

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

Doc Type: Working Group Document**Title: Proposal for encoding the Meroitic script in the SMP of the UCS****Source: UC Berkeley Script Encoding Initiative (Universal Scripts Project)****Author: Michael Everson****Status: Liaison Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2009-05-13**



This document replaces N3484 (2008-08-04), N2134 (1999-10-02), N1638 (1997-09-18), and contains the proposal summary form.

1. Introduction. The Meroitic script appeared with the rise of the Meroitic Kingdom in the third century BCE, though Egyptian writing (both hieroglyphic and demotic) would certainly have been known and was used previously in the Nubian city of Meroë, a city which is about 6 km north-east of the modern Kabushiya station near Shendi, Sudan, about 200 km north-east of modern Khartoum. Meroitic was used until some time after the fall of the Meroitic Empire in the first half of the fourth century CE. The values of the script's characters are known, but the language itself remains unknown, apart from names and a few other words.









2. Structure. The script has a monumental form, derived from Egyptian Hieroglyphs, and a cursive form, derived from Egyptian Demotic, which was used considerably more frequently than the monumental form. Although there is a relationship between Hieroglyphic Meroitic (*l'écriture hiéroglyphique méroïtique*) and Cursive Meroitic (*l'écriture cursive méroïtique*), the argument that the two should be treated as font variants is not compelling. Publications which cite Meroitic in the original script rather than in transliteration regularly preserve the distinction between Hieroglyphic and Cursive script forms. Essentially, there is no usage requirement where any text written in Hieroglyphic Meroitic would be converted into Cursive, or vice versa. Hieroglyphic Meroitic is only used to write texts which were written in Hieroglyphic Meroitic, and Cursive Meroitic is only used to write texts which were written in Cursive Meroitic. The Meroitic script is essentially two script forms used concurrently, but not interchangeably, for the same language. Scholars distinguish, and need to be able to distinguish, in plain text, Hieroglyphic Meroitic from Cursive Meroitic.

Moreover, in origin the two script forms differ historically. Cursive Meroitic developed over a period of time. Most of its characters are very close to the old Ptolemaic demotic of Upper Egypt (332-186 BCE), in particular / O, // YA, X PA, ω RA, ʒ KHA *ha*, ʒ SA, ʒ QA, and the numbers 6, 8, 9, 20, 50, 70, 80, 100, 200, 300, and 800. Rilly 2007:247-262 gives a complete discussion of the origin of each individual Cursive character.

Like Cursive Meroitic, Hieroglyphic Meroitic is first known in various forms dating to the reign of Taneyidamani, at the end of the 2nd century BCE. But whilst the goal of Cursive writing was practical, it appears that the development of the Hieroglyphic form was based in the desire to possess a monumental and decorative version of the Cursive form, and also to participate in the magic power attributed to

Egyptian Hieroglyphs. The set of characters devised for Hieroglyphic all have direct parallels with Egyptian Hieroglyphs, and is larger than that of Cursive Meroitic, which relates not to Egyptian Hieroglyphs, but to the demotic script which is not unified with the Hieroglyphs. One of the reasons Hieroglyphic Meroitic is larger is an evident uncertainty in which Egyptian characters were to be used for various sounds; both  and  are used for *b*—the former (the ram) having the value *b*ᶜ in Egyptian, the latter (the foot) simply *b*. These are also distinguished in current fonts. There is no purely one-to-one relationship between Cursive and Hieroglyphic Meroitic. Hieroglyphic Meroitic is used only for formal inscriptions. There are no private documents written in it.























































The two script forms of Meroitic are treated in this encoding as two *separate* scripts and are encoded in two separate blocks, Meroitic Hieroglyphs and Meroitic.









3. Directionality. The direction of writing is right-to-left, evidently with no exceptions. Unlike Egyptian, where one reads into the faces of the people and animals, in Meroitic, the reading direction follows the way the people and animals are looking. Thus, using arrows to indicate the reading direction, the name *Amūn* (*Imn*, god of Thebes) would be written as *amana* in Meroitic     ← *na-ma-a* ←; in Egyptian Hieroglyphs this would be written  ← with right-to-left directionality,  → with left-to-right directionality. Another way of visualizing this would be that if the *cognate* Egyptian characters were written with right-to-left directionality, they would appear reversed from the Meroitic point of view, thus: Meroitic  ←, Egyptian * ←.

