

Universal Multiple-Octet Coded Character Set  
International Organization for Standardization  
Organisation Internationale de Normalisation  
Международная организация по стандартизации

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**Title: Preliminary proposal for encoding the Imperial Aramaic script in the SMP of the UCS**

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**Action: For consideration by JTC1/SC2/WG2 and UTC**

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**1. Background.** The Imperial Aramaic script is the head of a rather complex family of scripts. It is named from the use of Aramaic as the language of regional and supraregional correspondence in the Persian Empire though, in fact, the language was in use in this function already before that. The practice continued after the demise of the Persian Empire and was the starting-point for the writing-systems of most of the Middle Iranian languages, namely Inscriptional Parthian, Inscriptional Pahlavi, Psalter Pahlavi, Book Pahlavi, and Avestan. Imperial Aramaic has many other descendents, including Mongolian and possibly Brahmi.

The term, “Imperial Aramaic”, refers both to a script and to a language. As a script term, Imperial Aramaic refers to the writing system in use in the Neo-Assyrian and Persian Empires, and was used to write Aramaic, but also other languages. There is no script code for Imperial Aramaic yet registered by ISO 15924. As a language term, Imperial Aramaic refers to a historic variety of Aramaic, as spoken and written during the period roughly from 600 BCE to 200 BCE. The Imperial Aramaic language has been given the ISO 639 language code in “arc”.

The earliest Aramaic language texts were written in the Early Aramaic alphabet, one of the forms of early Western Semitic writing or old Canaanite script, which also included the Phoenician alphabet of the Phoenicians. This complex of early Western Semitic writing is encompassed in the UCS, encoded in the Phoenician block, U+10900..U+1091F. The Aramaeans had adopted this Canaanite or Phoenician form of script during the 11th or 10th century BCE. By the mid-8th century BCE the form of the script had begun to diverge, and by the end of that century, the cursive form used by the Aramaeans had been standardized as what later became the official script of the Neo-Assyrian Empire. It remained in use, through succeeding empires, for at least another four centuries.

Imperial Aramaic is an historic script, and as for many other historic scripts, which often saw continuous change in use over periods of hundreds or thousands of years, its delineation as a script is somewhat problematic. This issue is particularly acute for historic Semitic scripts, which share basically identical repertoires of letters, which are historically related to each other, and which were used to write closely related Semitic languages. In the UCS, the Imperial Aramaic script is intended for the representation of the Imperial inscriptions and hands script which stands between its mother, the Canaanite (or Phoenician) group of script forms, and its many daughters, only one of which is Square Hebrew.

Some scholars consistently transliterate the texts written in the Imperial Aramaic script into Square Hebrew (see Figure 3). In such contexts, because the relationship between the Imperial Aramaic letters and Square Hebrew letters is one-to-one and quite regular, the transliteration is conceived of as simply a

font change. Other scholars of Aramaic transliterate texts into Latin. The encoding of the Imperial Aramaic script does not invalidate such scholarly practice; it is simply intended to make it possible to represent Imperial Aramaic and similar textual materials directly in the historic script, rather than as specialized font displays of transliterations in modern Square Hebrew. (See Figure 16.)

**2. Processing.** Imperial Aramaic is an alphabetic script written right-to-left, in *scriptio continua* or with spaces between words.

**3. Punctuation and numbers.** No script-specific punctuation is used with Imperial Aramaic. Imperial Aramaic builds up numbers out of 1, 2, 3, 10, 20, 100, 1000, and 10000. The numbers 2 **𐤅** and 3 **𐤆** are composed of multiples of 1 **𐤄**, but because in practice the numbers are clumped together as units separate from one another they are encoded as individual characters. Numbers above 4 are formed by combining 1, 2, and 3. The origin of the highest numbers has been analysed. Number 20 **𐤅𐤅** is in origin two 10s **𐤅** one atop the other; number 100 **𐤅𐤅𐤅** is also in origin two 10s one atop the other, with a stroke added to differentiate it from 20; number 1000 **𐤅𐤅𐤅𐤅** is in origin a ligature of the letters **𐤅** and **𐤅**, since **𐤅𐤅** 'lf means 'a thousand'; number 10000 **𐤅𐤅𐤅𐤅𐤅** is in origin 100 over two 10s. The numbers have right-to-left directionality. In the chart below, the third column is displayed in visual order.

