8.1 Field of Application

The set contains graphic characters used for general purpose applications in typical office environments in at least the following languages:

Danish, Dutch, English, Faeroese, Finnish, French, German, Icelandic, Irish, Italian, Norwegian, Portuguese, Spanish and Swedish.

8.2 Characters Allocated to Columns 10 to 15

Bit Combination	Name
10/00	NO-BREAK SPACE
10/01	INVERTED EXCLAMATION MARK
10/02	CENT SIGN
10/03	POUND SIGN
10/04	CURRENCY SIGN
10/05	YEN SIGN
10/06	BROKEN BAR
10/07	PARAGRAPH SIGN
10/08	DIAERESIS
10/09	COPYRIGHT SIGN
10/10	FEMININE ORDINAL INDICATOR
10/11	LEFT ANGLE QUOTATION MARK
10/12	NOT SIGN
10/13	SOFT HYPHEN
10/14	REGISTERED TRADE MARK SIGN
10/15	MACRON
11/00	DEGREE SIGN, RING ABOVE
11/01	PLUS-MINUS SIGN
11/02	SUPERSCRIPT TWO
11/03	SUPERSCRIPT THREE
11/04	ACUTE ACCENT
11/05	MICRO SIGN

Bit Combination	Name
11/06	PILCROW SIGN
11/07	MIDDLE DOT
11/08	CEDILLA
11/09	SUPERSCRIPT ONE
11/10	MASCULINE ORDINAL INDICATOR
11/11	RIGHT ANGLE QUOTATION MARK
11/12	VULGAR FRACTION ONE QUARTER
11/13	VULGAR FRACTION ONE HALF
11/14	VULGAR FRACTION THREE QUARTERS
11/15	INVERTED QUESTION MARK
12/00	CAPITAL LETTER A WITH GRAVE ACCENT
12/01	CAPITAL LETTER A WITH ACUTE ACCENT
12/02	CAPITAL LETTER A WITH CIRCUMFLEX ACCENT
12/03	CAPITAL LETTER A WITH TILDE
12/04	CAPITAL LETTER A WITH DIAERESIS
12/05	CAPITAL LETTER A WITH RING ABOVE
12/06	CAPITAL DIPHTHONG A WITH E
12/07	CAPITAL LETTER C WITH CEDILLA
12/08	CAPITAL LETTER E WITH GRAVE ACCENT
12/09	CAPITAL LETTER E WITH ACUTE ACCENT
12/10	CAPITAL LETTER E WITH CIRCUMFLEX ACCENT
12/11	CAPITAL LETTER E WITH DIAERESIS
12/12	CAPITAL LETTER I WITH GRAVE ACCENT
12/13	CAPITAL LETTER I WITH ACUTE ACCENT
12/14	CAPITAL LETTER I WITH CIRCUMFLEX ACCENT
12/15	CAPITAL LETTER I WITH DIAERESIS
13/00	CAPITAL ICELANDIC LETTER ETH
13/01	CAPITAL LETTER N WITH TILDE
13/02	CAPITAL LETTER O WITH GRAVE ACCENT
13/03	CAPITAL LETTER O WITH ACUTE ACCENT
13/04	CAPITAL LETTER O WITH CIRCUMFLEX ACCENT
13/05	CAPITAL LETTER O WITH TILDE
13/06	CAPITAL LETTER O WITH DIAERESIS
13/07	MULTIPLICATION SIGN
13/08	CAPITAL LETTER O WITH OBLIQUE STROKE
13/09	CAPITAL LETTER U WITH GRAVE ACCENT
13/10	CAPITAL LETTER U WITH ACUTE ACCENT

