

Title:	Proposed Replacement Text For Annex D in N1502R
Source:	Ad hoc on principles and procedures (V.S. Umamaheswaran)
Status:	For review
Action:	For consideration by WG 2 meeting 34

This document contains only updated information for BMP. Plane 1 information is unchanged except for formatting. The principle of starting at half-row boundary has been included (per resolution M33.11). WG 2 position regarding allocation of '00' position in a block has been included (per resolution M33.12). Updated pictorial view of the BMP reflecting allocated code positions and guidelines on space needed and potential areas for candidate scripts that have not yet been processed by WG 2 has been included -- per action item AI-33.6.

Annex D

BMP and Supplementary Planes Allocation Roadmap

Overview

The intention of this annex D is to lay out a logical roadmap for further allocations of scripts in ISO/IEC 10646 (also in the Unicode Standard), within and beyond the BMP. This roadmap is a snapshot of known scripts and characters as of 1998-08-29. It is intended as a general guideline and does not attempt to make detailed allocations of characters. The roadmap consists of two parts.

- The first part addresses the BMP (Plane 0) in ISO/IEC 10646 (and the Unicode Standard). It locates all script and individual character additions accepted in amendments up to PDAM.27 (as of 1998-08-30) in WG 2 (and Unicode Technical Committee), plus all script additions currently foreseen to be reasonable candidates for future encoding on the BMP.
- The second part is for Plane 1 and Plane 2 (both accessible in ISO/IEC 10646 with Amendment No. 1, and in the Unicode Standard version 2.0 via UTF-16 and will be dedicated to all other future allocations, as follows:
 - Plane 1: General Scripts and Symbols Supplementary Plane (GSP)
 - Plane 2: Unified Ideographs Supplementary Plane (UISP)

For Plane 1, a proposed list of all additional known scripts is provided here, with rough estimates of the sizes of the scripts. In contrast to the roadmap for the BMP, no particular locations for scripts are proposed as yet. By current estimates (see details below), all remaining General scripts and symbol sets should fit within this one plane.

Plane 2 is envisioned as containing future Unified Ideographic character additions. The largest current Unified Ideographic character collections should fit within Plane 0 and Plane 2, as long as duplicate character encoding is avoided. No substructure for Plane 2 is proposed here.

The roadmap indicates that these three planes should suffice for all future encoding of characters having worldwide utility. However, note that 14 supplementary planes are available altogether for encoding (with an additional 2 planes reserved for private use). The planes described in this roadmap, as well as all other planes accessible by UTF-16, are explicitly enumerated in Table 1.

Note that WG 2 has under consideration a proposal for use of Plane 14 for encoding special characters -- such as alphabet used for language tagging in some Internet (IETF) protocols.

Status of script proposals and their progress at any given time can be found in the standing documents list in WG 2's document register (for example, N1750

- Summary of WG 2 work items (for example, N1775) or the SC 2 program of work (see url: <http://www.dkuug.dk/JTC 1/SC 2>)
- Repertoire additions - Cumulative list (for example, N1791)
- Editorial Corrigenda - Cumulative list (for example, N1529)
- New symbols for ISO 10646 (for example, N1416) (all the symbols from this document have been accepted and processed as PDAMs in WG 2)
- Defect report index (for example, N1565)

Table 1: Suggested Allocations for Planes in ISO 10646

Range of UCS-4 values (Hex)	Plane #	Name of Plane
00000000 ... 0000FFFF	Plane 0	Basic Multilingual Plane - BMP; Encoded in 10646 Part 1
00010000 ... 0001FFFF	Plane 1	General Scripts and Symbols Supplementary Plane - GSP
00020000 ... 0002FFFF	Plane 2	Unified Ideographs Supplementary Plane - UISP
00030000 ... 0003FFFF	Plane 3	Reserved for Future Encoding
00040000 ... 0004FFFF	Plane 4	Reserved for Future Encoding
00050000 ... 0005FFFF	Plane 5	Reserved for Future Encoding
00060000 ... 0006FFFF	Plane 6	Reserved for Future Encoding
00070000 ... 0007FFFF	Plane 7	Reserved for Future Encoding
00080000 ... 0008FFFF	Plane 8	Reserved for Future Encoding
00090000 ... 0009FFFF	Plane 9	Reserved for Future Encoding
000A0000 ... 000AFFFF	Plane 10	Reserved for Future Encoding
000B0000 ... 000BFFFF	Plane 11	Reserved for Future Encoding
000C0000 ... 000CFFFF	Plane 12	Reserved for Future Encoding
000D0000 ... 000DFFFF	Plane 13	Reserved for Future Encoding
000E0000 ... 000EFFFF	Plane 14	Reserved for special purpose use**
000F0000 ... 000FFFFF	Plane 15	Reserved for Private Use
00100000 ... 0010FFFF	Plane 16	Reserved for Private Use

1 plane (Plane 0 or BMP) is accessible by UCS2.

16 planes (planes 1 to 16 inclusive) are accessible by UTF-16.

2 planes (planes 15 and 16) are reserved completely for private use, accessible by UTF-16.