1	𐤄	1 ←	11	𐤄𐤅	1 + 10 ←
2	𐤅	2 ←	12	𐤅𐤄	2 + 10 ←
3	𐤆	3 ←	13	𐤅𐤅	3 + 10 ←
4	𐤄𐤄	1 + 3 ←	14	𐤄𐤅𐤄	1 + 3 + 10 ←
5	𐤄𐤅	2 + 3 ←	15	𐤄𐤅𐤅	2 + 3 + 10 ←
6	𐤄𐤆	3 + 3 ←	16	𐤄𐤅𐤅𐤄	3 + 3 + 10 ←
7	𐤄𐤅𐤄	1 + 3 + 3 ←	17	𐤄𐤅𐤅𐤅	1 + 3 + 3 + 10 ←
8	𐤄𐤅𐤅	2 + 3 + 3 ←	18	𐤄𐤅𐤅𐤄𐤄	2 + 3 + 3 + 10 ←
9	𐤄𐤅𐤅𐤄	3 + 3 + 3 ←	19	𐤄𐤅𐤅𐤄𐤅	3 + 3 + 3 + 10 ←
10	𐤅	10 ←	100	𐤅𐤅	100 + 1 ←
20	𐤅𐤅	20 ←	200	𐤅𐤅𐤄	100 + 2 ←
30	𐤅𐤅𐤄	10 + 20 ←	300	𐤅𐤅𐤅	100 + 3 ←
40	𐤅𐤅𐤄𐤄	20 + 20 ←	400	𐤅𐤅𐤄𐤄	100 + 1 + 3 ←
50	𐤅𐤅𐤄𐤄𐤄	10 + 20 + 20 ←	500	𐤅𐤅𐤄𐤄𐤄	100 + 2 + 3 ←
60	𐤅𐤅𐤄𐤄𐤄𐤄	20 + 20 + 20 ←	600	𐤅𐤅𐤄𐤄𐤄𐤄	100 + 3 + 3 ←
70	𐤅𐤅𐤄𐤄𐤄𐤄𐤄	10 + 20 + 20 + 20 ←	700	𐤅𐤅𐤄𐤄𐤄𐤄𐤄	100 + 1 + 3 + 3 ←
80	𐤅𐤅𐤄𐤄𐤄𐤄𐤄𐤄	20 + 20 + 20 + 20 ←	800	𐤅𐤅𐤄𐤄𐤄𐤄𐤄𐤄	100 + 2 + 3 + 3 ←
90	𐤅𐤅𐤄𐤄𐤄𐤄𐤄𐤄𐤄	10 + 20 + 20 + 20 + 20 ←	900	𐤅𐤅𐤄𐤄𐤄𐤄𐤄𐤄𐤄	100 + 3 + 3 + 3 ←
3000	𐤅𐤅𐤄𐤄𐤄	1000 + 3 ←	30000	𐤅𐤅𐤄𐤄𐤄𐤄	10000 + 3 ←

**4. Names and ordering.** The names used for the characters here are based on the transliteration given in Driver 1976 and Rosenthal 1995. The order of the characters in the code charts is their alphabetical order.

**5. Reference glyphs.** The glyphs used in the code table are based on the Elephantine cursive. See Figures 1, 2, 3, 4, and 8.

## 6. Bibliography

- Driver, G. R. 1976. *Semitic writing from pictograph to alphabet*. Third edition edited by S. A. Hopkins. London: Oxford University Press for the British Academy.
- Faulmann, Carl. 1990 (1880). *Das Buch der Schrift*. Frankfurt am Main: Eichborn. ISBN 3-8218-1720-8
- Goerwitz, Richard L. 1996. "The Jewish scripts" in *The World's Writing Systems*, ed. Peter T. Daniels & William Bright. New York; Oxford: Oxford University Press. ISBN 0-19-507993-0

- Imprimerie Nationale. 1990. *Les caractères de l'Imprimerie Nationale*. Paris: Imprimerie Nationale Éditions. ISBN 2-11-081085-8
- Ifrah, Georges. 2000. *The universal history of numbers. Volume 1: The world's first number-systems. Volume 2: The modern number-system*. Translated from the French by David Bellos, E. F. Harding, Sophie Wood, and Ian Monk. London: Harvill Press. ISBN 1-86046-790-3, ISBN 1-86046-791-1
- Lidzbarski, Mark. 1962 (1898). *Handbuch der nordsemitischen Epigraphik nebst ausgewählten Inschriften*. Hildesheim: Georg Olms Verlagsbuchhandlung.
- Naveh, Joseph. 1987. *Early history of the alphabet: an introduction to West Semitic epigraphy and palaeography*. Jerusalem: Magnes Press, the Hebrew University. ISBN 965-223-436-2
- Nyberg, Henrik Samuel. 1964 *A manual of Pahlavi*. Wiesbaden: Otto Harrassowitz. Reprinted 2003 Tehran: Asatir. ISBN 964-331-131-7, 964-331-132-5
- Porten, Bezalel, & Ada Yardeni. 1986-1999. *Textbook of Aramaic documents from ancient Egypt*. Jerusalem: Hebrew University.
- Rosenthal, Franz. 1995. *A Grammar of Biblical Hebrew*. Sixth revised edition. Wiesbaden: Otto Harrassowitz.
- Rosenthal, Franz. 2006. *A Grammar of Biblical Aramaic*. Seventh revised edition. Wiesbaden: Otto Harrassowitz.
- Segert, Stanislav. 1975. *Altaramäische Grammatik*. Leipzig: Veb Verlag Enzyklopaedie.
- Taylor, Isaac. 1883. *The alphabet: an account of the origin and development of letters*. Vol. 1: Semitic alphabets; Vol. 2: Aryan alphabets. London: Kegan Paul.