Bit Combination	Name
13/11	CAPITAL LETTER U WITH CIRCUMFLEX ACCENT
13/12	CAPITAL LETTER U WITH DIAERESIS
13/13	CAPITAL LETTER Y WITH ACUTE ACCENT
13/14	CAPITAL ICELANDIC LETTER THORN
13/15	SMALL GERMAN LETTER SHARP s
14/00	SMALL LETTER a WITH GRAVE ACCENT
14/01	SMALL LETTER a WITH ACUTE ACCENT
14/02	SMALL LETTER a WITH CIRCUMFLEX ACCENT
14/03	SMALL LETTER a WITH TILDE
14/04	SMALL LETTER a WITH DIAERESIS
14/05	SMALL LETTER a WITH RING ABOVE
14/06	SMALL DIPHTHONG a WITH e
14/07	SMALL LETTER C WITH CEDILLA
14/08	SMALL LETTER e WITH GRAVE ACCENT
14/09	SMALL LETTER e WITH ACUTE ACCENT
14/10	SMALL LETTER e WITH CIRCUMFLEX ACCENT
14/11	SMALL LETTER e WITH DIAERESIS
14/12	SMALL LETTER I WITH GRAVE ACCENT
14/13	SMALL LETTER I WITH ACUTE ACCENT
14/14	SMALL LETTER I WITH CIRCUMFLEX ACCENT
14/15	SMALL LETTER I WITH DIAERESIS
15/00	SMALL ICELANDIC LETTER ETH
15/01	SMALL LETTER n WITH TILDE
15/02	SMALL LETTER O WITH GRAVE ACCENT
15/03	SMALL LETTER O WITH ACUTE ACCENT
15/04	SMALL LETTER O WITH CIRCUMFLEX ACCENT
15/05	SMALL LETTER O WITH TILDE
15/06	SMALL LETTER O WITH DIAERESIS
15/07	DIVISION SIGN
15/08	SMALL LETTER O WITH OBLIQUE STROKE
15/09	SMALL LETTER u WITH GRAVE ACCENT
15/10	SMALL LETTER u WITH ACUTE ACCENT
15/11	SMALL LETTER u WITH CIRCUMFLEX ACCENT
15/12	SMALL LETTER u WITH DIAERESIS
15/13	SMALL LETTER Y WITH ACUTE ACCENT
15/14	SMALL ICELANDIC LETTER THORN
15/15	SMALL LETTER Y WITH DIAERESIS

8.3 Code Table

The Code Table shows the characters listed at the position in the code table corresponding to the specified bit combination.

The shaded positions correspond to bit combinations that do not represent graphic characters. Their use is outside the scope of this Standard, it is specified in other ECMA Standards, e.g. ECMA-6 or ECMA-48.

8.4 Designation of the Character Set

The graphic characters of the Latin Alphabet No. 1 constitute a single coded character set. However, when this character set is implemented together with other coding standards such as ECMA-35 or ECMA-43, the Code Table shall be considered to consist of the following components:

- The character SPACE represented by bit combination 02/00.
- A 94-character G0 graphic character set represented by bit combinations 02/01 to 07/14.
- A 96-character G1 graphic character set represented by bit combinations 10/00 to 15/15.

When required by other coding standards, e.g. ECMA-35 or ECMA-43 the following pair of escape sequences shall be used:

ESC 02/08 04/02 ESC 02/13 04/01

to designate the G0 and the G1 sets, respectively. According to ECMA-35 the character SPACE does not require designation.

LATIN ALPHABET No 1

					0		0	0	0	0	0	0 1	0	1	1	1	1	1	1	1	1
				b _i	_	0	0	0	0	0	1	1	1	0	0	0	0	0	1 0	1	1
				b	1	0	1	0		0	1	0		0	1	0	1	0	1	0	1
b.	b,	b،	b,	1	0	U	01	02	03	04	05	06	07	80	09	10	11	12	13	14	15
0	0	0	0	00				SP	0	а	Р	•	p			NBSP	0	À	Ð	à	6
0	0	0	1	01					1	Α	Q	а	q				+	Á	ĩ	á	ñ
0	0	1	0	02				11	2	В	R	b	r			¢	2	Â	Ò	â	ò
0	0	1	1	03				#	3	С	S	С	S			£	3	Ã	Ó	ã	ó
0	1	0	0	04				\$	4	D	Т	d	t			n	•	Ά	ô	ä	ô
0	1	0	1	05				%	5	Ε	U	е	u			¥	μ	A	õ	a	õ
0	1	1	0	06				&	6	F	٧	f	V			11	9	Æ	Ö	æ	ö
0	1	1	1	07				1	7	G	W	g	W			S	-	Ç	×	Ç	÷
1	0	0	0	80				(8	Н	X	h	Х			**	,	È	Ø	è	Ø
1	0	0	1	09)	9	Ι	Y	i	у			©	1	É	Ù	é	ù
1	0	1	0	10				*	:	J	Z	j	Z			a	<u>o</u>	Ê	Ú	ê	ú
1	0	1	1	11				+	;	K	Г	k	{			«	>>	Ë	Û	ë	û
1	1	0	0	12				,	<	L	1	l				1	1/4	Ì	Ü	ì	ü
1	1	0	1	13				-	=	M .]	m	}			SHY	1/2	Í	Ý	í	ý
1	1	1	0	14				•	>	N	^	n	~			®	3/4	Î	Þ	î	þ
1	1	1	1	15				/	?	0	_	0				-	ં	Ϊ	ß	ï	ÿ







9. LATIN ALPHABET No. 2

This coded character set shall consist of 191 graphic characters:

- the 95 characters listed in 7.1, and
- the 96 characters listed in 9.2.