12 planes (3..14 inclusive) are left reserved for future standardized encoding, accessible by UTF-16. (Note: there is a proposal in WG 2 and in IETF for using plane 14 for special purposes such as for 'tag alphabet'.)

** Special purpose use (for example, alphabet for language tags in some IETF protocols)

Block assignment starting on half-row boundary

When allocating code space to a block requiring fewer than 128 positions, these positions should not cross a 128 code position (half row) boundary. For blocks slightly larger than 128 positions the highest frequency characters should all be allocated within the first 128 positions. This highest frequency allocation principle may be overridden when there is justification to do otherwise. The purpose of this guideline is to insure greater compression ratios for run-length compression techniques. (See resolution M33.11). Further, for blocks requiring closer to 128 positions it is desirable to start at a half-row boundary.

Empty '00' position in a block

Proposals for code allocations should not leave position 00 unassigned in each block unless there are compelling documented reasons for doing so.

Notes on the BMP (Plane 0)

All accounting of unassigned space in this proposal is done in terms of "columns" -- groups of 16 cells -- starting with a coded value divisible by 16, for example, U+0700..U+070F. These are visualizable as vertical columns in the 2-dimensional character shape tables printed in IS 10646-1 (and the Unicode Standard). It is

considered to be easier and more accurate to track available columns rather than unassigned character positions.

Proposed additional scripts are placed in unallocated areas. The exact order of the proposed scripts is not significant at this stage. However, right-to-left script additions are placed adjacent to the currently encoded right-to-left scripts, Hebrew and Arabic.

Because of the need to accommodate Yi, a script with 1165 characters proposed for encoding (see PDAM 14 -- Yi Syllables and Yi Radicals are allocated to A000-A48F and A490-A4CF blocks), this roadmap designates a new area: A000..ABFF = General Scripts Area II.

There remains considerable free space in BMP (Plane 0) in ISO/IEC 10646 (and the Unicode Standard) to make adjustments in specific placements of one or another script before committing to actual encoding of any new scripts.

BMP Roadmap

(Note: Information provided in the original document N1499 that was accepted at meeting 32, has been updated to reflect the characters and scripts that have been processed by WG 2 and have reached the status of at least a PDAM under ballot. Also the information has been expanded to show the details of position allocations in each column / groups of columns, as a visual aid for placement of individual or small number of character additions in existing blocks.)

The following text explains the abbreviations and terms used in the BMP Roadmap presented later in a tabular form.

Amd.nn	Amendment No. nn
coll 301	Collection number 301
NO BLOCK	A range of cells (code positions) that is not assigned any block name.
IN BLOCK	A range of cells with an assigned block name
fn	Number of free columns (groups of 16 cells) in a NO-BLOCK range
fi	Number of free columns in an IN-BLOCK range
ai	Number of columns to which characters are assigned in a named block.
fn..fi..ai	A concatenation of the above three counts. The first column in the roadmap table indicates the number of free and used columns taking into account all allocations in amendments 1 to 7. These allocations correspond to the fixed collection 301 defined in Technical Corrigendum No. 2. The second column indicates the free and used number of columns including all allocations up to Amendment 27 (some of which are still under PDAM ballot).
Row (hex)	Row Octet in the BMP in hex; Row octets are shown as R-nn (row nn) or R-mm-nn (range of rows from mm to nn).
Col (hex)	Column number -- column number corresponds to the first hex digit of the cell octet, and corresponds to a column in the 2-dimensional charts showing the character shapes for each row in the published standard. Against each column number entry is a sequence 16 allocation status entries for the cells in the column.. Whenever a sequence of status entries are identical for a range of columns, the range of column numbers is shown.
Cell allocation status	<p>The allocation status for each cell in the column can be one of:</p> <ul style="list-style-type: none"> ... unassigned cell in a partially filled in-block column iii unassigned cell in a free in-block column (all 16 cells are free) nnn unassigned cell in (a free) no-block column n5n a cell vacated from the first edition by Amendment no. 5 (Hangul), and can be assigned new characters (like 'nn' cells above) ### a cell that has been assigned a character in the first edition of IS 10646-1:1993 01, ... , 27 indicate the amendment number by which the cell was assigned a character after the publication of the standard. Allocations made by Amendments 1 to 7 are included in collection 301. 17* a cell vacated in Amendment no. 5 and has been a character per Amendment no. 17. ccc a cell with a control character assigned hs, hp, ls - cells reserved for use in UTF-16 as S-zone values (or surrogates) -- high S-zone values for accessing planes 1 to 14, high S-zone for accessing private use planes 15 and 16, and low S-zone positions, respectively. ss special values defined in the standard (in row FF of BMP)

