C0 Controls and Basic Latin

Range: 0000-007F

This file contains an excerpt from the character code tables and list of character names for *The Unicode Standard, Version 16.0*

This file may be changed at any time without notice to reflect errata, or other updates to the Unicode Standard. See https://www.unicode.org/errata/ for an up-to-date list of errata.

See https://www.unicode.org/charts/ for access to a complete list of the latest character code charts. See https://www.unicode.org/charts/PDF/Unicode-16.0/ for charts showing only the characters added in Unicode 16.0. See https://www.unicode.org/Public/16.0.0/charts/ for a complete archived file of character code charts for Unicode 16.0. See https://www.unicode.org/charts/About.html#Conventions for conventions used in these code charts, and other general information.

Disclaimer

These charts are provided as the online reference to the character contents of the Unicode Standard, Version 16.0 but do not provide all the information needed to fully support individual scripts using the Unicode Standard. For a complete understanding of the use of the characters contained in this file, please consult the appropriate sections of The Unicode Standard, Version 16.0, online at https://www.unicode.org/versions/Unicode16.0.0/, as well as the Unicode Standard Annexes, the other Unicode Technical Reports and Standards, and the Unicode Character Database, which are available online

See https://www.unicode.org/ucd/ and https://www.unicode.org/reports/

A thorough understanding of the information contained in these additional sources is required for a successful implementation.

Fonts

The shapes of the reference glyphs used in these code charts are not prescriptive. Considerable variation is to be expected in actual fonts.

See https://www.unicode.org/charts/fonts.html for a list.

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	000	001	002	003	004	005	006	007
0	[NUL]	DLE 0010	SP	0030	<u>a</u>	P 0050	0060	p
1	SOH 0001	DC1	0021	1	A 0041	Q 0051	a 0061	q
2	(STX)	DC2 0012	0022	2	B	R	b	1
3	(ETX)	DC3	# 0023	3	C	S	C	S
4	(EOT)	DC4	\$ 0024	4	D 0044	T	d 0064	t 0074
5	ENQ	NAK 0015	% 0025	5	E 0045	U 0055	e 0065	u
6	0006	SYN 0016	& 0026	6	F 0046	V 0056	f	V
7	[BEL]	(ETB)	0027	7	G	W 0057	g	W
8	BS 0008	(CAN)	0028	8	H 0048	X 0058	h	X 0078
9	(HT)	E M 0019	0029	9	I	Y 0059	i	y
Α	LF 000A	SUB 001A	☆	• • 003A	J 004A	Z	j	Z
В	(V T)	ESC 001B	+	• • • 003B	K	005B	k	{ 007B
С	FF 000C	001C	9 002C	<003C	L 004C	005C	1 006C	007C
D	CR 000D	(GS)	 002D	003D	M 004D] 005D	m 006D	}
Е	(SO)	(RS)	• 002E	> 003E	N 004E	∧ 005E	n 006E	~
F	SI 000F	001F	002F	? 003F	O 004F	005F	O 006F	DEL 007F

