# **Unencoded Written Elements of Ethiopic Manuscripts**

## **Overview**

This document reviews written elements found in Ethiopic calligraphic manuscripts of every era and identifies those elements not already encoded by the Unicode standard. The contextual use of each element is then described with references and samples provided. The goal of this document is to record sufficient information about each element such that the appropriate software support can be determined to assure the faithful and unerring presentation and transmision of the element. Follow up efforts would then address the assessed support required for the elements in applicable software standards.

This document is being circulated amongst expert reviewers with specializations in Ethiopic manuscripts. The symbol inventory is by no means exhaustive and reviewers are invited to propose any additional elements of writing not found in the collection presented here. A final report will be produced following the collection of reviewer input.

## **Summary**

In reviewing and categorizing written elements from a sampling of Ethiopic manuscripts, a small number of symbol categories emerged. Symbols found were most often *numeral forms*, *rubricated punctuation*, *tonal sequences* of qirts, *utility* and *reference markers*. Separate from symbol categories, Software Support Categories were assigned to each written symbol to suggest the symbol could best be addressed by modern publishing software. A review of Software Support Categories follows:

### **Software Support Categories**

**Alternative Glyph –** The symbol is a written variation of an encoded element. While embodying no difference in semantics, the alternative form is essential for document reproduction. The glyph may be supported in a special typeface or in a stylistic set.

**Graphical –** The element does not represent a symbol from a written language and should be reproduced in documents by some other means.

**Ligature –** The element represents a joined form of two or more symbols.

**Kerning Pair –** The element represents an aesthetic spacing of two or more symbols.

**New Code Point –** The element has unique semantics and deemed essential to publishing. This would be the expected case for symbols used in publishing currently that do not satisfy the criteria for other categories.

**Not Required –** The symbol is deemed unnecessary for document reproduction and may be ignored. This categorization is most frequent for symbol shapes and edit marks particular to a given scribe.

**Private Use –** The element has unique semantics but is not required for general manuscript reproduction. For example, private use symbols that would be used for the reproduction of a single document.

### **Symbol Names**

To fascilitate discussion of the symbols, provisional names in both Ge’ez and English languages have been assigned to each symbol. Symbol names are intended to be clear and unambiguous for the element they are describing. In almost every case, a pre-existing name for a symbol was unknown a new name had to be devised. A naming precedence was applied where available, however constructing simple and easily understood names for some symbols proved difficult. Most noteably for the many numeral styles.

Reviewers are requested to propose names that could be more readily understood. In addition to the English monikers, which in turn are translations of the Ge’ez names, Unciode style names in English are assigned to each symbol following established naming conventions for Ethiopic under the Unicode standard.