Table 2 Current Allocation and Guidelines For Future Scripts in the BMP

Up to Amd.7 (coll 301) fn...fi...ai	Up to Amd.27 fn..fi..ai	Row (hex) Col (hex)	Block Name	.....Cell allocation status.....															
				..... Cell number (hex)															
				.0.	.1.	.2.	.3.	.4.	.5.	.6.	.7.	.8.	.9.	.A.	.B.	.C.	.D.	.E.	.F.	
				0000 -- 1FFF								START OF GENERAL SCRIPTS AREA								
				R-00	cc = control characters; ## = positions allocated graphic characters in the first edition of 10646-1(1993)															
0...0...2	0...0...2	0 -- 1	C0	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc		
0...0...6	0...0...6	2 -- 7	Basic Latin	###	###	###	###	###	###	###	###	###	###	###	###	###	###	ccc		
0...0...2	0...0...2	8 -- 9	C1	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc	ccc		
0...0...6	0...0...6	A -- F	Latin-1 Supplement	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
				R-01																
0...0...8	0...0...8	0 -- 7	Latin Extended A	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
0...3...10	0...3...10	8 -- E	Latin Extended B	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		F		###	###	###	###	###	###	###	18.	18.	18.	18.	###	###	###	###		
				R-02																
	Amd.18	0		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
	Amd.23	1		###	###	###	###	###	###	###	###	18.	18.	18.	18.	18.	18.	23.	23.	
		2 -- 4		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	
0...0...6	0...0...6	5 -- 9	IPA Extensions	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		A		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
0...1...4	0...1...4	B -- C	Spacing Modifier Letters	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		D		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
	Amd.23	E		###	###	###	###	###	###	###	###	###	###	###	23.	23.	...	...	...
		F		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	
				R-03																
0...1...6	0...1...6	0 -- 3	Combining Diacritical Marks	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		4		###	###	###	###	###	###	###	...	...	...	...	...	...	...	...	...
		5		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	
		6		###	###	...	...	...	...	...	...	...	...	...	...	...	...	...	...
0...0...6	0...0...6	7	Basic Greek	...	...	...	...	###	###	...	...	...	...	###	...	...	...	###	...
		8		...	...	...	...	###	###	###	###	###	###	###	###	###	###	###	###
		9		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		A		###	###	...	###	###	###	###	###	###	###	###	###	###	###	###	###	
		B		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		C		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
0...0...3	0...0...3	D	Greek Symbols and Coptic	###	###	###	###	###	###	###	###	...	...	###	...	###	...	###	...
		E		###	...	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		F		###	###	###	###	...	...	...	...	...	...	...	...	...	...	...	...
				R-04																
0...0...16	0...0...16	0	Cyrillic	18.	###	###	###	###	###	###	###	###	###	###	###	###	18.	###	###	
		1 -- 4		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
	Amd.18	5		18.	###	###	###	###	###	###	###	###	###	###	###	###	18.	###	###	
		6 -- 7		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		8		###	###	###	###	###	###	###	###	...	...	...	...	...	...	...	...
		9 -- B		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		C		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		D		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		E		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		F		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
3...0...0	3...0...0	0 -- 2	NO BLOCK	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	
0...0...6	0...0...6	3	Armenian	...	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		4		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
	Amd.18	5		###	###	###	###	###	###	###	...	...	###	###	###	###	###	###	###
		6		...	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		7		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		8		###	###	###	###	###	###	###	###	###	...	###	18.	...	...	...	...
				RIGHT TO LEFT SCRIPTS FOLLOW																
0...0...7	0...0...7	9	Hebrew (Basic and Extended)	...	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	
		A		07.	07.	...	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	07.	
	Amd.7	B		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		C		###	###	###	###	07.	...	...	...	...	...	...	...	...	...	...	...

Up to Amd.7 (coll 301) fn...fi...ai	Up to Amd.27 fn..fi..ai	Row (hex) Col (hex)	Block Name	.....Cell allocation status.....																
				..... Cell number (hex)																
				.0.	.1.	.2.	.3.	.4.	.5.	.6.	.7.	.8.	.9.	.A.	.B.	.C.	.D.	.E.	.F.		
		D		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		E		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		F		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
				R-06																	
0...0..16	0...0..16	0	Arabic (Basic and Extended)	...	...	...	...	...	...	...	...	...	...	...	...	###	...	...	...
		1		...	...	...	...	...	...	...	...	...	...	...	###	...	...	...	###
		2		...	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		3		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		4		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		5		###	###	###
		6		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		7 -- A		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		B		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		C		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		D		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		E		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		F		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
				18. 18. 18. 18. 18. ...																	
32...0...0				Guideline For Allocation: no positions (collection 301) Should be used for Right to Left Scripts																	
				R-07-08																	
				5c CHANGED Syriac (Jacobite, Estrangelo, Nestorian) (Amd.23)(0700-074F)																	
				3 CHANGED NO BLOCK																	
				4c CHANGED Maldivian (Dihevi) (Amd.24 - Thaana)(0780--07BF)																	
				4c CHANGED NO BLOCK																	
				~ 3c Samaritan																	
				~ 2c Phoenician																	
				~ 2c Old Aramaic																	
				~ 3c Tifinagh (= Tamasheq)																	
				~ 3c Avestan (= Pahlavi)																	
				~ 3c CHANGED NO BLOCK (Old Hungarian?? to add)																	
				R07																	
0...0...5	Amd.27	0	Syriac	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.		
		1		27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.		
		2		27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	
		3		27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	
		4		27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.	27.
3...0...0				5 -- 7 NO BLOCK nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn																	
0...0...4	Amd.24	8 -- A	Thaana	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.		
		B		24.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4...0...0				C -- F NO BLOCK nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn																	
				R-08 no positions (collection 301)																	
16...0...0				0 -- F NO BLOCK nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn nnn																	
				R-09																	
0...0...8	0...0...8	0	Devanagari	...	###	###	###	...	###	###	###	###	###	###	###	###	###	###	###		
		1 -- 2		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		3		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		4		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		5		###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		6		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		7		###	
		8		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
0...0...8	0...0...8	9	Bengali	###	...	...	###	###	###	###	###	###	###	###	###	###	###	###	###
		A		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		B		###	...	###	###	###	###	###	###	###	###	###	###	###	###	###	
		C		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		D		###	###	###	###	###	###	###	###	###	###	###	###	
		E		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		F		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
				R-0A																	
0...0...8	0...0...8	0	Gurmukhi	...	...	###	...	...	###	###	###	###	###	###	...	...	...	...	###
		1		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	
		2		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###
		3		###	...	###	###	...	###	###	...	###	###	...	###	###	...	###	...	###	###
		4		###	###	###	###	###	###	###	###	###	###