C0 controls			001A	SUB	<control> = SUBSTITUTE</control>		
Alias names are those for ISO/IEC 6429:1992. Commonly used alternative aliases are also shown.					→ FFFD ? replacement character		
0000	NUL			ESC	<control></control>		
0000	11	= NULL	0010	[==]	= ESCAPE		
0001	зон	<control></control>	001C	FS	<control> = INFORMATION SEPARATOR FOUR</control>		
0002	STX	= START OF HEADING <control></control>			= file separator (FS)		
0002	L	= START OF TEXT	001D	GS	<pre><control> = INFORMATION SEPARATOR THREE</control></pre>		
0003	ETX	<control></control>			= group separator (GS)		
0004	ЕОТ	= END OF TEXT <control></control>	001E	RS	<control></control>		
0004	E111	= END OF TRANSMISSION			= INFORMATION SEPARATOR TWO = record separator (RS)		
0005	ENQ	<control></control>	001F	us	<control></control>		
0006	ACK	= ENQUIRY <control></control>			= INFORMATION SEPARATOR ONE		
0000		= ACKNOWLEDGE			= unit separator (US)		
0007	BEL	<control></control>		-	ctuation and symbols		
0008	[Re]	= BELL <control></control>			50/IEC 646.		
0000	BS	= BACKSPACE	0020	SP	SPACE • sometimes considered a control code		
0009	нт	<control></control>			• other space characters: 2000 [89] —200A [8]		
		= CHARACTER TABULATION = horizontal tabulation (HT)			→ 00A0 🐕 no-break space		
		= tab			→ 200B w zero width space → 202F see narrow no-break space		
000A	LF	<control></control>			→ 2060 www word joiner		
		= LINE FEED (LF) = new line (NL)			\rightarrow 2420 s _p symbol for space		
		= end of line (EOL)			→ 2422 b blank symbol		
000B	VT	<control></control>			→ 2423 open box → 3000 [8] ideographic space		
		= LINE TABULATION = vertical tabulation (VT)			→ FEFF zero width no-break space		
000C	FF	<control></control>	0021	!	EXCLAMATION MARK		
0000	[22]	= FORM FEED (FF)			= factorial = bang		
000D	CR	<control> = CARRIAGE RETURN (CR)</control>			→ 00A1; inverted exclamation mark		
000E	so	<control></control>			→ 01C3! latin letter retroflex click		
		= SHIFT OUT			→ 203C!! double exclamation mark → 203D ? interrobang		
		 known as LOCKING-SHIFT ONE in 8-bit environments 			\rightarrow 26A0 \triangle warning sign		
000F	SI	<control></control>			→ 2757 heavy exclamation mark symbol		
		= SHIFT IN • known as LOCKING-SHIFT ZERO in 8-bit			 → 2762 heavy exclamation mark ornament → 2E53 medieval exclamation mark 		
		environments			→ A71D modifier letter raised exclamation mark		
0010	DLE	<control></control>	0022	"	QUOTATION MARK		
0011	DC1	= DATA LINK ESCAPE <control></control>			double quoteneutral (vertical), used as opening or closing		
0011	1	= DEVICE CONTROL ONE			quotation mark		
0012	DC2	<control></control>			• preferred characters in English for paired		
0013	DC3	= DEVICE CONTROL TWO <control></control>			quotation marks are 201C " & 201D" • 05F4 " is preferred for gershayim when writing		
0010	1	= DEVICE CONTROL THREE			Hebrew		
0014	DC4	<control></control>			→ 02BA " modifier letter double prime		
0015	NAK	= DEVICE CONTROL FOUR <control></control>			→ 02DD ″ double acute accent → 02EE " modifier letter double apostrophe		
0010	1	= NEGATIVE ACKNOWLEDGE			→ 030B ő combining double acute accent		
0016	SYN	<control></control>			→ 030E combining double vertical line above		
0017	ЕТВ	= SYNCHRONOUS IDLE <control></control>			→ 05F4 " hebrew punctuation gershayim → 201C " left double quotation mark		
5011	ii	= END OF TRANSMISSION BLOCK			→ 201D" right double quotation mark		
0018	CAN	<control></control>			→ 2033 " double prime		
0019	EM	= CANCEL <control></control>			→ 3003 " ditto mark		
55.0	11	= END OF MEDIUM					

