

Title: ISO/IEC 10646 CDAM1.2 repertoire status and other updates

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Status: Individual Contribution

Distribution: WG2

Reference: N5168, 5173R, 5174

Executive Summary:

This document describes in detail most of the elements included in CDAM 1.2 and can be used as an helper to determine the sources of these added elements. It covers the original content of CDAM1, the update as determined by the CDAM1 ballot and its disposition. In addition, further repertoire additions and glyph changes proposal are listed, with the aim at keeping ISO/IEC 10646 and future version of Unicode synchronized. Finally, an improvement on the definition of Character Name Aliases is also introduced, again to maintain synchronization with the Unicode Standard.

CDAM 1 repertoire additions

The following represents all repertoire additions that were part of the CDAM1 document. All these additions had been discussed in the context of the Unicode Standard encoding process. Most of these have been incorporated in the already published Unicode standard v14.0. Other ranges marked in bold (such as 0895-0897) corresponded to more recent encoding proposals not yet available in any published standard. Note that the proposed characters in the range 0895-0897 have been moved to a new block in 10EFD..10EFF following the CDAM1 disposition of comments.

It also contained the CJK Extension H block which was still going under some revision at that time. The version shown corresponded to the version 6.0 of the Working Set 2017. (The table below was part of the Editor’s note in the CDAM1 Amendment text)

Name	Ranges	Document(s)
Arabic	061D	<a href="https://www.unicode.org/L2/L2020/20245-three-arabic-symbols.pdf">https://www.unicode.org/L2/L2020/20245-three-arabic-symbols.pdf</a>
Arabic Extended-B	0870-088E 0890-0891 <b>0895-0897</b>	<a href="https://www.unicode.org/L2/L2019/19306-quranic-additions.pdf">https://www.unicode.org/L2/L2019/19306-quranic-additions.pdf</a>
	0898-089F	<a href="https://www.unicode.org/L2/L2019/19339-bosnian-arabic.pdf">https://www.unicode.org/L2/L2019/19339-bosnian-arabic.pdf</a>
Arabic Extended-A	08B5 08C8-08D2	<a href="https://www.unicode.org/L2/L2019/19340-javanese-sundanese-arabic.pdf">https://www.unicode.org/L2/L2019/19340-javanese-sundanese-arabic.pdf</a>
Arabic Presentation Forms-A	FBC2 FD40-FD4F FDCF FDFE-FDFF	<a href="https://www.unicode.org/L2/L2021/21133-quranic-marks.pdf">https://www.unicode.org/L2/L2021/21133-quranic-marks.pdf</a>
		<a href="https://www.unicode.org/L2/L2019/19252-balti-graf.pdf">https://www.unicode.org/L2/L2019/19252-balti-graf.pdf</a>
		<a href="https://www.unicode.org/L2/L2019/19313-qaf-with-dot-below.pdf">https://www.unicode.org/L2/L2019/19313-qaf-with-dot-below.pdf</a>
		<a href="https://www.unicode.org/L2/L2019/19289-arabic-honorifics.pdf">https://www.unicode.org/L2/L2019/19289-arabic-honorifics.pdf</a>
		<a href="https://www.unicode.org/L2/L2019/19319-more-honorifics.pdf">https://www.unicode.org/L2/L2019/19319-more-honorifics.pdf</a>
Telugu	0C3C 0C5D	<a href="https://www.unicode.org/L2/L2019/19401-telugu-sign-nukta.pdf">https://www.unicode.org/L2/L2019/19401-telugu-sign-nukta.pdf</a>
		<a href="https://www.unicode.org/L2/L2020/20084r-telugu-nakaara-pollu.pdf">https://www.unicode.org/L2/L2020/20084r-telugu-nakaara-pollu.pdf</a>
Kannada	0CDD <b>0CF3</b>	<a href="https://www.unicode.org/L2/L2020/20228r-kannada-nakaara-pollu.pdf">https://www.unicode.org/L2/L2020/20228r-kannada-nakaara-pollu.pdf</a>
		<a href="https://www.unicode.org/L2/L2021/21114-kannada-sign-anusvara.pdf">https://www.unicode.org/L2/L2021/21114-kannada-sign-anusvara.pdf</a>
Lao	<b>0ECE</b>	<a href="https://www.unicode.org/L2/L2021/21093-lao-yamakkan.pdf">https://www.unicode.org/L2/L2021/21093-lao-yamakkan.pdf</a>
Tagalog	170D 1715 171F	<a href="https://www.unicode.org/L2/L2019/19258r-baybayin-ra.pdf">https://www.unicode.org/L2/L2019/19258r-baybayin-ra.pdf</a>
		<a href="https://www.unicode.org/L2/L2020/20272-pamudpod.pdf">https://www.unicode.org/L2/L2020/20272-pamudpod.pdf</a>