Up to Amd.7 (coll.301) fn...fi...ai	Up to Amd.27 fn...fi...ai	Row (hex) Col (hex)	Block NameCell allocation status.....															
			 Cell number (hex)															
				.0.	.1.	.2.	.3.	.4.	.5.	.6.	.7.	.8.	.9.	.A.	.B.	.C.	.D.	.E.	.F.
		5		...	...	...	...	...	...	...	...	...	...	...	...	...	...
		6		...	...	...	...	...	...	...	...	...	...	...	...	...	...
		7		###	###	###	###	###	###	###	###	###	###	###	###	###	###		
0...1...7	0...1...7	8	Gujarati	...	###	###	###	###	###	###	###	###	###	###	###	###	###		
		9		###	###	...	###	###	###	###	###	###	###	###	###	###	###		
		A		###	###	###	###	###	###	###	###	###	...	###	###	###	###		
		B		###	...	###	###	...	###	###	###	###	###	...	###	###	###		
		C		###	###	###	###	###	###	...	###	###	###	...	###	###	###		
		D		###	...	...	...	...	###	###	###	###	###	...	###	###	###
		E		###	...	...	...	...	###	###	###	###	###	###	###	###	###
		F		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii		
R-0B																			
0...0...8	0...0...8	0	Oriya	...	###	###	###	###	###	###	###	###	###	###	###	###	###		
		1		###	...	...	###	###	###	###	###	###	###	###	###	###	###
		2		###	###	###	###	###	###	###	###	###	...	###	###	###	###		
		3		###	...	###	###	...	...	###	###	###	###	...	###	###	###
		4		###	###	###	###	###	###	###	###	###	###	...	###	###	###		
		5		...	...	...	...	...	###	###	###	###	###	...	###	###	###
		6		###	###	...	...	...	###	###	###	###	###	###	###	###	###
		7		###	...	...	...	...	...	...	...	...	...	...	...	...	...
0...0...8	0...0...8	8	Tamil	...	...	###	###	...	###	###	###	###	###	...	...	###	###
		9		###	...	###	###	###	###	...	...	###	###	...	###	###	###
		A		...	...	...	###	###	###	...	###	###	###	...	###	###	###
		B		###	###	###	###	###	###	...	###	###	###	...	###	###	###		
		C		###	###	###	...	...	###	###	###	...	###	###	###	###	...
		D		...	...	...	...	...	###	...	###	###	###	...	###	###	...
		E		...	...	...	...	...	###	###	###	###	###	###	###	###	###
		F		###	###	###	...	...	...	...	...	...	...	...	...	...	...
R-0C																			
0...1...7	0...1...7	0	Telugu	...	###	###	###	###	###	###	###	###	###	###	###	###	###		
		1		###	...	###	###	###	###	###	###	###	###	###	###	###	###		
		2		###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		3		###	###	###	###	...	###	###	###	###	###	...	###	###	###		
		4		###	###	###	###	###	...	###	###	###	###	...	###	###	###		
		5		...	...	...	...	###	###	...	###	###	###	...	###	###	###
		6		###	###	...	...	...	###	###	###	###	###	###	###	###	###
		7		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii		
0...1...7	0...1...7	8	Kannada	...	...	###	###	...	###	###	###	###	###	###	###	###	###
		9		###	...	###	###	###	###	###	###	###	###	###	###	###	###		
		A		###	###	###	###	###	###	###	###	###	...	###	###	###	###		
		B		###	###	###	###	###	...	###	###	###	###	...	###	###	###		
		C		###	###	###	###	###	...	###	###	###	###	...	###	###	###		
		D		...	...	...	...	###	###	...	###	###	###	...	###	###	###
		E		###	###	...	...	...	###	###	###	###	###	###	###	###	###
		F		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii		
R-0D																			
0...1...7	0...1...7	0	Malayalam	...	...	###	###	...	###	###	###	###	###	###	###	###	###
		1		###	...	###	###	###	###	###	###	###	###	###	###	###	###		
		2		###	###	###	###	###	###	###	###	###	...	###	###	###	###		
		3		###	###	###	###	###	###	###	###	###	###	...	###	###	###		
		4		###	###	###	###	...	...	###	###	###	###	...	###	###	###
		5		...	...	...	...	...	###	...	###	###	###	...	###	###	###
		6		###	###	...	...	...	###	###	###	###	###	###	###	###	###
		7		...	...	...	...	...	...	...	...	...	...	...	...	...	...
R-0D																			
8...0...0		8c	CHANGED	Sinhalese (Amd.21)(0D80-0DFF)															
	0...1...7	8	Sinhala	...	...	21.	21.	...	21.	21.	21.	21.	21.	21.	21.	21.	21.
		9		21.	21.	21.	21.	21.	21.	21.	...	...	...	21.	21.	21.	21.
	Amd.21	A		21.	21.	21.	21.	21.	21.	21.	21.	21.	21.	21.	21.	21.	21.		
		B		21.	21.	...	21.	21.	21.	21.	21.	21.	21.	21.	...	21.	...		
		C		21.	21.	21.	21.	21.	21.	21.	...	...	...	21.	...	...	21.
		D		21.	21.	21.	21.	21.	...	21.	...	21.	21.	21.	21.	21.	21.		
		E		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii		
		F		...	...	21.	21.	21.	...	...	...	...	...	...	...	...	...