## 7. Unicode Character Properties

10840; IMPERIAL ARAMAIC LETTER ALEPH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10841; IMPERIAL ARAMAIC LETTER BETH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10842; IMPERIAL ARAMAIC LETTER GIMEL; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10843; IMPERIAL ARAMAIC LETTER DALETH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10844; IMPERIAL ARAMAIC LETTER HE; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10845; IMPERIAL ARAMAIC LETTER WAW; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10846; IMPERIAL ARAMAIC LETTER ZAYIN; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10847; IMPERIAL ARAMAIC LETTER HETH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10848; IMPERIAL ARAMAIC LETTER TETH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10849; IMPERIAL ARAMAIC LETTER YODH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
1084A; IMPERIAL ARAMAIC LETTER KAPH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
1084B; IMPERIAL ARAMAIC LETTER LAMEDH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
1084C; IMPERIAL ARAMAIC LETTER MEM; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
1084D; IMPERIAL ARAMAIC LETTER NUN; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
1084E; IMPERIAL ARAMAIC LETTER SAMEKH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
1084F; IMPERIAL ARAMAIC LETTER AYIN; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10850; IMPERIAL ARAMAIC LETTER PE; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10851; IMPERIAL ARAMAIC LETTER SADHE; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10852; IMPERIAL ARAMAIC LETTER QOPH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10853; IMPERIAL ARAMAIC LETTER RESH; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10854; IMPERIAL ARAMAIC LETTER SHIN; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10855; IMPERIAL ARAMAIC LETTER TAW; Lo; 0; R; ; ; ; ; N; ; ; ; ;  
10858; IMPERIAL ARAMAIC NUMBER ONE; No; 0; R; ; ; ; ; 1; N; ; ; ; ;  
10859; IMPERIAL ARAMAIC NUMBER TWO; No; 0; R; ; ; ; ; 2; N; ; ; ; ;  
1085A; IMPERIAL ARAMAIC NUMBER THREE; No; 0; R; ; ; ; ; 3; N; ; ; ; ;  
1085B; IMPERIAL ARAMAIC NUMBER TEN; No; 0; R; ; ; ; ; 10; N; ; ; ; ;  
1085C; IMPERIAL ARAMAIC NUMBER TWENTY; No; 0; R; ; ; ; ; 20; N; ; ; ; ;  
1085D; IMPERIAL ARAMAIC NUMBER ONE HUNDRED; No; 0; R; ; ; ; ; 100; N; ; ; ; ;  
1085E; IMPERIAL ARAMAIC NUMBER ONE THOUSAND; No; 0; R; ; ; ; ; 1000; N; ; ; ; ;  
1085F; IMPERIAL ARAMAIC NUMBER TEN THOUSAND; No; 0; R; ; ; ; ; 10000; N; ; ; ; ;

## 8. Acknowledgements

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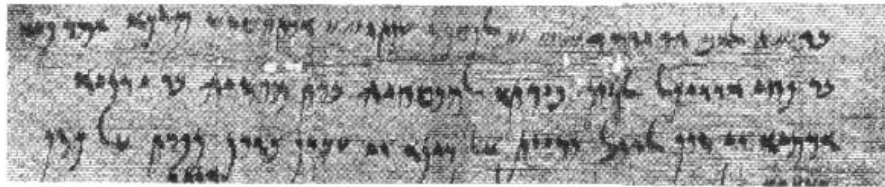


FIGURE 57. Introduction to a quitclaim written at Elephantine, 26 August 440 B.C.E. (Sayce and Cowley 1906, papyrus F, lines 1–3).

←ב 14 ל' ב' ו' ה' יום - ל' ל' ל' ל' ל' לפחנס שנת = ל' ל' ל' ל' ארתחששש מלכא אמר פיא  
 'yp mm' 'klm šššhtr' 25 tnš snhpl 19 mwy wh b'l  
 בר פחי ארדיכל לסון בירתא למבטחיה ברית מחסיה בר ידניא  
 'yndy rb hyšhm trb hyhtbml 'tryb nwsł lkydr' yhp rb  
 ארמיא זי סון לדגל וריזת על דינא זי עברן בסון נפ-ל'ת על כספ  
 psk l' l'/apn nwsb ndb' yz 'nyd l' tzyrw lgdl nws yz 'ymr'

**Figure 3.** Imperial Aramaic text from Elephantine, dated -440-08-26 BCE, taken from Goerwitz 1996. Here the text is transliterated into Hebrew and Latin. In Imperial Aramaic, the text reads:

כ הוון אכ הו יוצ הווןוון שנת זווןו זחוששש פלץא אפר נוי  
 אריגל לזון כוזא אפסוויגכרין פושיה כו ירזיא  
 ארמיא זי סון לדגל וריזת על דינא זי עברן בסון נפ-ל'ת על כספ