9.1 Field of Application

The set contains graphic characters used for general purpose applications in typical office environments in the following languages:

Albanian, Czech, English, German, Hungarian, Polish, Rumanian, Serbo-croatian, Slovak, Slovene and Swedish.

9.2 Characters Allocated to Columns 10 to 15

Bit Combination	Name
10/00	NO-BREAK SPACE
10/01	CAPITAL LETTER A WITH OGONEK
10/02	BREVE
10/03	CAPITAL LETTER L WITH STROKE
10/04	CURRENCY SIGN
10/05	CAPITAL LETTER L WITH CARON
10/06	CAPITAL LETTER S WITH ACUTE ACCENT
10/07	PARAGRAPH SIGN
10/08	DIAERESIS
10/09	CAPITAL LETTER S WITH CARON
10/10	CAPITAL LETTER S WITH CEDILLA
10/11	CAPITAL LETTER T WITH CARON
10/12	CAPITAL LETTER Z WITH ACUTE ACCENT
10/13	SOFT HYPHEN
10/14	CAPITAL LETTER Z WITH CARON
10/15	CAPITAL LETTER Z WITH DOT ABOVE
11/00	DEGREE SIGN, RING ABOVE
11/01	SMALL LETTER a WITH OGONEK
11/02	OGONEK
11/03	SMALL LETTER 1 WITH STROKE
11/04	ACUTE ACCENT
11/05	SMALL LETTER 1 WITH CARON

Bit Combination	Name
11/06	SMALL LETTER S WITH ACUTE ACCENT
11/07	CARON
11/08	CEDILLA
11/09	SMALL LETTER S WITH CARON
11/10	SMALL LETTER S WITH CEDILLA
11/11	SMALL LETTER t WITH CARON
11/12	SMALL LETTER z WITH ACUTE ACCENT
11/13	DOUBLE ACUTE ACCENT
11/14	SMALL LETTER z WITH CARON
11/15	SMALL LETTER z WITH DOT ABOVE
12/00	CAPITAL LETTER R WITH ACUTE ACCENT
12/01	CAPITAL LETTER A WITH ACUTE ACCENT
12/02	CAPITAL LETTER A WITH CIRCUMFLEX ACCENT
12/03	CAPITAL LETTER A WITH BREVE
12/04	CAPITAL LETTER A WITH DIAERESIS
12/05	CAPITAL LETTER L WITH ACUTE ACCENT
12/06	CAPITAL LETTER C WITH ACUTE ACCENT
12/07	CAPITAL LETTER C WITH CEDILLA
12/08	CAPITAL LETTER C WITH CARON
12/09	CAPITAL LETTER E WITH ACUTE ACCENT
12/10	CAPITAL LETTER E WITH OGONEK
12/11	CAPITAL LETTER E WITH DIAERESIS
12/12	CAPITAL LETTER E WITH CARON
12/13	CAPITAL LETTER I WITH ACUTE ACCENT
12/14	CAPITAL LETTER I WITH CIRCUMFLEX ACCENT
12/15	CAPITAL LETTER D WITH CARON
13/00	CAPITAL LETTER D WITH STROKE
13/01	CAPITAL LETTER N WITH ACUTE ACCENT
13/02	CAPITAL LETTER N WITH CARON
13/03	CAPITAL LETTER O WITH ACUTE ACCENT
13/04	CAPITAL LETTER O WITH CIRCUMFLEX ACCENT
13/05	CAPITAL LETTER O WITH DOUBLE ACUTE ACCENT
13/06	CAPITAL LETTER O WITH DIAERESIS
13/07	MULTIPLICATION SIGN
13/08	CAPITAL LETTER R WITH CARON
13/09	CAPITAL LETTER U WITH RING ABOVE
13/10	CAPITAL LETTER U WITH ACUTE ACCENT