Up to Amd.7 (coll 301) fn...fi...ai	Up to Amd.27 fn...fi...ai	Row (hex) Col (hex)	Block Name	.....Cell allocation status.....															
				..... Cell number (hex)															
				.0.	.1.	.2.	.3.	.4.	.5.	.6.	.7.	.8.	.9.	.A.	.B.	.C.	.D.	.E.	.F.	
0...0...1	0...0...1	9	CJK Miscellaneous	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
6...0...0	Guideline For Allocation:			Kuoyu (extension to Bopomofo) (Amd.23) (31A0-31BF)																
				NO BLOCK																
				2c																
				4c																
0...0...2 Amd.23		A	Bopomofo	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.		
		B	Extended	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.	23.		
4...0...0		C -- F	NO BLOCK	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn	nnn		
				R-32																
0...1...15	0...1...15	0	Enclosed CJK Letters and Months	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		1		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		2 -- 3		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		4		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		5		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii		
		6		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		7		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		8 -- A		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		B		###	...	...	...	...	...	...	...	...	...	...	...	...	...	...
		C		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		D		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		E		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		F		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
				R-33																
0...0...16	0...0...16	0 -- 6	CJK Compatibility	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		7		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		8 -- C		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		D		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		E		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
		F		###	###	###	###	###	###	###	###	###	###	###	###	###	###	###		
				3000 -- 33FF																
				3400 -- 4DFF																
				END OF CJK PHONETICS AND SYMBOLS AREA																
				START OF NO (NAMED) AREA																
416...0...0	Guideline For Allocation:			CJK Extension A (Amd.17) (3400-4DB5)																
				NO BLOCK																
				R-34--4C																
				u5u = space freed in Amd.5 (Hangul); * = repopulated with new characters																
0...0.412		0 -- 7	CJK Extension A	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*			
		8 -- F		17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*		
				R-4D																
				u5u = space freed in Amd.5 (Hangul); * = repopulated with new characters																
Amd.17		0 -- A	B	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*		
		B		17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*	17*		
4...0...0		C-- F	NO BLOCK	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n	n5n			
				3400 -- 4DFF																
				END OF NO (NAMED) AREA																
				4E00 -- 9FFF																
				START OF CJK IDEOGRAPHS AREA																
				R-4E-9E																
0..5.1307	0..5.1307	0 -- F	CJK	###	###	###	###	###	###	###	###	###	###	###	###	###	###			
		R-9F	Unified	###	###	###	###	###	###	###	###	###	###	###	###	###	###			
		0 -- 7	Ideographs	###	###	###	###	###	###	###	###	###	###	###	###	###	###			
		8 -- 9		###	###	###	###	###	###	###	###	###	###	###	###	###	###			
		A		###	###	###	###	###	###	###	###	###	###	###	###	###	###			
		B -- F		iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii	iii		
				4E00 -- 9FFF																
				END OF CJK IDEOGRAPHS AREA																
				A000 -- ABFF																
				START OF GENERAL SCRIPTS AREA II																
192...0...0	Guideline For Allocation:			Yi Syllables (Nuo-su, Lolo) (Amd.14)(A000-A48F)																
				Yi Radicals (Amd.14) (A490-A4CF)																
				NO BLOCK																
				R-A0--A3																
0...0..73		0 -- F	Yi Syllables	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.			
		R-A4	8	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.			
		0 -- 7		14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.		
0...0..4		9 -- B	Yi Radicals	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.			