<i>Name</i>	<i>Ranges</i>	<i>Document(s)</i>
		<a href="https://www.unicode.org/L2/L2021/21104-khojki-letter-short-i.pdf">https://www.unicode.org/L2/L2021/21104-khojki-letter-short-i.pdf</a> <a href="https://www.unicode.org/L2/L2021/21110-khojki-vowel-sign-vocalic-r.pdf">https://www.unicode.org/L2/L2021/21110-khojki-vowel-sign-vocalic-r.pdf</a>
Takri	116B9	<a href="https://www.unicode.org/L2/L2019/19264-takri-abbrev-sign.pdf">https://www.unicode.org/L2/L2019/19264-takri-abbrev-sign.pdf</a>
Ahom	11740-11746	<a href="https://www.unicode.org/L2/L2020/20258-add-tai-ahom.pdf">https://www.unicode.org/L2/L2020/20258-add-tai-ahom.pdf</a>
Unified Canadian Aboriginal Syllabics Extended -A	11AB0-11ABF	<a href="https://www.unicode.org/L2/L2020/20255-ucas-adds.pdf">https://www.unicode.org/L2/L2020/20255-ucas-adds.pdf</a>
Devanagari Ex- tended-A	<b>11B00-11B09</b>	<a href="https://www.unicode.org/L2/L2021/21102-devanagari-bhale-mindu.pdf">https://www.unicode.org/L2/L2021/21102-devanagari-bhale-mindu.pdf</a>
Kawi	<b>11F00-11F10</b> <b>11F12-11F3A</b> <b>11F3C 11F3E-</b> <b>11F59</b>	<a href="https://www.unicode.org/L2/L2020/20284r-kawi.pdf">https://www.unicode.org/L2/L2020/20284r-kawi.pdf</a>
Cypro-Minoan	12F90-12FF2	<a href="https://www.unicode.org/wg2/docs/n5135-cyprominoan.pdf">https://www.unicode.org/wg2/docs/n5135-cyprominoan.pdf</a>
Tangsa	16A70-16ABE 16AC0-16AC9	<a href="https://www.unicode.org/L2/L2021/21027r-tangsa.pdf">https://www.unicode.org/L2/L2021/21027r-tangsa.pdf</a>
Kana Extended-B  Kana Extended-A  Small Kana Exten- sion	1AFF0-1AFF3 1AFF5-1AFFB 1AFFD-1AFFE 1B11F-1B122  <b>1B132 1B155</b>	<a href="https://www.unicode.org/L2/L2020/20209r-taiwan-kana.pdf">https://www.unicode.org/L2/L2020/20209r-taiwan-kana.pdf</a>  <a href="https://www.unicode.org/L2/L2019/19381-missing-kana.pdf">https://www.unicode.org/L2/L2019/19381-missing-kana.pdf</a> <a href="https://www.unicode.org/L2/L2020/20046-script-adhoc-rept.pdf">https://www.unicode.org/L2/L2020/20046-script-adhoc-rept.pdf</a> <a href="http://www.unicode.org/wg2/docs/n4803-small-kana-fdbk.pdf">http://www.unicode.org/wg2/docs/n4803-small-kana-fdbk.pdf</a>