4. Punctuation. Word dividers are employed more or less regularly, to isolate not separate words, but basic elements of sentences—nominal phrases (noun and article, noun and adjective and article, etc) verbal forms, and so on. Three vertical dots are used in Hieroglyphs and early Cursive, though when the Hieroglyphs are set in vertical columns, three horizontal dots are used. It would seem that U+205D TRICOLON ∴ and U+2026 HORIZONTAL ELLIPSIS … can serve this function. In later Cursive texts this became reduced to a COLON :, used with some irregularity.

5. Numbers. Meroitic numbers are fairly well known. Ones, tens, hundreds, and thousands are known; characters for 60, 90, and 900 are not yet known; neither are the numbers for 4,000, 6,000, 7,000, 8,000, and 9,000, though the number for 10,000 is cited in secondary literature (a number chart, see Figure 4). There is a system to the number shapes, as there are in Egyptian Hieratic, so gaps have been left in the code table for the numbers as yet unattested.

6. Ordering. Meroitic ordering interfiles the Cursive and Hieroglyphic script forms as well as the encoded variants:

 *a*^c >>  *a*^h >  *e*^c >>  *e*^h >  *o*^c >>  *o*^h >  *i* >>  *y* >>  *ya*^c >>  *ya*^h >
 *wa*^c >>  *wa*^h >  *ba*^c >>  *ba*^h >>  *ba*^{h2} >  *pa*^c >>  *pa*^h >  *ma*^c >>  *ma*^h >
 *na*^c >>  *na*^h >>  *na*^{h2} >  *ne*^c >>  *ne*^h >>  *ne*^{h2} >  *ra*^c >>  *ra*^h >>  *ra*^{h2} >
 *la*^c >>  *la*^h >  *ha*^c >>  *ha*^h >  *ha*^c >>  *ha*^h >  *sa*^c >>  *sa*^{c2} >>  *sa*^h >>  *sa*^{h2} >
 *se*^c >>  *se*^h >  *ka*^c >>  *ka*^h >  *qa*^c >>  *qa*^h >  *ta*^c >>  *ta*^h >>  *ta*^{h2} >
 *te*^c >>  *te*^h >>  *te*^{h2} >  *to*^c >>  *to*^{h2} >  *da*^c >>  *da*^h

7. Names. Meroitic has four vowels, namely *a*, *e*, *i* and *o* and a semivowel *y*. The vowel *a* is only written when it is an initial; *e*, *i*, and *o* are also written within words. Meroitic has two types of consonants. A few consonants are combined with a vowel, namely *ne*, *se*, *te*, and *to*; the other consonants are single consonants, each of which is followed by a vowel (*e*, *i*, *o*) in the inscriptional records. If there is no vowel inserted between two consonants, the consonant is read with an inherent *a*. For example, the Meroitic royal title is *qore*, written     or     (*q + o + r + e*); the title of the supreme commander of the

army is *paqara*, written $\omega \rho \xi$ or $\cdot \square \Delta \xi$ ($p + q + r$). In the character names, the inherent *-a* is used for the consonants and the rest of the names follow the usual UCS conventions.

8. Issues. At least twenty-four symbols are known, many used in conjunction with numbers and are perhaps determinatives of different types of goods. A number of these with very similar glyphs may not be unique characters at all. Further study of these is required. They are left for future standardization.