A Pictorial View of the BMP Roadmap -

Key to the table layout that follows:

[Script Name - Nc, ..]	Proposed / candidate scripts and approximate number of columns (groups of 16 octets) expected to be used by that script
(Script Name -DD or -Am.DD or -Amd.DD)	Script which has been processed by Amendment DD (at least in PDAM ballot stage)
Script or Block Name (NN)	Script / Block, which has been in the first edition of the standard and to which characters have been added by Amendment NN
iiii	Column (group of 16 cells) free in a named block (IN BLOCK)
nnnn	Column (group of 16 cells) free in blocks which have not been assigned any block name (NO BLOCK)
R1 .. R2	Range of rows from R1 to R2 inclusive (in hex)
	In-Block free partial columns are NOT shown in this table

Cell =>	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Row V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00	C0				Basic Latin				C1				Latin 1 Supplement			
01	Latin Extended-A								Latin Extended-B							
02	Latin Extended-B (18,23)				IPA Extensions				Spacing Modifier				Letters (23)			
03	Combining Diacritical Marks				Basic Greek				Greek Symbols & Coptic							
04	Cyrillic (18)															
05	nnnn				Armenian (18)				Hebrew - Basic & Extended (7)				nnnn			
06	Arabic - Basic and Extended (18)															
07	(Syriac-27)				nnnn				(Thaana-24)				nnnn			
08	[Samaritan-3c, Phoenician-2c, Old Aramaic-2c, Tifinagh-3c, Avestan-3c]															
09	Devanagari								Bengali							
0A	Gurmukhi								Gujarati							
0B	Oriya								Tamil							
0C	Telugu								Kannada							
0D	Malayalam								(Sinhala-21)							
0E	Thai								Lao							
0F	(Basic Tibetan-6)								nnnn							
10	[Extended Tibetan-4c, Mongolian-10c]								Georgian							
11	Hangul Jamo															
12	(Ethiopic-10)															
13	(Ethiopic-10)								nnnn				(Cherokee-12)			
14	(Unified Canadian Aboriginal Syllabics-11)															
15	(Unified Canadian Aboriginal Syllabics-11)															
16	(Unified Canadian Aboriginal Syllabics-11,23)								(Ogham-23)				(Runic-19)			

Cell =>	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F					
Row	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
V																					
17	..... (Burmese-26) .....								..... (Khmer-25)								
18	[Dai-8c, Cham-5c, ai Lue-5c, Tai Nuea-3c, Lepcha-5c, Limbu-6c, 'Phagss-Pa-6c, Siddham-4c, Meitel-6c, Javanese-6c, Batak-2c, Buginese-2c, Lisu-2c, Karenni-4c, Glagolitic-6c]																				
1D	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn				
1E	..... Latin Extended Additional (7)																			
1F	..... Greek Extended																			
20	..... General Punctuation .....				.Subscripts & .				. Currency ...				Combining ...				
					.Superscripts .				.. (7,18,23) ..				Marks for Symb								
	iiii				iiii				iiii				iiii								
21	. Letterlike ..				. Number Forms .....				. Arrows								
	Symbols ..				iiii				iiii												
22	..... Mathematical Operators																			
23	..... Miscellaneous Technical Symbols (18)																			
					iiii				iiii				iiii				iiii				
24	. Control Pictures ..				. OCR ..				. Enclosed Alphanumerics												
	iiii				iiii				iiii												
25	. Box Drawing .....								. Block .				. Geometric Shapes				
									Elements				iiii								
26	..... Miscellaneous Symbols (23)																			
					iiii				iiii				iiii				iiii				
27	..... Dingbats																			
28	..... (Braille Patterns-16)																			
29																					
2D	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn				
2E	..... (CJK Ideographic Radicals - 15) ..								nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn	nnnn			
2F	..... (KangXi Radicals-15)																			
30	. CJK Symbols & .				. Hiragana .....				. Katakana								
	Punctuation ..																				
31	. Bopomofo ..				. Hangul Compatibility Jamo ..				CJK	(BopoMofo	nnnn	nnnn	nnnn	nnnn							
									Misc	Extended .											
										..-23) ..											
32	..... Enclosed CJK Letters & Months																			
					iiii																
33	..... CJK Compatibility																			
34																					
4C	..... (CJK Ideographic Extension A-17)																			
4D	..... (CJK Ideographic Extension A-17)												nnnn	nnnn	nnnn	nnnn				
4E																					
9D	..... CJK Unified Ideographs																			
9F	..... CJK Unified Ideographs																			
					iiii				iiii				iiii				iiii				
A0																					
A3	..... (Yi Syllables-14)																			
A4 (Yi Syllables-14) (Yi Radicals-14) ..			nnnn	nnnn	nnn			

Cell =>	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	...
Row	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V																	
A5	| nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn | nnnn																
AB																	
AC	.....(Hangul Syllables-5).....																
D6																	
D7	.....(Hangul Syllables-5)..... | nnnn | nnnn | nnnn | nnnn | nnnn																
D8	.....(High-half zone of UTF-16 -Amd.1).(to access planes 1 to 12).....																
DA																	
DB	(High-half zone of UTF-16(Pl 13.14)Am.1) | (High-halves for PU Planes 15,16-Am.1)																
DC	.....(Low-half zone of UTF-16.-Amd.1).....																
DF																	
E0	.....Private Use Area.....																
F8																	
F9	.....CJK Compatibility Ideographs.....																
FA	.....CJK Compatibility Ideographs.....																
FB	| iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii | iiii																
FC	.....Arabic Presentation Forms A.....																
FD	.....Arabic Presentation Forms A.....																
FE	| nnnn | nnnn | Comb | CJK | SmallForm | .....Arabic Presentation Forms B.....																
FF	.....Halfwidth & Fullwidth Forms..... | Spec																