Znamenny Musical Notation	1CF00-1CF2D 1CF30-1CF46 1CF50-1CFC3	<a href="https://www.unicode.org/L2/L2019/19053-znamenny-musical.pdf">https://www.unicode.org/L2/L2019/19053-znamenny-musical.pdf</a>
Musical Symbols	1D1E9-1D1EA	<a href="https://www.unicode.org/L2/L2020/20159-iran-music-symbols.pdf">https://www.unicode.org/L2/L2020/20159-iran-music-symbols.pdf</a>
Kaktovic Numerals	<b>1D2C0-1D2D3</b>	<a href="https://www.unicode.org/L2/L2021/21058r-kaktovik-numerals.pdf">https://www.unicode.org/L2/L2021/21058r-kaktovik-numerals.pdf</a>
Cyrillic Extended-D	<b>1E030-1E06C</b>	<a href="https://www.unicode.org/L2/L2021/21107-cyrillic-mod.pdf">https://www.unicode.org/L2/L2021/21107-cyrillic-mod.pdf</a> <a href="https://www.unicode.org/L2/L2021/21142-cyrillic-mod-letter-add.pdf">https://www.unicode.org/L2/L2021/21142-cyrillic-mod-letter-add.pdf</a>
Toto	1E290-1E2AE	<a href="https://www.unicode.org/L2/L2019/19330-toto-script.pdf">https://www.unicode.org/L2/L2019/19330-toto-script.pdf</a>
Nag Mundari	<b>1E4D0-1E4F9</b>	<a href="https://www.unicode.org/L2/L2021/21031r-mundari.pdf">https://www.unicode.org/L2/L2021/21031r-mundari.pdf</a>
Ethiopic Extended-B	1E7E0-1E7E6 1E7E8-1E7EB 1E7ED-1E7EE 1E7F0-1E7FE	<a href="https://www.unicode.org/L2/L2021/21037-gurage-adds.pdf">https://www.unicode.org/L2/L2021/21037-gurage-adds.pdf</a>
Transport and Maps Symbols	1F6DD-1F6DF	<a href="https://www.unicode.org/L2/L2020/20242r2-emoji-recs-14.pdf">https://www.unicode.org/L2/L2020/20242r2-emoji-recs-14.pdf</a>
Geometric Shapes Extended	<b>1F7D9</b> 1F7F0	<a href="https://www.unicode.org/L2/L2021/21144-nine-pointed-star.pdf">https://www.unicode.org/L2/L2021/21144-nine-pointed-star.pdf</a> <a href="https://www.unicode.org/L2/L2020/20242r2-emoji-recs-14.pdf">https://www.unicode.org/L2/L2020/20242r2-emoji-recs-14.pdf</a>
Supplemental Sym- bols and Pictographs Symbols and Picto- graphs Extended A	1F979 1F9CC  1FA7B-1FA7C 1FAA9-1FAAC 1FAB7-1FABA 1FAC3-1FAC5 1FAD7-FAD9 1FAE0-1FAE7 1FAF0-1FAF6	<a href="https://www.unicode.org/wg2/docs/n5058-TrollEmoji.pdf">https://www.unicode.org/wg2/docs/n5058-TrollEmoji.pdf</a> <a href="https://www.unicode.org/L2/L2020/20242r2-emoji-recs-14.pdf">https://www.unicode.org/L2/L2020/20242r2-emoji-recs-14.pdf</a>