Bit Combination	Name
13/11	CAPITAL LETTER U WITH DOUBLE ACUTE ACCENT
13/12	CAPITAL LETTER U WITH DIAERESIS
13/13	CAPITAL LETTER Y WITH ACUTE ACCENT
13/14	CAPITAL LETTER T WITH CEDILLA
13/15	SMALL GERMAN LETTER SHARP s
14/00	SMALL LETTER r WITH ACUTE ACCENT
14/01	SMALL LETTER a WITH ACUTE ACCENT
14/02	SMALL LETTER a WITH CIRCUMFLEX ACCENT
14/03	SMALL LETTER a WITH BREVE
14/04	SMALL LETTER a WITH DIAERESIS
14/05	SMALL LETTER 1 WITH ACUTE ACCENT
14/06	SMALL LETTER C WITH ACUTE ACCENT
14/07	SMALL LETTER c WITH CEDILLA
14/08	SMALL LETTER C WITH CARON
14/09	SMALL LETTER e WITH ACUTE ACCENT
14/10	SMALL LETTER e WITH OGONEK
14/11	SMALL LETTER e WITH DIAERESIS
14/12	SMALL LETTER e WITH CARON
14/13	SMALL LETTER I WITH ACUTE ACCENT
14/14	SMALL LETTER I WITH CIRCUMFLEX ACCENT
14/15	SMALL LETTER d WITH CARON
15/00	SMALL LETTER d WITH STROKE
15/01	SMALL LETTER n WITH ACUTE ACCENT
15/02	SMALL LETTER n WITH CARON
15/03	SMALL LETTER O WITH ACUTE ACCENT
15/04	SMALL LETTER O WITH CIRCUMFLEX ACCENT
15/05	SMALL LETTER O WITH DOUBLE ACUTE ACCENT
15/06	SMALL LETTER O WITH DIAERESIS
15/07	DIVISION SIGN
15/08	SMALL LETTER r WITH CARON
15/09	SMALL LETTER u WITH RING ABOVE
15/10	SMALL LETTER u WITH ACUTE ACCENT
15/11	SMALL LETTER U WITH DOUBLE ACUTE ACCENT
15/12	SMALL LETTER u WITH DIAERESIS
15/13	SMALL LETTER Y WITH ACUTE ACCENT
15/14	SMALL LETTER t WITH CEDILLA
15/15	DOT ABOVE

9.3 Code Table

The Code Table shows the characters listed at the position in the code table corresponding to the specific combination.

The shaded positions correspond to bit combinations that do no represent graphic characters. Their use is outside the scope of this Standard, it is specified in other ECMA Standards, e.g. ECMA-6 or ECMA-48.

9.4 Designation of the Character Set

The graphic characters of the Latin Alphabet No 2 constitute a single coded character set. However, when this character set is implemented together with other coding standards such as ECMA-35 or ECMA-43, the Code Table shall be considered to consist of the following components:

- The character SPACE represented by bit combination 02/00.
- A 94-character G0 graphic character set represented by bit combinations 02/01 to 07/14.
- A 96-character G1 graphic character set represented by bit combinations 10/00 to 15/15.

When required by other coding standards, e.g. ECMA-35 or ECMA-43 the following pair of escape sequences shall be used:

ESC 02/08 04/02 ESC 02/13 04/02

to designate the GO and the G1 sets, respectively. According to ECMA-35 the character SPACE does not require designation.

LATIN ALPHABET No 2

				b	0	0	Ю	0	0	0	0	0	1	1	1	1	1	1	1	1
				b	+-	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				b.		0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				b			0	1	0	1	0	1	0	1	0	1	0	1	0	1
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LATIN ALPHABET No 3



10. LATIN ALPHABET No 3

This coded character set shall consist of 183 graphic characters:

- the 95 characters listed in 7.1, and
- the 89 characters listed in 10.2.

10.1 Field of Application

The set contains graphic characters used for general purpose applications in typical office environments in the following languages:

Afrikaans, Catalan, English, Esperanto, French, Galician, German, Italian, Maltese and Turkish.

10.2 Characters Allocated to Columns 10 to 15

Bit Combination	Name
10/00	NO-BREAK SPACE
10/01	CAPITAL LETTER H WITH STROKE
10/02	BREVE
10/03	POUND SIGN
10/04	CURRENCY SIGN
10/05	This position shall not be used
10/06	CAPITAL LETTER H WITH CIRCUMFLEX ACCENT
10/07	PARAGRAPH SIGN
10/08	DIAERESIS
10/09	CAPITAL LETTER I WITH DOT ABOVE
10/10	CAPITAL LETTER S WITH CEDILLA
10/11	CAPITAL LETTER G WITH BREVE
10/12	CAPITAL LETTER J WITH CIRCUMFLEX ACCENT
10/13	SOFT HYPHEN
10/14	This position shall not be used
10/15	CAPITAL LETTER Z WITH DOT ABOVE
11/00	DEGREE SIGN, RING ABOVE
11/01	SMALL LETTER h WITH STROKE
11/02	SUPERSCRIPT TWO
11/03	SUPERSCRIPT THREE
11/04	ACUTE ACCENT
11/05	MICRO SIGN