TABLE 1

Imperial Aramaic	Inscriptions		Pahlavi	
	Parthian	Persian	Psalter	Book
* ('ālcāp)*	Ⲁ	Ⲁ	Ⲁ	Ⲁ
b (bēt)	ⲁ	ⲁ	ⲁ	ⲁ
g (gimel)	Ⲃ	Ⲃ	Ⲃ	Ⲃ
d (dālet)	ⲃ	ⲃ	ⲃ	ⲃ
h (hē)	Ⲅ	Ⲅ	Ⲅ	Ⲅ
w (wāw)	ⲅ	ⲅ	ⲅ	ⲅ
z (zayin)	Ⲇ	Ⲇ	Ⲇ	Ⲇ
h (hēt)	ⲇ	ⲇ	ⲇ	ⲇ
t (tet)	Ⲉ	Ⲉ	Ⲉ	Ⲉ
y (yōd)	ⲉ	ⲉ	ⲉ	ⲉ
k (kāp)	Ⲋ	Ⲋ	Ⲋ	Ⲋ
l (lāmed)	ⲋ	ⲋ	ⲋ	ⲋ
m (mēm)	Ⲍ	Ⲍ	Ⲍ	Ⲍ
n (nūn)	ⲍ	ⲍ	ⲍ	ⲍ
s (sāmēk)	Ⲏ	Ⲏ	Ⲏ	Ⲏ
* ('ayjn)	ⲏ	ⲏ	ⲏ	ⲏ
p (pē)	Ⲑ	Ⲑ	Ⲑ	Ⲑ
š (šāḏē)	ⲑ	ⲑ	ⲑ	ⲑ
q (qōp)	Ⲓ	Ⲓ	Ⲓ	Ⲓ
r (rēš)	ⲓ	ⲓ	ⲓ	ⲓ
š š (š/šm)	Ⲕ	Ⲕ	Ⲕ	Ⲕ
t (tāw)	ⲕ	ⲕ	ⲕ	ⲕ

\* The under- and over-lining of letters in Semitic transcription indicates a fricative pronunciation, *āleph*, *bēth*, etc.

**Figure 4.** Table showing Imperial Aramaic, Inscriptional Parthian, Inscriptional Pahlavi, and Book Pahlavi, from MacKenzie 1971.

ARAMÄISCH.

Monum.	Papyrus	Babylon.	Wert	Monum.	Papyrus	Babylon.	Wert	Monum.	Papyrus	Babylon.	Wert
4	כך	ן	a	𐤀	𐤁	𐤂	t	𐤃	𐤄	𐤅	p
4	כך	בב	b	𐤆	𐤇	𐤈	y	𐤉	𐤊	𐤋	s
λ	א	גג	g	𐤌	𐤍	𐤎	k	𐤏	𐤐	𐤑	q
4	כך	דד	d	𐤒	𐤓	𐤔	l	𐤕	𐤖	𐤗	r
אΠ	א	הה	h	𐤙	𐤚	𐤛	m	𐤜	𐤝	𐤞	z
4	ו	ו	w	𐤟	𐤠	𐤡	n	𐤢	𐤣	𐤤	t
22	ז	זז	z	𐤨	𐤩	𐤪	s				
אHh	ח	חח	z	𐤬	𐤭	𐤮	3a				

Die aramäische Schrift findet man sowohl neben der Keilschrift wie selbstständig in Inschriften und auf Papyrus, in Assyrien und in Ägypten. Die hier

mit „Babylonisch“ bezeichneten Buchstaben sind den Inschriften entnommen, welche LAYARD bei seinen Ausgrabungen auf 8 irdenen Schüsseln fand.

Figure 5. Table of Imperial Aramaic alphabets, from Faulmann 1880.

THE IRANIAN ALPHABETS.

	ARAMEAN.		PEHLEVI.					INDO-BACTRIAN. KARAS-MI-GRIT.	ARMENIAN. (Bevansel.)	GEORGIAN. (Mtsaql.)	
	SABAEAN & HUKKI.	PAPYR.	ARSACIDAN.		SASSANIAN.		PARSI.				
			Coins & Coins.	Inj. abed B.	Inj. abed A.	Coins.					MS.
	Sec. iv. & III. B.C.	Sec. II. A.D.	Sec. I. & II. A.D.	Sec. III. A.D.	Sec. III. A.D.	Sec. IV. to VI. A.D.	Modern.				Sec. III. B.C.
𐤀	𐤁	𐤂	𐤃	𐤄	𐤅	𐤆	𐤇	𐤈	𐤉	𐤊	𐤋
𐤌	𐤍	𐤎	𐤏	𐤐	𐤑	𐤒	𐤓	𐤔	𐤕	𐤖	𐤗
𐤙	𐤚	𐤛	𐤜	𐤝	𐤞	𐤟	𐤠	𐤡	𐤢	𐤣	𐤤
𐤥	𐤦	𐤧	𐤨	𐤩	𐤪	𐤫	𐤬	𐤭	𐤮	𐤯	𐤰
𐤱	𐤲	𐤳	𐤴	𐤵	𐤶	𐤷	𐤸	𐤹	𐤺	𐤻	𐤼
𐤽	𐤾	𐤿	𐥀	𐥁	𐥂	𐥃	𐥄	𐥅	𐥆	𐥇	𐥈
𐥉	𐥊	𐥋	𐥌	𐥍	𐥎	𐥏	𐥐	𐥑	𐥒	𐥓	𐥔
𐥕	𐥖	𐥗	𐥘	𐥙	𐥚	𐥛	𐥜	𐥝	𐥞	𐥟	𐥠
𐥡	𐥢	𐥣	𐥤	𐥥	𐥦	𐥧	𐥨	𐥩	𐥪	𐥫	𐥬
𐥭	𐥮	𐥯	𐥰	𐥱	𐥲	𐥳	𐥴	𐥵	𐥶	𐥷	𐥸
𐥹	𐥺	𐥻	𐥼	𐥽	𐥾	𐥿	𐇀	𐇁	𐇂	𐇃	𐇄
𐇅	𐇆	𐇇	𐇈	𐇉	𐇊	𐇋	𐇌	𐇍	𐇎	𐇏	𐇐
𐇑	𐇒	𐇓	𐇔	𐇕	𐇖	𐇗	𐇘	𐇙	𐇚	𐇛	𐇜
𐇝	𐇞	𐇟	𐇠	𐇡	𐇢	𐇣	𐇤	𐇥	𐇦	𐇧	𐇨
𐇩	𐇪	𐇫	𐇬	𐇭	𐇮	𐇯	𐇰	𐇱	𐇲	𐇳	𐇴
𐇵	𐇶	𐇷	𐇸	𐇹	𐇺	𐇻	𐇼	𐇽	𐇾	𐇿	𐈀
𐈁	𐈂	𐈃	𐈄	𐈅	𐈆	𐈇	𐈈	𐈉	𐈊	𐈋	𐈌