Summary of Additional New Scripts in the BMP

The scripts from the guidelines sections in the above table that have not reached PDAM balloting stage as of the date of writing this document are shown in the table below. All the others have been processed (as shown in the previous table) as various amendments up to Amd. 27 (some are at the stage of PDAM ballot). Amd.8 through Amd.27 have used up 640 no-block columns with 362 remaining free. The total number of in-block free columns remain the same at 64 as at Amd.7 (some in-block columns have been used from existing blocks and new unassigned free in-block columns have resulted from assignments since Amd.7). An additional 85 columns are guesimates to be used for the scripts listed in the following table.

Table 3 Summary of Guidelines for Additional Candidate Scripts for the BMP

fn..fi..ai up to Amd.7	fn..fi..ai up to Amd.27		
0700-08FF			
32...0...0	23...0...9	~ 3c	Samaritan
		~ 2c	Phoenician
		~ 2c	Old Aramaic
		~ 3c	Tifinagh (= Tamasheq)
		~ 3c	Avestan (= Pahlavi)

10...0..22		Total of column categories after above script allocations.
0FC0-109F		
14...0...0 14...0...0	~4c ~10c	Tibetan Extended Mongolian (including Manchu)
14...0...0		No changes since Amd. 7 in the number of free no-block columns.
1200-1DFF		
192..0...0 98...2..92	~ 8c ~ 5c ~ 5c ~ 3c ~ 5c ~ 6c ~ 6c ~ 4c ~ 6c ~ 6c ~ 2c ~ 2c ~ 2c ~ 4c ~ 6c	Dai (18c??)(3 kinds of Dai?)(Pehaw Hmong?) Cham Tai Lue (= Chiang Mai) Tai Nuea (= Tai Mau) Lepcha (= Rong) Limbu (= Kirat) 'Phags-Pa Siddham Meitei (= Manipuri) Javanese Batak Buginese (= Makassar) Lisu Karenni (= Kayah Li) Glagolitic
26...2..164		Total of column categories after above script allocations.

The above tables (tables 2 and 3) do not include the two following inactive symbol proposals:

150 [approx.] Non-Ideographic Japanese Characters

14 Greek Byzantine Musical Notation (note: the Greek Byzantine Musical Notation has been accepted by WG 2 for inclusion in Plane 1).

Plane 1: (First) General Scripts and Symbols Supplementary Plane (GSP)

The following section represents all other significant scripts of the world (mostly extinct) for which there exists, in principle, if not in practice, enough information to eventually produce a detailed character encoding proposal.

These scripts are culled from Unicode Technical Committee working documents, taking into account the placement of scripts proposed for the BMP roadmap above. Several of these scripts are under consideration in WG 2 (see document register N 1701 for example). Estimates of sizes of the scripts vary in accuracy. For some of these scripts an encoding proposal already exists, and the exact number of characters is known. For other small scripts a reasonably accurate guess can be made from the size of historically affiliated scripts. For the large scripts such as Cuneiform and various ideographic or hieroglyphic systems, only very rough estimates can be made until detailed proposals are brought forward.

The scripts are organized by general type and by historical and geographic affinity. The group headings are only meant for convenience in reference in this roadmap; they should not be taken as designating particular script areas for the purposes of encoding.

Additionally, to accommodate sets of symbols which may not fit within the 94 columns still open in the Symbols Area of the BMP, 4K cells (=256 columns) are set aside for encoding other symbols on Plane 1.

Based on these estimates, all of these scripts total to approximately 40,000 characters to encode, and fit within a single plane with a large amount of space still free.

Alphabetic

Name	Chars #	Cols
------	---------	------

Name	Chars #	Cols
European		
Albanian (Buthakukye)	31	2
Albanian (Elbassan)	53	4
Albanian (Veso Bei's)	22	2
Gothic	58	4
Iberian	32E	2
Misc. Mediterranean Classical Scripts		
Carian	32E	2
Cretan Linear A	75	5
Cretan Linear B (Mycenaean)	128	8
Cypriote syllabary	55-58?	4
Cypro-Minoan (Enkomi + Ugarit)	64E	4
Etruscan (+ Oscan) {RL}	36	3
Kök Turki runes (Orkhon script)	64E	4
Old Hungarian runes	?	
Lycian {RL}	29	2
Lydian {RL}	26	2
Semitic & Middle Eastern		
Cuneiform, Old Persian (Achaemenid)	49	3
Cuneiform, Ugaritic	31	2
Meroitic {RL}	24	2
Parthian	32E	2
South Arabian {RL}	29	2
Arabic-like & North African		
Ethiopic Extended	120E	8
Maghreb	96E	6
Mandaean (Mandaic) [see Syriac] {RL}	24?	2
Manichaean	64E	4
Nabataean [See Aramaic]	24?	2
Numidian {TB or RL}	25	2
Palmyrene {RL} [See Aramaic]	24?	2
Central Asian		
Sogdian (Uzbekistan)	48E	3
Uighur	96E	6
Indic & Southeast Asian		
Ahom	41 (~48)	3
Balinese (~Javanese?)	96E	6
Balti {RL}	30	2
Box-headed script	96E	6
Brahmi (Asoka)	96E	6
Chakma	96E	6
Chola	96E	6
Hmong	<96E	6
Kaithi (orig. Bihari)	96E	6
Khamti (~ Kham))	35	3
Kharoshthi	96E	6
Khotanese	96E	6
Lahnda (orig. Punjabi)	96E	6
Modi	96E	6
Pyu (Tircul)	<64E	4
Satavahana	96E	6
Tankri	96E	6
Indonesian & Micronesian		
Mangyan(Buhid)	<64E	4
Rejang (Sumatra)	<64E	6
Tagalog	19	2
Woleai (Caroline)	100E	7
Americas		
Chinook shorthand	48E	3