Bit Combination	Name
11/06	SMALL LETTER h WITH CIRCUMFLEX ACCENT
11/07	MIDDLE DOT
11/08	CEDILLA
11/09	SMALL LETTER I WITHOUT DOT ABOVE
11/10	SMALL LETTER s WITH CEDILLA
11/11	SMALL LETTER g WITH BREVE
11/12	SMALL LETTER j WITH CIRCUMFLEX ACCENT
11/13	VULGAR FACTION ONE HALF
11/14	This position shall not be used
11/15	SMALL LETTER z WITH DOT ABOVE
12/00	CAPITAL LETTER A WITH GRAVE ACCENT
12/01	CAPITAL LETTER A WITH ACUTE ACCENT
12/02	CAPITAL LETTER A WITH CIRCUMFLEX ACCENT
12/03	This position shall not be used
12/04	CAPITAL LETTER A WITH DIAERESIS
12/05	CAPITAL LETTER C WITH DOT ABOVE
12/06	CAPITAL LETTER C WITH CIRCUMFLEX ACCENT
12/07	CAPITAL LETTER C WITH CEDILLA
12/08	CAPITAL LETTER E WITH GRAVE ACCENT
12/09	CAPITAL LETTER E WITH ACUTE ACCENT
12/10	CAPITAL LETTER E WITH CIRCUMFLEX ACCENT
12/11	CAPITAL LETTER E WITH DIAERESIS
12/12	CAPITAL LETTER I WITH GRAVE ACCENT
12/13	CAPITAL LETTER I WITH ACUTE ACCENT
12/14	CAPITAL LETTER I WITH CIRCUMFLEX ACCENT
12/15	CAPITAL LETTER I WITH DIAERESIS
13/00	This position shall not be used
13/01	CAPITAL LETTER N WITH TILDE
13/02	CAPITAL LETTER O WITH GRAVE ACCENT
13/03	CAPITAL LETTER O WITH ACUTE ACCENT
13/04	CAPITAL LETTER O WITH CIRCUMFLEX ACCENT
13/05	CAPITAL LETTER G WITH DOT ABOVE
13/06	CAPITAL LETTER O WITH DIAERESIS
13/07	MULTIPLICATION SIGN
13/08	CAPITAL LETTER G WITH CIRCUMFLEX ACCENT
13/09	CAPITAL LETTER U WITH GRAVE ACCENT
13/10	CAPITAL LETTER U WITH ACUTE ACCENT

Bit Combination	Name
13/11	CAPITAL LETTER U WITH CIRCUMFLEX ACCENT
13/12	CAPITAL LETTER U WITH DIAERESIS
13/12	CAPITAL LETTER U WITH BREVE
13/14	CAPITAL LETTER S WITH CIRCUMFLEX ACCENT
13/15	SMALL GERMAN LETTER SHARP S
14/00	SMALL LETTER a WITH GRAVE ACCENT
14/01	SMALL LETTER a WITH ACUTE ACCENT
14/02	SMALL LETTER a WITH CIRCUMFLEX ACCENT
14/03	This position shall not be used
14/04	SMALL LETTER a WITH DIAERESIS
14/05	SMALL LETTER C WITH DOT ABOVE
14/06	SMALL LETTER C WITH CIRCUMFLEX ACCENT
14/07	SMALL LETTER C WITH CEDILLA
14/08	SMALL LETTER e WITH GRAVE ACCENT
14/09	SMALL LETTER e WITH ACUTE ACCENT
14/10	SMALL LETTER e WITH CIRCUMFLEX ACCENT
14/11	SMALL LETTER e WITH DIAERESIS
14/12	SMALL LETTER I WITH GRAVE ACCENT
14/13	SMALL LETTER I WITH ACUTE ACCENT
14/14	SMALL LETTER I WITH CIRCUMFLEX ACCENT
14/15	SMALL LETTER i WITH DIAERESIS
15/00	This position shall not be used
15/01	SMALL LETTER n WITH TILDE
15/02	SMALL LETTER O WITH GRAVE ACCENT
15/03	SMALL LETTER O WITH ACUTE ACCENT
15/04	SMALL LETTER O WITH CIRCUMFLEX ACCENT
15/05	SMALL LETTER g WITH DOT ABOVE
15/06	SMALL LETTER O WITH DIAERESIS
15/07	DIVISION SIGN
15/08	SMALL LETTER g WITH CIRCUMFLEX ACCENT
15/09	SMALL LETTER u WITH GRAVE ACCENT
15/10	SMALL LETTER u WITH ACUTE ACCENT
15/11	SMALL LETTER u WITH CIRCUMFLEX ACCENT
15/12	SMALL LETTER u WITH DIAERESIS
15/13	SMALL LETTER u WITH BREVE
15/14	SMALL LETTER S WITH CIRCUMFLEX ACCENT
15/15	DOT ABOVE