Figure 6. Table of Iranian alphabets, from Taylor 1883, showing Imperial Aramaic in column I.

## Alphabets.

Hebrew	Kaša'	Aramaic papyri	Palmyr. inscriptions	Nabat. inscriptions. Sinai	Parthian inscriptions	Persian inscriptions	Psalter	Book Pahlavi	Transliteration
א	𐎀	𐎁	𐎂	𐎃	𐎄	𐎅	𐎆	𐎇	ʾ
ב	𐎁	𐎂	𐎃	𐎄, 𐎅, 𐎆	𐎇	𐎈	𐎉	𐎊	b
ג	𐎂	𐎃	𐎄	𐎅, 𐎆	𐎇	𐎈	𐎉	𐎊 (𐎋)	g
ד	𐎃	𐎄, 𐎅	𐎆	𐎇, 𐎈	𐎉	𐎊	𐎋	𐎌 (𐎍) (𐎎, 𐎏)	d
ה	𐎄	𐎅	𐎆	𐎇, 𐎈	𐎉	𐎊	𐎋	𐎌 (𐎍)	-h
ו	𐎅	𐎆	𐎇	𐎈, 𐎉	𐎊	𐎋	𐎌	𐎍	w
ז	𐎆, 𐎇	𐎈	𐎉	𐎊	𐎋	𐎌	𐎍	𐎎	z
ח	𐎇	𐎈	𐎉	𐎊, 𐎋	𐎌	𐎍	𐎎	𐎏	h, ḥ
ט	𐎈	𐎉	𐎊	𐎋, 𐎌	𐎍	𐎎	-	-	ṭ
י	𐎉	𐎊	𐎋	𐎌, 𐎍	𐎎	𐎏	𐎐	𐎑 (𐎒, 𐎓)	y (j-)
כ, 𐎎	𐎊	𐎋	𐎌	𐎍, 𐎎	𐎏	𐎐	𐎑	𐎒	k
ל	𐎋	𐎌	𐎍	𐎎, 𐎏	𐎐	𐎑	𐎒	𐎓 (𐎔)	l
מ, 𐎏	𐎌	𐎍	𐎎	𐎏, 𐎐, 𐎑	𐎒	𐎓	𐎔	𐎕	m
נ, 𐎐	𐎍	𐎎	𐎏	𐎐, 𐎑	𐎒	𐎓	𐎔	𐎕	n
ס	𐎎	𐎏	𐎐	𐎑	𐎒	𐎓	𐎔	𐎕, 𐎖	s
ע	𐎏	𐎐	𐎑	𐎒, 𐎓	𐎔	𐎕	𐎖	𐎗	ʿ
פ, 𐎑	𐎐	𐎑	𐎒	𐎓, 𐎔	𐎕	𐎖	𐎗	𐎘	p
צ, 𐎒	𐎑	𐎒	𐎓	𐎔, 𐎕	𐎖	𐎗	𐎘	𐎙	c, ṣ
ק	𐎒	𐎓	𐎔	𐎕, 𐎖	𐎗	-	-	-	q
ר	𐎓	𐎔	𐎕	𐎖, 𐎗, 𐎘	𐎙	𐎚	𐎛	𐎜	r
ש	𐎔	𐎕	𐎖	𐎗, 𐎘, 𐎙	𐎚	𐎛	𐎜	𐎝	š
ת	𐎕	𐎖	𐎗	𐎘, 𐎙	𐎚	𐎛	𐎜, 𐎝	𐎞	t

Figure 7. Table of Iranian alphabets, from Nyberg 1964. The Aramaic papyri column refers to Imperial Aramaic.