9. Unicode Character Properties.

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10980;MEROITIC HIEROGLYPHIC LETTER A;Lo;0;R;;;;N;;;;;
10981;MEROITIC HIEROGLYPHIC LETTER E;Lo;0;R;;;;N;;;;;
10982;MEROITIC HIEROGLYPHIC LETTER I;Lo;0;R;;;;N;;;;;
10983;MEROITIC HIEROGLYPHIC LETTER O;Lo;0;R;;;;N;;;;;
10984;MEROITIC HIEROGLYPHIC LETTER YA;Lo;0;R;;;;N;;;;;
10985;MEROITIC HIEROGLYPHIC LETTER WA;Lo;0;R;;;;N;;;;;
10986;MEROITIC HIEROGLYPHIC LETTER BA;Lo;0;R;;;;N;;;;;
10987;MEROITIC HIEROGLYPHIC LETTER BA-2;Lo;0;R;;;;N;;;;;
10988;MEROITIC HIEROGLYPHIC LETTER PA;Lo;0;R;;;;N;;;;;
10989;MEROITIC HIEROGLYPHIC LETTER MA;Lo;0;R;;;;N;;;;;
1098A;MEROITIC HIEROGLYPHIC LETTER NA;Lo;0;R;;;;N;;;;;
1098B;MEROITIC HIEROGLYPHIC LETTER NA-2;Lo;0;R;;;;N;;;;;
1098C;MEROITIC HIEROGLYPHIC LETTER NE;Lo;0;R;;;;N;;;;;
1098D;MEROITIC HIEROGLYPHIC LETTER NE-2;Lo;0;R;;;;N;;;;;
1098E;MEROITIC HIEROGLYPHIC LETTER RA;Lo;0;R;;;;N;;;;;
1098F;MEROITIC HIEROGLYPHIC LETTER RA-2;Lo;0;R;;;;N;;;;;
10990;MEROITIC HIEROGLYPHIC LETTER LA;Lo;0;R;;;;N;;;;;
10991;MEROITIC HIEROGLYPHIC LETTER KHA;Lo;0;R;;;;N;;;;;
10992;MEROITIC HIEROGLYPHIC LETTER HHA;Lo;0;R;;;;N;;;;;
10993;MEROITIC HIEROGLYPHIC LETTER SA;Lo;0;R;;;;N;;;;;
10994;MEROITIC HIEROGLYPHIC LETTER SA-2;Lo;0;R;;;;N;;;;;
10995;MEROITIC HIEROGLYPHIC LETTER SE;Lo;0;R;;;;N;;;;;
10996;MEROITIC HIEROGLYPHIC LETTER KA;Lo;0;R;;;;N;;;;;
10997;MEROITIC HIEROGLYPHIC LETTER QA;Lo;0;R;;;;N;;;;;
10998;MEROITIC HIEROGLYPHIC LETTER TA;Lo;0;R;;;;N;;;;;
10999;MEROITIC HIEROGLYPHIC LETTER TA-2;Lo;0;R;;;;N;;;;;
1099A;MEROITIC HIEROGLYPHIC LETTER TE;Lo;0;R;;;;N;;;;;
1099B;MEROITIC HIEROGLYPHIC LETTER TE-2;Lo;0;R;;;;N;;;;;
1099C;MEROITIC HIEROGLYPHIC LETTER TO;Lo;0;R;;;;N;;;;;
1099D;MEROITIC HIEROGLYPHIC LETTER DA;Lo;0;R;;;;N;;;;;
109A0;MEROITIC LETTER A;Lo;0;R;;;;N;;;;;
109A1;MEROITIC LETTER E;Lo;0;R;;;;N;;;;;
109A2;MEROITIC LETTER I;Lo;0;R;;;;N;;;;;
109A3;MEROITIC LETTER O;Lo;0;R;;;;N;;;;;
109A4;MEROITIC LETTER YA;Lo;0;R;;;;N;;;;;
109A5;MEROITIC LETTER WA;Lo;0;R;;;;N;;;;;
109A6;MEROITIC LETTER BA;Lo;0;R;;;;N;;;;;
109A7;MEROITIC LETTER PA;Lo;0;R;;;;N;;;;;
109A8;MEROITIC LETTER MA;Lo;0;R;;;;N;;;;;
109A9;MEROITIC LETTER NA;Lo;0;R;;;;N;;;;;
109AA;MEROITIC LETTER NE;Lo;0;R;;;;N;;;;;
109AB;MEROITIC LETTER RA;Lo;0;R;;;;N;;;;;
109AC;MEROITIC LETTER LA;Lo;0;R;;;;N;;;;;
109AD;MEROITIC LETTER KHA;Lo;0;R;;;;N;;;;;
109AE;MEROITIC LETTER HHA;Lo;0;R;;;;N;;;;;
109AF;MEROITIC LETTER SA;Lo;0;R;;;;N;;;;;
109B0;MEROITIC LETTER ARCHAIC SA;Lo;0;R;;;;N;;;;;
109B1;MEROITIC LETTER SE;Lo;0;R;;;;N;;;;;
109B2;MEROITIC LETTER KA;Lo;0;R;;;;N;;;;;
109B3;MEROITIC LETTER QA;Lo;0;R;;;;N;;;;;
109B4;MEROITIC LETTER TA;Lo;0;R;;;;N;;;;;
109B5;MEROITIC LETTER TE;Lo;0;R;;;;N;;;;;
109B6;MEROITIC LETTER TO;Lo;0;R;;;;N;;;;;
109B7;MEROITIC LETTER DA;Lo;0;R;;;;N;;;;;
109BC;MEROITIC LOGOGRAM RMT;Lo;0;R;;;;N;;;;;
109BD;MEROITIC LOGOGRAM IMN;Lo;0;R;;;;N;;;;;
109BE;MEROITIC SYMBOL VIDJ;So;0;R;;;;N;;;;;
109BF;MEROITIC SYMBOL VIDJ-2;So;0;R;;;;N;;;;;
109C0;MEROITIC FRACTION ONE HALF;No;0;R;;;;1/2;N;;;;;
109C1;MEROITIC FRACTION ONE TWELFTH;No;0;R;;;;1/12;N;;;;;
109C2;MEROITIC FRACTION TWO TWELFTHS;No;0;R;;;;2/12;N;;;;;
109C3;MEROITIC FRACTION THREE TWELFTHS;No;0;R;;;;3/12;N;;;;;
109C4;MEROITIC FRACTION FOUR TWELFTHS;No;0;R;;;;4/12;N;;;;;
109C5;MEROITIC FRACTION FIVE TWELFTHS;No;0;R;;;;5/12;N;;;;;
109C6;MEROITIC FRACTION SIX TWELFTHS;No;0;R;;;;6/12;N;;;;;