10.3 Code Table

The Code Table shows the characters listed at the position in the code table corresponding to the specified bit combination.

The shaded positions correspond to bit combinations that do not represent graphic characters. Their use is outside the scope of this Standard, it is specified in other ECMA Standards, e.g. ECMA-6 or ECMA-48.

10.4 Designation of the Character Set

The graphic characters of the Latin Alphabet No 3 constitute a single coded character set. However, when this character set is implemented together with other coding standards such as ECMA-35 or ECMA-43, the Code Table shall be considered to consist of the following components:

- The character SPACE represented by bit combination 02/00.
- A 94-character GO graphic character set represented by bit combination 02/01 to 07/14.
- A 96-character G1 graphic character set represented by bit combinations 10/00 to 15/15.

When required by other coding standards, e.g. ECMA-35 or ECMA-43 the following pair of escape sequences shall be used:

ESC 02/08 04/02 ESC 02/13 04/03

to designate the GO and the G1 sets, respectively. According to ECMA-35 the character SPACE does not require designation.

10.5 Bit Combinations Not To Be Used

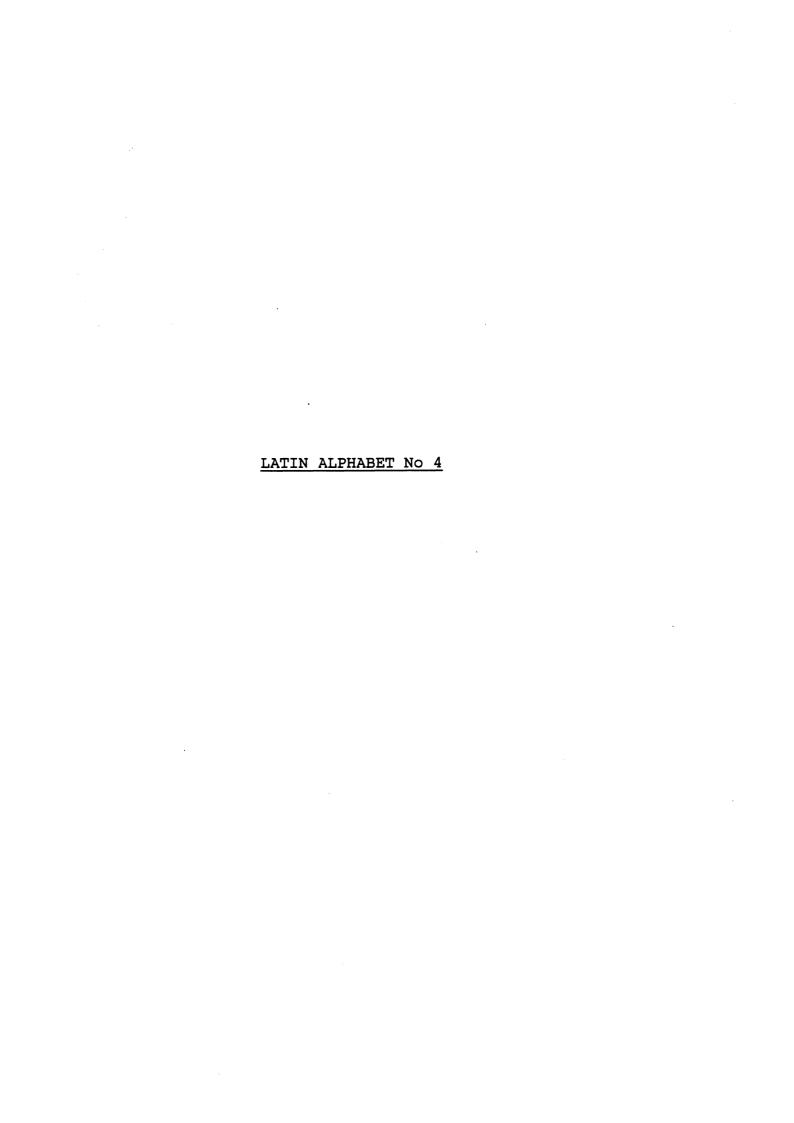
Bit combinations 10/05, 10/14, 11/14, 12/03, 13/00, 14/03 and 15/00 are reserved for future standardization and shall not be used. They are cross-hatched in the Code Table.