0023 **NUMBER SIGN** 002A * **ASTERISK** = pound sign (weight) = star= hashtag, hash can have five or six spokes = crosshatch, octothorpe → 066D ★ arabic five pointed star for denoting musical sharp 266F # is preferred → 203B × reference mark \rightarrow 2114 \mathscr{E} | b bar symbol → 2042 * asterism → 2116 **N**o numero sign → 204E * low asterisk → 2317 ‡ viewdata square → 2051 * two asterisks aligned vertically → 266F # music sharp sign → 20F0 * combining asterisk above → 29E3 # equals sign and slanted parallel → 2217 * asterisk operator 0024 \$ DOLLAR SIGN → 26B9 * sextile = milréis, escudo → 2731 ***** heavy asterisk → A673 [‡] slavonic asterisk • used for many peso currencies in Latin America and elsewhere → 1F7B6 * medium six spoked asterisk • glyph may have one or two vertical bars **ASCII** math operator other currency symbol characters start at 002B + PLUS SIGN 20A0 € → 02D6 + modifier letter plus sign \rightarrow 00A2 ¢ cent sign → 2212 – minus sign → 00A4 ¤ currency sign → 20B1 P peso sign → 2795 **+** heavy plus sign → 1F4B2 **\$** heavy dollar sign → 1F7A2 + light greek cross 0025 % PERCENT SIGN \rightarrow 066A % arabic percent sign **ASCII** punctuation \rightarrow 2030 ‰ per mille sign 002C **COMMA** → 2031 ‱ per ten thousand sign = the use as decimal or thousands separator is → 2052 % commercial minus sign locale dependent & AMPERSAND 0026 → 060C (arabic comma = and → 066B , arabic decimal separator • originally derived from a ligature of 'e' and 't' \rightarrow 201A, single low-9 quotation mark → 204A 7 tironian sign et → 2E12 hypodiastole → 214B 🏵 turned ampersand → 2E41 . reversed comma → 1F674 & heavy ampersand ornament → 2E4C ? medieval comma 0027 **APOSTROPHE** → 3001 , ideographic comma = apostrophe-quote (1.0) **HYPHEN-MINUS** 002D = single quote = hyphen, dash = APL quote = minus sign neutral (vertical) glyph with mixed usage • used generically for hyphen, minus sign or en • 2019 ' is preferred for apostrophe dash, all of which have dedicated alternatives • preferred characters in English for paired → 00AD SHY soft hyphen quotation marks are 2018 ' & 2019 ' → 02D7 - modifier letter minus sign • 05F3 ' is preferred for geresh when writing → 2010 - hyphen Hebrew → 2011 non-breaking hyphen → 02B9 ′ modifier letter prime \rightarrow 2012 – figure dash → 02BC' modifier letter apostrophe \rightarrow 2013 – en dash → 02C8 ' modifier letter vertical line → 2027 · hyphenation point → 0301 6 combining acute accent → 2043 • hyphen bullet → 030D of combining vertical line above \rightarrow 2212 - minus sign → 05F3 ' hebrew punctuation geresh → 10191 - roman uncia sign \rightarrow 2018 'left single quotation mark 002E **FULL STOP** → 2019 'right single quotation mark = period, dot, decimal point \rightarrow 2032 ' prime • the use as decimal point is locale dependent → A78C' latin small letter saltillo • may be rendered as a raised decimal point in LEFT PARENTHESIS 0028 old style numbers = opening parenthesis (1.0) → 00B7 · middle dot 0029 **RIGHT PARENTHESIS**) → 06D4 . arabic full stop = closing parenthesis (1.0) \rightarrow 2024 . one dot leader see discussion on semantics of paired → 2026 ... horizontal ellipsis bracketing characters → 2E33 · raised dot → 2E3C * stenographic full stop