## CDAM1 disposition of comments

Following the CDAM1 disposition of comments [N5173R], additional changes were made (summarized in page 2 of N5173R):

### Removal

UCS	Name
11F3C	KAWI VOWEL SIGN VOCALIC L
31A86	CJK UNIFIED IDEOGRAPH-31A86

### Addition

UCS	Name
3222D	CJK UNIFIED IDEOGRAPH-3222D

### Name changes

UCS	Old name	New name
11F42	KAWI SUBJOINER	KAWI CONJOINER
1F7D9	NINE POINTED STAR	NINE POINTED WHITE STAR

### Character move

Old UCS	New UCS	Name
0895	10EFD	ARABIC SMALL LOW WORD SAKTA
0896	10EFE	ARABIC SMALL LOW WORD QASR
0897	10EFF	ARABIC SMALL LOW WORD MADDA

Note that these Arabic characters are moved in a new block 10EC0-10EFF called ARABIC EXTENDED-C. In addition, all CJK Unified ideographs Extension H between U+31A85 and U+3222D are moved, with the same total size.

### Glyph changes through this ballot (pending receiving font with updated glyphs)

UCS	IRG source
317F3	kIRG_VSource VN-F1E36
31F5F	kIRG_VSource VN-F1B1F
31F63	kIRG_VSource VN-F085B
31F84	kIRG_VSource VN-F1B10
31FB5	kIRG_VSource VN-F1B17
31FC5	kIRG_VSource VN-F1B19

### Annotations, cross reference, source reference added/modified

UCS	Name or IRG source
0675	ARABIC LETTER HIGH HAMZA ALEF (preamble modified and annotation modified for 0675..0678)
5AB4	kIRG_KSource K6-0004 (horizontal extension)
741F	kIRG_KSource K6-0005 (horizontal extension)
74A4	kIRG_KSource K6-0006 (horizontal extension)
74B8	kIRG_KSource K6-0007 (horizontal extension)
7807	kIRG_KSource K6-0008 (horizontal extension)
7A66	kIRG_KSource K6-0009 (horizontal extension)

In addition, the description of new G sources and V sources are to be updated according to [n5173] page19.

## CDAM 1.2 repertoire additions and glyph changes

In parallel, new characters have been proposed for encoding in the Unicode Standard. To facilitate the synchronization between ISO/IEC 10646 and Unicode, these characters will also be incorporated in the next version of this amendment (CDAM 1.2).

<i>Name</i>	<i>Ranges</i>	<i>Document(s)</i>
Egyptian Hieroglyphs Egyptian Hieroglyphs Format Controls	1342F 13439-13455	<a href="https://www.unicode.org/L2/L2021/21248-egyptian-controls.pdf">https://www.unicode.org/L2/L2021/21248-egyptian-controls.pdf</a>
Latin Extended-G	1DF25-1DF2A	<a href="https://www.unicode.org/cqi-bin/GetMatchingDocs.pl?L2/21-156">https://www.unicode.org/cqi-bin/GetMatchingDocs.pl?L2/21-156</a>
Cyrillic Extended-D	1E06D 1E08F	<a href="https://www.unicode.org/L2/L2022/22010-cyrillic-mod.pdf">https://www.unicode.org/L2/L2022/22010-cyrillic-mod.pdf</a>
Transport and Map Symbol	1F6DC	<a href="https://www.unicode.org/L2/L2021/21172r-esc-recs.pdf">https://www.unicode.org/L2/L2021/21172r-esc-recs.pdf</a> <a href="https://www.unicode.org/L2/L2022/22021-esc-report-q1.pdf">https://www.unicode.org/L2/L2022/22021-esc-report-q1.pdf</a>
Alchemical Symbols	1F774-1F776 1F77B-1F77F	<a href="https://www.unicode.org/L2/L2022/22005-fortune-eclipse.pdf">https://www.unicode.org/L2/L2022/22005-fortune-eclipse.pdf</a> <a href="https://www.unicode.org/L2/L2021/21224-dwarf-planet-syms.pdf">https://www.unicode.org/L2/L2021/21224-dwarf-planet-syms.pdf</a>
Symbols and Picto- graphs Extended-A	1FA75-1FA77 1FA87-1FA88 1FAAD-1FAAF 1FABB-1FABD 1FABF 1FACE- 1FACF 1FADB- 1FADB 1FAE8 1FAF7-1FAF8	<a href="https://www.unicode.org/L2/L2021/21172r-esc-recs.pdf">https://www.unicode.org/L2/L2021/21172r-esc-recs.pdf</a> <a href="https://www.unicode.org/L2/L2022/22021-esc-report-q1.pdf">https://www.unicode.org/L2/L2022/22021-esc-report-q1.pdf</a>

In addition, some glyph changes were requested in various documents and will be integrated into the amendment. Note that all existing glyphs of the block Alchemical Symbols will also be updated.