	Egypt 6th cent. B.C.	Dead Sea Scrolls (Qumran) 1st cent. B.C. to 1st cent. A.D.	Trans- literation	Name	Approximate Pronunciation
א	𐤀	א	ʾ	ʾālcᵑ	glottal stop
ב	𐤁	ב	b, ḅ	ḅēᵑ	b, spirant b (bilabial v)
ג	𐤂	ג	g, ḡ	gimel	g, spirant g
ד	𐤃	ד	d, ḏ	dāleᵑ	d, spirant d (like <i>th</i> in <i>there</i> )
ה	𐤄	ה	h	ḥē	h
ו	𐤅	ו	w	wāw	w
ז	𐤆	ז	z	zayin	z
ח	𐤇	ח	h	ḥēᵑ	pharyngeal fricative h
ט	𐤈	ט	ṭ	ṭēᵑ	"emphatic" (i.e., velarized) t
י	𐤉	י	y	yōḏ	y
(ך) כ	𐤊	כ	k, ḵ	kaᵑ	k, spirant k
ל	𐤋	ל	l	lamed	l
(מ) מ	𐤌	מ	m	mēm	m
(נ) נ	𐤍	נ	n	nūn	n
ס	𐤎	ס	s	sāmek	s
ע	𐤏	ע	ʿ	ʿayin	voiced laryngeal (similar to the sound of incipient vomiting)
(פ) פ	𐤐	פ	p, p̄	pē	p, spirant p (bilabial f)
(צ) צ	𐤑	צ	ṣ	ṣādē	"emphatic" s
ק	𐤒	ק	q	qōḑ	"emphatic" k
ר	𐤓	ר	r	rēš	r
ש	𐤔	ש	š	šin	pulatalized (?) s
ת	𐤕	ת	t, ṭ	tāw	t, spirant t (like <i>tš</i> in <i>think</i> )

Figure 8. Alphabet chart showing Elephantine glyphs in the first column, Taken from Rosenthal 2006.

1	2	3	4	5	6	7
𐤀	𐤀	𐤀	𐤀	א	ʾ	ʾālcᵑ
𐤁	𐤁	𐤁	𐤁	ב	b	ḅēᵑ
𐤂	𐤂	𐤂	𐤂	ג	g	gimel
𐤃	𐤃	𐤃	𐤃	ד	d	dāleᵑ
𐤄	𐤄	𐤄	𐤄	ה	h	ḥē
𐤅	𐤅	𐤅	𐤅	ו	w	wāw
𐤆	𐤆	𐤆	𐤆	ז	z	zayin
𐤇	𐤇	𐤇	𐤇	ח	h	ḥēᵑ
𐤈	𐤈	𐤈	𐤈	ט	ṭ	ṭēᵑ
𐤉	𐤉	𐤉	𐤉	י	j	yōḏ
𐤊	𐤊	𐤊	𐤊	כ (ך)	k	kaᵑ
𐤋	𐤋	𐤋	𐤋	ל	l	lamed
𐤌	𐤌	𐤌	𐤌	מ (ם)	m	mēm
𐤍	𐤍	𐤍	𐤍	נ (ן)	n	nūn
𐤎	𐤎	𐤎	𐤎	ס	s	sāmek
𐤏	𐤏	𐤏	𐤏	ע	ʿ	ʿayin
𐤐	𐤐	𐤐	𐤐	פ (ף)	p	pē
𐤑	𐤑	𐤑	𐤑	צ (ץ)	ṣ	ṣādē
𐤒	𐤒	𐤒	𐤒	ק	q	qōḑ
𐤓	𐤓	𐤓	𐤓	ר	r	rēš
𐤔	𐤔	𐤔	𐤔	ש	š/ś	šin/śin
𐤕	𐤕	𐤕	𐤕	ת	t	tāw

Figure 9. Alphabet chart from Segert 1975. Column 1 is Old Aramaic and would be unified with Phoenician. Columns 2 and 3 are Imperial Aramaic. Column 4 is Biblical Aramaic and would be unified with Hebrew.



SCHRIFTTAFEL II. ARAMÄISCH.

	A r a m ä e i s c h			P a l m y r e n i s c h			S y r i s c h			N a b a t ä e i s c h		
	Aus System und Zerglei.	A. Reimung	Aus Ägypten.	logog. Schrift	logog. Schrift	logog. Schrift	Aus dem Röm. u. Arab.	Aus dem Röm. u. Arab.	Aus dem Röm. u. Arab.	Aus dem Röm. u. Arab.	Aus dem Röm. u. Arab.	Aus dem Röm. u. Arab.
א	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀	𐤀
ב	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁	𐤁
ג	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂	𐤂
ד	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃	𐤃
ה	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄	𐤄
ו	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅	𐤅
ז	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆	𐤆
ח	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇	𐤇
ט	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈	𐤈
י	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉	𐤉
כ	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊	𐤊
ל	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋	𐤋
מ	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌	𐤌
נ	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍	𐤍
ס	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎	𐤎
ע	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏	𐤏
פ	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐	𐤐
צ	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑	𐤑
ק	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒	𐤒
ר	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓	𐤓
ש	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔	𐤔
ת	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕	𐤕

Figure 10. Table of Aramaic, Palmyrene, and Nabataean alphabets from Lidzbarski 1962 (1898).