→ 3002 o ideographic full stop

002F	/	SOLIDUS	003D	=	EQUALS SIGN	
		= slash, forward slash, virgule			• other related characters: 2241 ~ −2263 ≡	
		→ 0338 Ø combining long solidus overlay			→ 1400 = canadian syllabics hyphen	
		→ 2044/ fraction slash			→ 2248 ≈ almost equal to	
		→ 2215 / division slash				
					\rightarrow 2260 \neq not equal to	
		→ 27CB / mathematical rising diagonal			→ 2261 ≡ identical to	
		→ 29F8 / big solidus			→ 2E40 = double hyphen	
		\rightarrow 2E4A f dotted solidus			→ 30A0 = katakana-hiragana double hyphen	
ASCII	digi	ts			→ A78A = modifier letter short equals sign	
0030	0	DIGIT ZERO			→ FE66 = small equals sign	
0000	U	~ 0030 FE00 Ø short diagonal stroke form			\rightarrow 10190 = roman sextans sign	
0031	1	9			→ 1F7F0 = heavy equals sign	
	1	DIGIT ONE	003E	>	GREATER-THAN SIGN	
0032	2	DIGIT TWO			→ 02C3 > modifier letter right arrowhead	
		→ 01BB 2 latin letter two with stroke			→ 203A > single right-pointing angle quotation	
	_	\rightarrow 218A 7 turned digit two			mark	
0033	3	DIGIT THREE			→ 232A > right-pointing angle bracket	
		$ ightarrow$ 218B $\mathfrak E$ turned digit three			→ 27E9 \rightarrow mathematical right angle bracket	
		\rightarrow A7AB 3 latin capital letter reversed open e			→ 3009 > right angle bracket	
0034	4	DIGIT FOUR				
		→ A72C 4 latin capital letter cuatrillo	ASCII	pun	ctuation	
0035	5	DIGIT FIVE	003F	?	QUESTION MARK	
		→ 01BC 5 latin capital letter tone five			\rightarrow 00BF \dot{i} inverted question mark	
0036	6	DIGIT SIX			→ 037E; greek question mark	
0037	7	DIGIT SEVEN			→ 061F ? arabic question mark	
0037	8				→ 203D ? interrobang	
		DIGIT EIGHT			→ 2047 ?? double question mark	
0039	9	DIGIT NINE			→ 2753 ? black question mark ornament	
ASCII	pun	ctuation			→ 2BD1 ② uncertainty sign	
003A	:	COLON			→ 2E2E ? reversed question mark	
	•	also used to denote division or scale; for that			→ 2E54 : reversed question mark	
		mathematical use 2236: is preferred			→ FFFD • replacement character	
		• in Finnish and Swedish, also used as intra-word	0040	@		
		punctation (abbreviation mark)	0040	@	COMMERCIAL AT	
		→ 02D0: modifier letter triangular colon			= at sign = arroba (old Spanish unit of weight)	
		→ 02F8 : modifier letter raised colon			→ 24D0 ⓐ circled latin small letter a	
		→ 0589: armenian full stop				
		→ 05C3: hebrew punctuation sof pasuq	Uppercase Latin alphabet			
		→ 1361 : ethiopic wordspace	0041	Α	LATIN CAPITAL LETTER A	
		→ 1365 * ethiopic colon	0042	В	LATIN CAPITAL LETTER B	
		→ 205A: two dot punctuation			\rightarrow 212C \mathscr{B} script capital b	
		→ 205D: tricolon	0043	C	LATIN CAPITAL LETTER C	
			0010	_	→ 03F9 C greek capital lunate sigma symbol	
		→ 2236: ratio			\rightarrow 2102 C double-struck capital c	
		→ A789: modifier letter colon				
		→ FE30 : presentation form for vertical two			→ 2103 °C degree celsius	
0000		dot leader			→ 212D © black-letter capital c	
003B	;	SEMICOLON	0044	ъ	\rightarrow 216D C roman numeral one hundred	
		• this, and not 037E; , is the preferred character	0044	D	LATIN CAPITAL LETTER D	
		for 'Greek question mark'		_	$ ightarrow$ 216E ${f D}$ roman numeral five hundred	
		→ 037E; greek question mark	0045	Е	LATIN CAPITAL LETTER E	
		→ 061B : arabic semicolon			$ ightarrow$ 0190 ϵ latin capital letter open e	
		→ 204F; reversed semicolon			\rightarrow 2107 ε euler constant	
		→ 2E35: turned semicolon			\rightarrow 2130 % script capital e	
ASCII	mat	hematical operators	0046	F	LATIN CAPITAL LETTER F	
		•			→ 2109 °F degree fahrenheit	
		hematical operators start at 2200.			→ 2131 F script capital f	
003C	<	LESS-THAN SIGN			\rightarrow 2132 \pm turned capital f	
		• paired with 003E > for ASCII-based angle	0047	G	LATIN CAPITAL LETTER G	
		bracket markup conventions	0048	H	LATIN CAPITAL LETTER H	
		→ 02C2 < modifier letter left arrowhead			\rightarrow 2108 \mathscr{H} script capital h	
		→ 2039 < single left-pointing angle quotation			\rightarrow 210C 5 black-letter capital h	
		mark			→ 2100 H double-struck capital h	
		→ 2329 〈 left-pointing angle bracket			2.00 % dodoie struck capital II	
		→ 27E8 ⟨ mathematical left angle bracket				
		→ 3008 〈 left angle bracket				