Hieroglyphic, Ideographic & Misc. Syllabaries

Name	Chars #	Cols
Middle-Eastern Classical Precursors		
Proto-Byblic	100E	7
Proto-Elamic	<500E	
Cuneiform, Ideographic Types (Akkadian)		
Cuneiform, Assyrian	<600E	
Cuneiform, Babylonian	<500E	
Hieroglyphs, Classical		
Cretan (Minoan) ideograms	?	
Egyptian (Hieroglyphic, Hieratic, Demotic)	<9000E	
Hittite hieroglyphics	>110E	7
Hittite hieroglyphic syllabary (Luwian)	48	3
Sumerian pictograms	<1000E	
Hieroglyphs, pictograms, and syllabaries, other		
Aymara pictograms	<1000E	
Aztec pictograms	<1000E	
Bamum (Cameroon)	<500E	
Kauder script (Micmac)	<500E	
Mayan hieroglyphics	<1000E	
Rongo-rongo (Easter Island script)	253-396?	
Indus Valley script	<500E	
Paucartambo script	<500E	

Han Ideographic Derived

Name	Chars #
Khitan (Ch'i-Tan, Liao)	5000E
Naxi (Nahsi, Nasi, Moso) ideograms	2000E
Naxi (Moso) phonetic script	500E
Nuchen characters (Yu-Chen)	5000E
Tangut (Xixia) ideograms	5819

Newly Invented Scripts (in roughly chronological order)

Name	Chars #	Cols
Deseret Alphabet (Mormon)	76	6
Pollard phonetic script	64E	4
Vai (Liberian syllabary)	<500E	
Shorthands (misc.)	<200E	
Shaw Alphabet (Shavian)	53	4
Osmanya script (Somalian)	64E	4
Cirth	60	4
Tengwar (Elvish)	64	4
Aiha (Kesh)	40	3
plqaD (Klingon)	32E	2

Others (poorly understood, single instances, etc.)

Name	Chars #	Cols
Bone & Shell script	?	
Jindai (Shinto, Japan)	?	
Phaistos disk script	64E	4
Sidetic	?	
Tamil Granta (probably extension of Tamil)	?	
Tartaria (Romanian ideographs)	?	

Symbol Sets

Name	Chars #	Cols
Plane 1 Symbols Area	<4096E	256

(For example, musical symbols and symbols from a large number of other specific disciplines and/or cultural areas. See N884 for a representative sampling of symbol sets which might be appropriate for encoding as characters.)

Totals

These totals apply to the estimates made above for the GSP. They do not include any estimates for the number of Unified Ideographic characters which may be encoded in the UISP.

Alphabetic	< 3767
Syllabaries, hieroglyphs, miscellaneous ideographs, and pictograms	~ 17754
Han-derived ideographic systems	~ 18319
Total for Scripts	~ 40000
Plane 1 Symbols Area	< 4096
Grand Total (Scripts + Symbols)	~ 44000

References (TO check and replace with latest)

WG 2 N 884 (= X3L2/93-017 = UTC-93-004)
Concerning Future Allocations
Unicode Technical Committee -- Rick McGowan & Joe Becker
1993-04-06

WG 2 N 1370
Roadmap to 10646 BMP
Michael Everson
1996-04-22
<http://www.indigo.ie/egt/standards/iso10646/map/map.html> — latest update

WG 2 N 1385(S)
Repertoire additions for 10646 — Cumulative List No. 3
Bruce Paterson
1996-05-12

WG 2 N 1452
Summary of WG 2 work items — post Quebec meeting 31 (replaces N 1302)
Sven Thygesen
1996-10-03
<ftp://dkuug.dk/JTC 1/SC 2/WG 2/docs/N1452.xls> — also .doc

WG 2 N 1464
Guidance to position allocation in 10646
Sven Thygesen, Mike Ksar
1996-10-03
<ftp://dkuug.dk/JTC 1/SC 2/WG 2/docs/N1464.doc>

Proposed Unicode Characters
Mark Davis
1996-10-25
<http://www.unicode.org/unicode/alloc/Pipeline.html>