Any allocation of characters to these positions is incompatible with this Standard.

LATIN ALPHABET No 3

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					٥.	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				<u>l</u>	٥,	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
b.	b,	b,	b,	1		00	01	02	03	04	05	06	07	80	09	10	11	12	13	14	15
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11. LATIN ALPHABET No 4

This coded character set shall consist of 191 graphic characters:

- the 95-characters listed in 7.2, and
- the 96-characters listed in 11.2.

11.1 Field of Application

The set contains graphic characters used for general purpose applications in typical office environments in the following languages:

Danish, English, Estonian, Finnish, German, Greenlandic, Lappish, Latvian, Lithuanian, Norwegian and Swedish.

11.2 Characters Allocated to Column 10 to 15

Bit Combination	Name
10/00	NO-BREAK SPACE
10/01	CAPITAL LETTER A WITH OGONEK
10/02	SMALL GREENLANDIC LETTER K
10/03	CAPITAL LETTER R WITH CEDILLA
10/04	CURRENCY SIGN
10/05	CAPITAL LETTER I WITH TILDE
10/06	CAPITAL LETTER L WITH CEDILLA
10/07	PARAGRAPH SIGN
10/08	DIAERESIS
10/09	CAPITAL LETTER S WITH CARON
10/10	CAPITAL LETTER E WITH MACRON
10/11	CAPITAL LETTER G WITH CEDILLA
10/12	CAPITAL LETTER T WITH OBLIQUE STROKE
10/13	SOFT HYPHEN
10/14	CAPITAL LETTER Z WITH CARON
10/15	MACRON
11/00	DEGREE SIGN, RING ABOVE
11/01	SMALL LETTER a WITH OGONEK
11/02	OGONEK
11/03	SMALL LETTER r WITH CEDILLA
11/04	ACUTE ACCENT
11/05	SMALL LETTER i WITH TILDE

Bit Combination	Name
11/06	SMALL LETTER 1 WITH CEDILLA
11/07	CARON
11/08	CEDILLA
11/09	SMALL LETTER S WITH CARON
11/10	SMALL LETTER e WITH MACRON
11/11	SMALL LETTER g WITH CEDILLA ABOVE
11/12	SMALL LETTER t WITH STROKE
11/13	CAPITAL LAPPISH LETTER ENG
11/14	SMALL LETTER z WITH CARON
11/15	SMALL LAPPISH LETTER ENG
12/00	CAPITAL LETTER A WITH MACRON
12/01	CAPITAL LETTER A WITH ACUTE ACCENT
12/02	CAPITAL LETTER A WITH CIRCUMFLEX ACCENT
12/03	CAPITAL LETTER A WITH TILDE
12/04	CAPITAL LETTER A WITH DIAERESIS
12/05	CAPITAL LETTER A WITH RING ABOVE
12/06	CAPITAL DIPHTHONG A WITH E
12/07	CAPITAL LETTER I WITH OGONEK
12/08	CAPITAL LETTER C WITH CARON
12/09	CAPITAL LETTER E WITH ACUTE ACCENT
12/10	CAPITAL LETTER E WITH OGONEK
12/11	CAPITAL LETTER E WITH DIAERESIS
12/12	CAPITAL LETTER E WITH DOT ABOVE
12/13	CAPITAL LETTER I WITH ACUTE ACCENT
12/14	CAPITAL LETTER I WITH CIRCUMFLEX ACCENT
12/15	CAPITAL LETTER I WITH MACRON
13/00	CAPITAL LETTER D WITH STROKE
13/01	CAPITAL LETTER N WITH OGONEK
13/02	CAPITAL LETTER O WITH MACRON
13/03	CAPITAL LETTER K WITH CEDILLA
13/04	CAPITAL LETTER O WITH CIRCUMFLEX ACCENT
13/05	CAPITAL LETTER O WITH TILDE
13/06	CAPITAL LETTER O WITH DIAERESIS
13/07	MULTIPLICATION SIGN
13/08	CAPITAL LETTER O WITH OBLIQUE STROKE
13/09	CAPITAL LETTER U WITH OGONEK
13/10	CAPITAL LETTER U WITH ACUTE ACCENT