0049	I	LATIN CAPITAL LETTER I • Turkish and Azerbaijani use 0131 1 for	005E	٨	CIRCUMFLEX ACCENT • this is a spacing character
		lowercase			used in ASCII-based representation of
		$ ightarrow$ 0130 \dot{I} latin capital letter i with dot above			exponentiation
		\rightarrow 2110 \mathcal{I} script capital i			→ 02C4 ^ modifier letter up arrowhead
		→ 2111 ℜ black-letter capital i → 2160 I roman numeral one			→ 02C6 ^ modifier letter circumflex accent → 0302 ô combining circumflex accent
004A	J	LATIN CAPITAL LETTER J			→ 2038 A caret
004B		LATIN CAPITAL LETTER K			→ 2227 ∧ logical and
		$ ightarrow$ 212A ${f K}$ kelvin sign			→ 2303 ^ up arrowhead
004C	L	LATIN CAPITAL LETTER L	005F	_	LOW LINE
004D	M	$ ightarrow$ 2112 $\mathscr L$ script capital LATIN CAPITAL LETTER M			= spacing underscore (1.0)• this is a spacing character
004D	IVI	\rightarrow 2133 \mathcal{M} script capital m			• joins with adjacent instances of itself
		\rightarrow 216F M roman numeral one thousand			→ 02CD _ modifier letter low macron
004E	N	LATIN CAPITAL LETTER N			→ 0331 o combining macron below
	_	→ 2115 N double-struck capital n			→ 0332 o combining low line
004F 0050	O P	LATIN CAPITAL LETTER O LATIN CAPITAL LETTER P			→ 2017 = double low line → FE2D o combining conjoining macron below
0050	r	→ 2118 % script capital p	0060	`	GRAVE ACCENT
		\rightarrow 2119 \mathbb{P} double-struck capital p			= backtick, backquote
0051	Q	LATIN CAPITAL LETTER Q			• this is a spacing character
		$ ightarrow$ 051A ${f Q}$ cyrillic capital letter qa			 in some technical contexts functions as opening quote, paired with apostrophe
		→ 211A Q double-struck capital q			→ 00B4 ′ acute accent
0052	R	→ 213A ♥ rotated capital q LATIN CAPITAL LETTER R			→ 02CB `modifier letter grave accent
0002	10	\rightarrow 211B \Re script capital r			→ 0300 combining grave accent
		→ 211C % black-letter capital r			→ 1FEF ` greek varia→ 2018 ' left single quotation mark
	~	→ 211D R double-struck capital r			→ 2035 ' reversed prime
0053 0054	S T	LATIN CAPITAL LETTER S LATIN CAPITAL LETTER T	Lowe	rcas	e Latin alphabet
0055		LATIN CAPITAL LETTER I	0061	a	LATIN SMALL LETTER A
0056	V	LATIN CAPITAL LETTER V			\rightarrow 0251 α latin small letter alpha
		ightarrow 2164 V roman numeral five	0062	b	LATIN SMALL LETTER B
0057	W	LATIN CAPITAL LETTER W	0063	c	LATIN SMALL LETTER C
0050	v	→ 051C W cyrillic capital letter we			→ 03F2 c greek lunate sigma symbol
0058	Λ	LATIN CAPITAL LETTER X → 2169 X roman numeral ten	0064	d	→ 1D04 c latin letter small capital c LATIN SMALL LETTER D
0059	Y	LATIN CAPITAL LETTER Y		-	→ 0501 d cyrillic small letter komi de
005A	Z	LATIN CAPITAL LETTER Z	0065	e	LATIN SMALL LETTER E
		\rightarrow 2124 \mathbb{Z} double-struck capital z			→ 212E ← estimated symbol
		$ ightarrow$ 2128 $ eals absolute{3}$ black-letter capital z			\rightarrow 212F e script small e
	pun	ctuation and symbols	0066	f	→ AB32 ℓ latin small letter blackletter e LATIN SMALL LETTER F
005B	[LEFT SQUARE BRACKET	0000	1	\rightarrow 0192 f latin small letter f with hook
		= opening square bracket (1.0) • other bracket characters: 27E6 ¶ −27EB »,			\rightarrow AB35 \mathbf{f} latin small letter lenis \mathbf{f}
		2983 { -2998 } , 3008 < -301B]	0067	g	LATIN SMALL LETTER G
005C	\	REVERSE SOLIDUS			\rightarrow 0261 g latin small letter script g
		= backslash	0068	h	ightarrow 210A g script small g LATIN SMALL LETTER H
		→ 20E5 🎙 combining reverse solidus overlay → 2216 × set minus	0000		→ 04BB h cyrillic small letter shha
		→ 27CD \ mathematical falling diagonal			\rightarrow 210E h planck constant
		→ 29F9 \ big reverse solidus	0069	i	LATIN SMALL LETTER I
005D]	RIGHT SQUARE BRACKET			 Turkish and Azerbaijani use 0130 İ for uppercase
		= closing square bracket (1.0)			→ 0131 1 latin small letter dotless i
					→ 2071 ' superscript latin small letter i
			000:		\rightarrow 1D6A4 ι mathematical italic small dotless i
			006A	j	LATIN SMALL LETTER J
					→ 0237 j latin small letter dotless j → 03F3 j greek letter yot
					\rightarrow 1D6A5 j mathematical italic small dotless j
			006B	k	LATIN SMALL LETTER K