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109C7;MEROITIC FRACTION SEVEN TWELFTHS;No;0;R;;;7/12;N;;;;;
109C8;MEROITIC FRACTION EIGHT TWELFTHS;No;0;R;;;8/12;N;;;;;
109C9;MEROITIC FRACTION NINE TWELFTHS;No;0;R;;;9/12;N;;;;;
109CA;MEROITIC FRACTION TEN TWELFTHS;No;0;R;;;10/12;N;;;;;
109CC;MEROITIC NUMBER ONE;No;0;R;;;1;N;;;;;
109CD;MEROITIC NUMBER TWO;No;0;R;;;2;N;;;;;
109CE;MEROITIC NUMBER THREE;No;0;R;;;3;N;;;;;
109CF;MEROITIC NUMBER FOUR;No;0;R;;;4;N;;;;;
109D0;MEROITIC NUMBER FIVE;No;0;R;;;5;N;;;;;
109D1;MEROITIC NUMBER SIX;No;0;R;;;6;N;;;;;
109D2;MEROITIC NUMBER SEVEN;No;0;R;;;7;N;;;;;
109D3;MEROITIC NUMBER EIGHT;No;0;R;;;8;N;;;;;
109D4;MEROITIC NUMBER NINE;No;0;R;;;9;N;;;;;
109D5;MEROITIC NUMBER TEN;No;0;R;;;10;N;;;;;
109D6;MEROITIC NUMBER TWENTY;No;0;R;;;20;N;;;;;
109D7;MEROITIC NUMBER THIRTY;No;0;R;;;30;N;;;;;
109D8;MEROITIC NUMBER FORTY;No;0;R;;;40;N;;;;;
109D9;MEROITIC NUMBER FIFTY;No;0;R;;;50;N;;;;;
109DB;MEROITIC NUMBER SEVENTY;No;0;R;;;70;N;;;;;
109DC;MEROITIC NUMBER EIGHTY;No;0;R;;;80;N;;;;;
109DE;MEROITIC NUMBER ONE HUNDRED;No;0;R;;;100;N;;;;;
109DF;MEROITIC NUMBER TWO HUNDRED;No;0;R;;;200;N;;;;;
109E0;MEROITIC NUMBER THREE HUNDRED;No;0;R;;;300;N;;;;;
109E1;MEROITIC NUMBER FOUR HUNDRED;No;0;R;;;400;N;;;;;
109E2;MEROITIC NUMBER FIVE HUNDRED;No;0;R;;;500;N;;;;;
109E3;MEROITIC NUMBER SIX HUNDRED;No;0;R;;;600;N;;;;;
109E4;MEROITIC NUMBER SEVEN HUNDRED;No;0;R;;;700;N;;;;;
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109F0;MEROITIC NUMBER TEN THOUSAND;No;0;R;;;10000;N;;;;;

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