Bit Combination	Name
13/11	CAPITAL LETTER U WITH CIRCUMFLEX ACCENT
13/12	CAPITAL LETTER U WITH DIAERESIS
13/13	CAPITAL LETTER U WITH TILDE
13/14	CAPITAL LETTER U WITH MACRON
13/15	SMALL GERMAN LETTER SHARP s
14/00	SMALL LETTER a WITH MACRON
14/01	SMALL LETTER a WITH ACUTE ACCENT
14/02	SMALL LETTER a WITH CIRCUMFLEX ACCENT
14/03	SMALL LETTER a WITH TILDE
14/04	SMALL LETTER a WITH DIAERESIS
14/05	SMALL LETTER a WITH RING ABOVE
14/06	SMALL DIPHTHONG a WITH e
14/07	SMALL LETTER I WITH OGONEK
14/08	SMALL LETTER C WITH CARON
14/09	SMALL LETTER e WITH ACUTE ACCENT
14/10	SMALL LETTER e WITH OGONEK
14/11	SMALL LETTER e WITH DIAERESIS
14/12	SMALL LETTER e WITH DOT ABOVE
14/13	SMALL LETTER I WITH ACUTE ACCENT
14/14	SMALL LETTER I WITH CIRCUMFLEX ACCENT
14/15	SMALL LETTER i WITH CARON
14/15	SMALL LETTER I WITH MACRON
15/00	SMALL LETTER d WITH STROKE
15/01	SMALL LETTER n WITH OGONEK
15/02	SMALL LETTER O WITH MACRON
15/03	SMALL LETTER k WITH CEDILLA
15/04	SMALL LETTER O WITH CIRCUMFLEX ACCENT
15/05	SMALL LETTER O WITH TILDE
15/06	SMALL LETTER O WITH DIAERESIS
15/07	DIVISION SIGN
15/08	SMALL LETTER O WITH OBLIQUE STROKE
15/09	SMALL LETTER u WITH OGONEK
15/10	SMALL LETTER u WITH ACUTE ACCENT
15/11	SMALL LETTER u WITH CIRCUMFLEX ACCENT
15/12	SMALL LETTER u WITH DIAERESIS
15/13	SMALL LETTER u WITH TILDE
15/14	SMALL LETTER u WITH MACRON
15/15	DOT ABOVE

11.3 Code Table

The Code Table shows the characters listed at the position in the code table corresponding to the specific bit combination.

The shaded positions corresponds to bit combinations that so not represent graphic characters. Their use is outside the scope of this Standard, it is specified in other ECMA Standards, e.g.. ECMA-6 or ECMA-48.

11.4 Designation of the Character Set

The graphic characters of the Latin Alphabet No 4 constitute a single coded character set. However, when this character set is implemented together with other coding standards such as ECMA-35 or ECMA-43, the Code Table shall be considered to consist of the following components:

- The character SPACE represented by bit combination 02/00
- A 94-character GO graphic character set represented by bit combinations 02/01 to 07/14.
- A 96-character G1 graphic character set represented by bit combinations 10/00 to 15/15.

When required by other coding standards, e.g. ECMA-35 or ECMA-43 the following pair of escape sequences shall be used:

ESC 02/08 04/02 ESC 02/13 04/04

to designate the GO and the G1 sets, respectively. According to ECMA-35 the character SPACE does not require designation.

LATIN ALPHABET No 4

				b).	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				b		0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				0		0	0	0	1	0	0	1	1	0	0	0	1	0	0	1	1
				b	"	00	01	02		04			07	80	09	10	11	12	13	14	15
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APPENDIX A

SYNOPSIS OF THE CHARACTERS COMMON TO ALL FOUR ALPHABETS

The four alphabets have 128 characters in common. The 95 characters allocated to columns 02 to 07 are listed in 7.1. The remaining 33 characters allocated to columns 10 to 15 are shown for convenience in the table below.

				b,		0	0	0	1	1	1	1
				b. b.	0	0	10	1	0	0	1	1
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APPENDIX B

SYNOPSIS OF THE CHARACTERS UNIQUE TO EACH ALPHABET

Latin No 1

Latin No 2

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Latin No 3

Latin No 4

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