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006C
       1
            LATIN SMALL LETTER L
            \rightarrow 2113 \ell script small I
             \rightarrow 1D4C1 \ell mathematical script small I
006D
       m LATIN SMALL LETTER M
006E
            LATIN SMALL LETTER N
            \rightarrow 207F <sup>n</sup> superscript latin small letter n
006F
            LATIN SMALL LETTER O
            \rightarrow 1D0F o latin letter small capital o
            \rightarrow 2134 \alpha script small o
             → AB3D o latin small letter blackletter o
0070
            LATIN SMALL LETTER P
            LATIN SMALL LETTER Q
0071
            \rightarrow 051B \bf q cyrillic small letter qa
0072
            LATIN SMALL LETTER R
        r
0073
            LATIN SMALL LETTER S
        \mathbf{S}
            \rightarrow 017F f latin small letter long s
            \rightarrow A731 s latin letter small capital s
0074
        t LATIN SMALL LETTER T
0075
       u LATIN SMALL LETTER U
0076
       v LATIN SMALL LETTER V
0077
       W LATIN SMALL LETTER W

ightarrow 051D w cyrillic small letter we
            \rightarrow 1D21 w latin letter small capital w
0078
       x LATIN SMALL LETTER X
            → 00D7 × multiplication sign
       y LATIN SMALL LETTER Y
0079
007A
       z LATIN SMALL LETTER Z
            \rightarrow 01B6 z latin small letter z with stroke
            \rightarrow 1D22 z latin letter small capital z
ASCII punctuation and symbols
007B
            LEFT CURLY BRACKET
            = opening curly bracket (1.0)
            = left brace
007C
       I VERTICAL LINE
            = vertical bar, pipe
            • used in pairs to indicate absolute value
            • also used as an unpaired separator or as a fence
            → 00A6 broken bar
            → 01C0 | latin letter dental click
            → 05C01 hebrew punctuation paseg
            → 0964 I devanagari danda
            → 20D2 ¢ combining long vertical line overlay
            → 2223 | divides
             → 2758 l light vertical bar
007D
            RIGHT CURLY BRACKET
            = closing curly bracket (1.0)
            = right brace
007E ~ TILDE
            • this is a spacing character
            → 02DC ~ small tilde
            \rightarrow 0303 \tilde{\circ} combining tilde
            → 0334 ⊕ combining tilde overlay
            \rightarrow 2053 \sim swung dash
            → 223C ~ tilde operator
            \rightarrow 2E1B \approx tilde with ring above
            → 2E2F ' vertical tilde
            \rightarrow 301C \sim wave dash
             \rightarrow FF5E \sim fullwidth tilde
Control character
007F DEL <control>
```

= DFI FTF