<i>Name</i>	<i>Ranges</i>	<i>Document(s)</i>
Sundanese	1BBF	<a href="https://www.unicode.org/L2/L2021/21221-three-sundanese-chars.pdf">https://www.unicode.org/L2/L2021/21221-three-sundanese-chars.pdf</a>
Cyrillic Extended-B	A66E	<a href="https://www.unicode.org/L2/L2022/22002-n5170-multiocular-o.pdf">https://www.unicode.org/L2/L2022/22002-n5170-multiocular-o.pdf</a>
Old Turkic	10C47	<a href="https://www.unicode.org/cqi-bin/GetMatchingDocs.pl?L2/21-153">https://www.unicode.org/cqi-bin/GetMatchingDocs.pl?L2/21-153</a>
Khitan Small Script	18CCA	<a href="https://www.unicode.org/cqi-bin/GetMatchingDocs.pl?L2/21-182">https://www.unicode.org/cqi-bin/GetMatchingDocs.pl?L2/21-182</a>
Alchemical Symbols	1F700-1F773	<a href="https://www.unicode.org/L2/L2022/22005-fortune-eclipse.pdf">https://www.unicode.org/L2/L2022/22005-fortune-eclipse.pdf</a>

## CDAM 1.2 CJK Unified Ideographs update

Additional updates concerning CJK Unified Ideographs were requested by various documents. In IRG N2520 (also L2/21-228), the UK NB is requesting to move the source ideograph corresponding to UK-2830 from U+238A7 to U+4DBE. In L2/22-022, Andrew West, expert from UK is asking to modify the UK-10989 kRSUnicode property from 40.1 to 25.7. This would move that character from U+31682 to U+31456, resulting in a reordering of 557 ideographs in Extension H. Both requests were endorsed by the UTC (Meeting UTC #170). Note that this does not change the content of CJK Extension H from the outcome of the CDAM1 ballot disposition of comments, just their code point assignment.

<i>Name</i>	<i>Ranges</i>	<i>Document(s)</i>
CJK Unified Ideo- graphs Extension A	4DBE	<a href="https://www.unicode.org/L2/L2021/21228-irgn2520-uk-02830.pdf">https://www.unicode.org/L2/L2021/21228-irgn2520-uk-02830.pdf</a>
CJK Unified Ideo- graphs Extension B	238A7	

<i>Name</i>	<i>Ranges</i>	<i>Document(s)</i>
CJK Unified Ideographs Extension H	31456-31682	<a href="https://www.unicode.org/L2/L2022/22022-cjk-unihan-group-utc170.pdf">https://www.unicode.org/L2/L2022/22022-cjk-unihan-group-utc170.pdf</a> (section 05, page 5)

In addition, minor updates concerning properties included in CJKSrc.txt (such as kTotalStrokes, kRSUnicode) are proposed in recommendations made by the CJK & Unihan group for the UTC #170 (see <https://www.unicode.org/L2/L2022/22022-cjk-unihan-group-utc170.pdf>). These will be incorporated into CDAM 1.2 as well.

## CDAM 1.2 updates concerning Character Name Aliases and UTF-16 byte order

The document N5168 presented by experts for JTC1/TC22/WG21 (Peter Brett and Tom Honermann) requesting to fully synchronize the concept of Character Names Aliases between the Unicode Standard and ISO/IEC 10646. It also requests a minor update to the description of byte ordering for the UTF-16. The document N5174 addresses these considerations and proposes changes to ISO/IEC 10646 to accommodate the requests. The main mechanism is to make a Unicode data file NameAliases.txt a normative part of ISO/IEC 10646 by reference. The changes recommended by N5174 will be incorporated in CDAM 1.2 text.

## References

- [N5168]: Name aliases and UTF-16 encoding scheme inconsistencies, <https://www.unicode.org/wg2/docs/n5168R1-ISO10646.pdf>
- [N5173R]: Disposition of comments on CDAM1 to ISO/IEC 10646 6th edition, <https://www.unicode.org/wg2/docs/n5173R-CDAM19-DDOC.pdf>
- [N5174]: Proposed changes concerning Character Name Aliases in ISO/IEC 10646, <https://www.unicode.org/wg2/docs/n5174-namesaliases.pdf>
- [N5175]: This document, <https://www.unicode.org/wg2/docs/n5175-cdam1.2-repertoire-update.pdf>

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