Sources		
S 18		1
S 61		2
S 8		3
S 19		4
S 61		5
S 19		6
S 61		7
CIS. II <sup>1</sup> 147		8
S 62		9

**Figure 11.** Table of Aramaic figures for the numbers 1 to 9, copied from Sachau 1911, abbreviated as S, from fifth century BCE papyri from Elephantine. Taken from Ifrah 2000.

SIGNS FOR THE NUMBER 10				REPRESENTATIONS OF THE TENS		
				Sources		30
				S 7		40
				S 19		50
				KR 5		60
				S 18		70
				S 61		80
				S 18		90
				S 18		

FIG. 18.1B.

SIGNS FOR THE NUMBER 20				NUMBERS BELOW 100		
				KR 2		18
				KR 5		38
				KR 9		98

FIG. 18.1C.

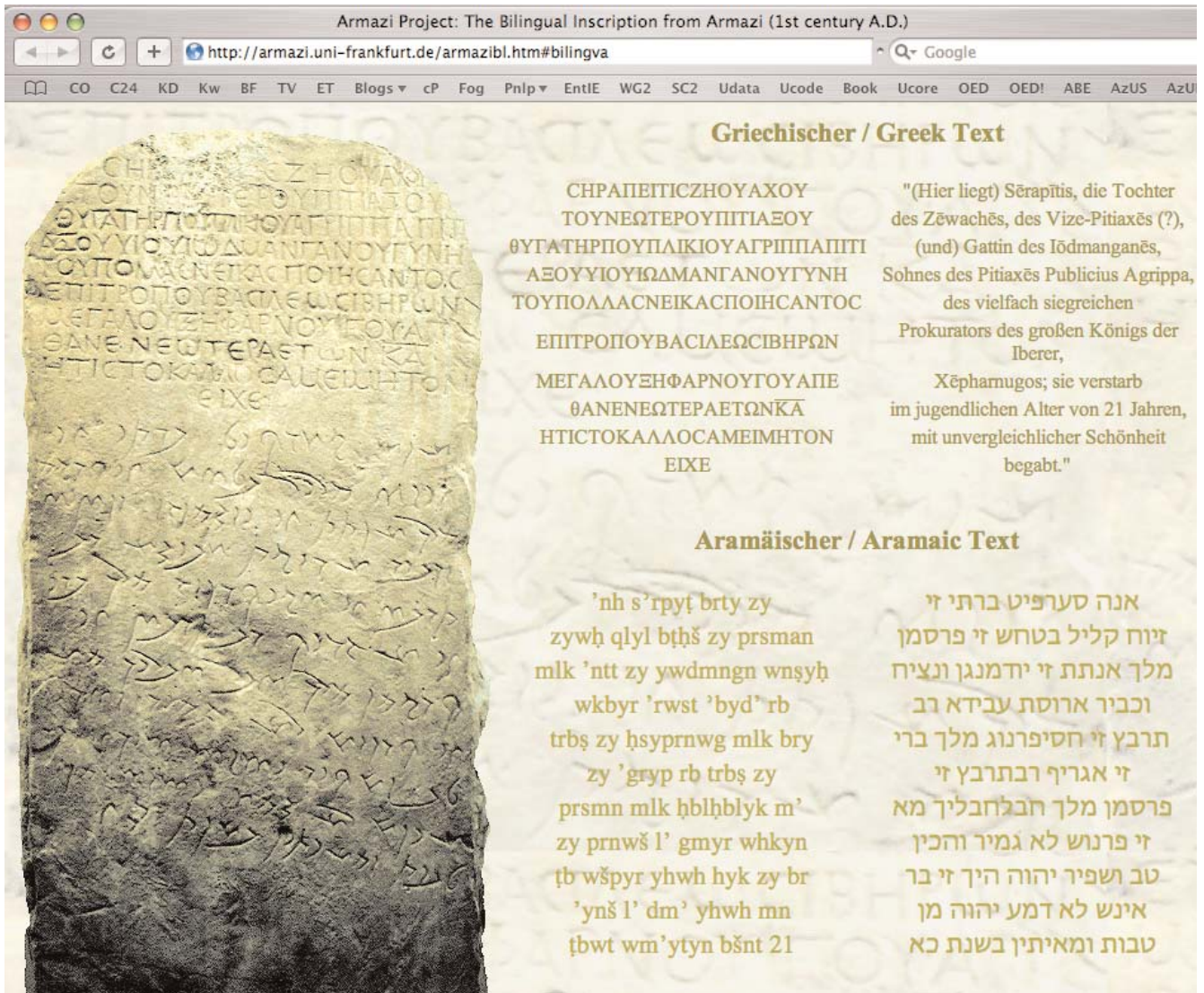
FIG. 18.1D.

**Figure 12.** Table of Aramaic figures for the numbers 10 to 90, from fifth century BCE papyri from Elephantine. Taken from Ifrah 2000.

S 61		500	S 19		100
	100 × 5			100 × 1	
CIS II <sup>1</sup>		800	S fragm. 3		200
	100 × 8			100 × 2	
S 61		900	S 19		400
	100 × 9			100 × 4	

**Figure 13.** Table of Aramaic figures for the 100s attested in fifth century BCE papyri from Elephantine. Taken from Ifrah 2000.





**Figure 16.** The Bilingual Inscription from Armazi (1. century A.D.), from the Fundamentals of an Electronic Documentation of Caucasian Languages and Cultures project. This image is from <http://armazi.uni-frankfurt.de/armazibl.htm#bilingva>. Professor Jost Gippert states of this: “I used both a Roman transliteration and a transliteration in Hebrew characters *BECAUSE* no Aramaic encoding has been available so far.”

Row 108: IMPERIAL ARAMAIC

	1084	1085
0	𐤀	𐤁
1	𐤂	𐤃
2	𐤄	𐤅
3	𐤆	𐤇
4	𐤈	𐤉
5	𐤊	𐤋
6	𐤌	
7	𐤍	
8	𐤎	𐤏
9	𐤐	𐤑
A	𐤒	𐤓
B	𐤔	𐤕
C	𐤖	𐤗
D	𐤘	𐤙
E	𐤚	𐤛
F	𐤜	𐤝

hex	Name
40	IMPERIAL ARAMAIC LETTER ALEPH
41	IMPERIAL ARAMAIC LETTER BETH
42	IMPERIAL ARAMAIC LETTER GIMEL
43	IMPERIAL ARAMAIC LETTER DALETH
44	IMPERIAL ARAMAIC LETTER HE
45	IMPERIAL ARAMAIC LETTER WAW
46	IMPERIAL ARAMAIC LETTER ZAYIN
47	IMPERIAL ARAMAIC LETTER HETH
48	IMPERIAL ARAMAIC LETTER TETH
49	IMPERIAL ARAMAIC LETTER YODH
4A	IMPERIAL ARAMAIC LETTER KAPH
4B	IMPERIAL ARAMAIC LETTER LAMEDH
4C	IMPERIAL ARAMAIC LETTER MEM
4D	IMPERIAL ARAMAIC LETTER NUN
4E	IMPERIAL ARAMAIC LETTER SAMEKH
4F	IMPERIAL ARAMAIC LETTER AYIN
50	IMPERIAL ARAMAIC LETTER PE
51	IMPERIAL ARAMAIC LETTER SADHE
52	IMPERIAL ARAMAIC LETTER QOPH
53	IMPERIAL ARAMAIC LETTER RESH
54	IMPERIAL ARAMAIC LETTER SHIN
55	IMPERIAL ARAMAIC LETTER TAW
56	(This position shall not be used)
57	(This position shall not be used)
58	IMPERIAL ARAMAIC NUMBER ONE
59	IMPERIAL ARAMAIC NUMBER TWO
5A	IMPERIAL ARAMAIC NUMBER THREE
5B	IMPERIAL ARAMAIC NUMBER TEN
5C	IMPERIAL ARAMAIC NUMBER TWENTY
5D	IMPERIAL ARAMAIC NUMBER ONE HUNDRED
5E	IMPERIAL ARAMAIC NUMBER ONE THOUSAND
5F	IMPERIAL ARAMAIC NUMBER TEN THOUSAND

## A. Administrative

1. Title

**Preliminary proposal for encoding the Imperial Aramaic script in the SMP of the UCS2.**

Requester's name

**Michael Everson**

3. Requester type (Member body/Liaison/Individual contribution)

**Individual contribution.**

4. Submission date

**2007-07-25**

5. Requester's reference (if applicable)

6. Choose one of the following:

6a. This is a complete proposal

**No.**

6b. More information will be provided later

**Yes.**

## B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters)

**Yes.**

1b. Proposed name of script

**Imperial Aramaic.**

1c. The proposal is for addition of character(s) to an existing block

**No.**

1d. Name of the existing block

2. Number of characters in proposal

**30.**

3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)

**Category C.**

4a. Is a repertoire including character names provided?

**Yes.**

4b. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?

**Yes.**

4c. Are the character shapes attached in a legible form suitable for review?

**Yes.**

5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

**Michael Everson.**

5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

**Michael Everson, Fontographer.**

6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

**Yes.**

6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

**Yes.**

7. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

**Yes.**

8. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see Unicode Character Database <http://www.unicode.org/Public/UNIDATA/UnicodeCharacterDatabase.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

**See above.**

## C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

**No.**

2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?

**Yes.**

2b. If YES, with whom?

**Jost Gippert.**

2c. If YES, available relevant documents

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?

**Semiticists and other scholars.**

4a. The context of use for the proposed characters (type of use; common or rare)

**Historical use.**

4b. Reference

5a. Are the proposed characters in current use by the user community?

**Yes.**

5b. If YES, where?

**Scholarly publications.**

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

**No.**

6b. If YES, is a rationale provided?

6c. If YES, reference

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

**Yes.**

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

**No.**

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

**No.**

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

**No.**

10b. If YES, is a rationale for its inclusion provided?

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

**No.**

11b. If YES, is a rationale for such use provided?

11c. If YES, reference

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

**No.**

11e. If YES, reference

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

**No.**

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

**No.**

13b. If YES, is the equivalent corresponding unified ideographic character(s) identified?