## **Tabulated Inventory of Unencoded Mansucript Elements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Vertical Sequences (60)** | | | |
|  | Deret-Deret | U+F4B8 | Selot Kidasie p. 87, 231  Zimarie Wemewasit p. (Z) 2, 7, 8, 9, 21, 24, 30, 34 |
|  | Deret-Difat | U+F4B9 | Digua p. 76, 94, 290  Tsome Digua p. 116, 136, 184  Me’eraf p. 66, 71, 73, 99, 107, 112, 122  Zimarie Wemewasit p. (Z) 34, 68 |
|  | Difat-Deret | U+F4BA | Digua p. 18, 75, 93, 94, 395, 284, 285, 290,374, 376, 395  Tsome Digua p. 28, 31, 93, 121, 132, 133, 175, 182, 183, 185  Me’eraf p. 20, 25, 33, 62, 69, 80, 93, 123, 124  Ziq p. 25, 123  Merha Liqawnt p.22, 128  Zimarie Wemewasit p. (Z) 2, 8, 15 |
|  | Difat-Difat | U+F4BB | Selot Kidasie p. 17, 129, 231  Zimarie Wemewasit p. 1-  Digua p. 18, 75, 76, 79, 97, 101, 376  Tsome Digua p. 92, 121  Me’eraf p. 50, 51, 71, 74, 80, 86, 92, 109, 107, 109, 114, 123, 166  Ziq p. 8, 13, 17, 21, 27, 29, 32, 33, 66, 80, 84, 94, 121 |
|  | Deret-Deret-Deret | U+F4BC | *A potential symbol not yet observed* |
|  | Deret-Difat-Deret | U+F4BD | Zimamie p. 52, 63, 80, 128, 141, 142, 143, 145, 147, 148, 150, 154, 155, 157 |
|  | Deret-Difat-Difat | U+F4BE | Zimarie Wemewasit p. (Z) 15  Zimamie p. 72, 80, 87, 148, 150, 151, 221, 223 |
|  | Difat-Deret-Deret | U+F4BF | Zimarie Wemewasit p. (M) 14, Zimamie p. 2 |
|  | Difat-Deret-Difat | U+F4C0 | Me’eraf p. 86, 92, 109, 114  Zimarie Wemewasit p. (Z) 1, 15, 18,  Zimamie p. 140 |
|  | Difat-Difat-Deret | U+F4C1 | Zimarie Wemewasit p. (Z) 1, 16, 68, 121 |
|  | Difat-Difat-Difat | U+F4C2 | Tsome Digua p. 121  Zimarie Wemewasit p. (Z) 1, 2, 4, 15, 16, 18, 52, 68 |
|  | Deret-Difat-Deret-Difat | U+F4C5 | Zimarie Wemewasit p. 21  Zimamie p. 122 |
|  | Deret-Difat-Difat-Deret | U+F4EE | Zimamie p. 92 |
|  | Deret-Difat-Difat-Difat | U+F4C3 | Zimamie p. 73 |
|  | Difat-Difat-Difat-Difat | U+F4C4 | Zimarie Wemewasit p.108 (might be 2 rows of ) |
|  | Difat-Deret-Deret-Difat | U+F4C6 | Me’eraf p. 74 Zimarie Wemewasit p.102 (3rd column) |
|  | Difat-Deret-Difat-Deret | U+F4C7 | Digua p. 395, Zimamie p. 72 |
|  | Deret-Difat-Deret-Difat-Deret | U+F4EF | Zimamie p. 115 |
|  | Difat-Deret-Difat-Deret-Deret | U+F4C8 | Zimarie Wemewasit p.95, 102  (3rd column) |
|  | Difat-Left-Chiret | U+F4C9 | Merha Liqawnt p.1-,  Zimarie p. 1,  Zimamie p. 34, 74 |
|  | Difat-Chiret | U+F4CA | Zimamie p. 10, 69, 72, 136, 148, 187 |
|  | Chiret-Deret | U+F4D1 | Zimamie p. 72 |
|  | Chiret-Difat | U+F4D2 | Zimarie Wemewasit p. 35, 36, 38, 39, 42  Me’eraf p. 15, 87, 93, Merha Liqawnt p. 4, Digua p. 395 |
|  | Chiret-Hidet / Chiret-with-Bar | U+F4D3 | Zimarie Wemewasit p. 1, 3, 4, 5, 13, 14, 15, 17, 20, 21, 42 (bottom-right), 50, 94, 95, 100, 121 |
|  | Deret-Deret-Chiret | U+F4CB | Zimamie p. |
|  | Deret-Deret-Chiret-Chiret | U+F610 |  |
|  | Yizet-Difat-Diret-Chiret | U+F607 | 9 |
|  | Deret-Difat-Chiret | U+F4CC | Zimamie p. 7, 9, 10 |
|  | Difat-Deret-Chiret | U+F4CD | Zimamie p. 10, 11, 35, 56, 59, 70 |
|  | Difat-Difat-Chiret | U+F4CE | Zimamie p. 11, 56, 70, 75  Zimarie Wemewasit p. 95, 99,  Merha Liqawnt p. 35 |
|  | Deret-Dfiat-Chiret-Deret | U+F4CF | Zimamie p. 63, 70 |
|  | Deret-Difat-Deret-Chiret | U+F4D0 | Zimamie p. 78, 147 |
|  | Difat-Difat-Deret-Chiret-Chiret | U+F611 | Zimamie p. 7 |
|  | Rejim-Rikrik | U+F618 | Moges 66(l) |
|  | Hasir-Dimits-Rikrik-Chiret | U+F4D9 | Zimamie p. 35,  Zimarie Wemewasit p. 5, 8, 9, 10, 12, 16, 52 |
|  | Yizet-Deret | U+F4DB | Zimamie p. 72 |
|  | Hasir-Dimits-Rikrik-Deret | U+F4DC | Zimarie Wemewasit p. 1, 34, 52 |
|  | Rikrik-Deret | U+F619 | Moges 66(l) |
|  | Hasir-Dimits-Rikrik-Difat | U+F4DD | Zimarie Wemewasit p. (Z) 36, 95, 99, (M) 14, Zimamie p. 75 |
|  | Rikrik-Difat | U+F61A | Zimarie Wemewasit p. (Z) 221 |
|  | Deret-Hasir-Dimits-Rikrik | U+F4DE | Zimamie p. 73,  Zimarie Wemewasit p. 2 |
|  | Deret-Hasir-Dimits-Rikrik | U+F4DF | Zimarie Wemewasit p. 4, 5,  Zimamie p. 36, 50 |
|  | Yizet-Chiret | U+F4EC | Zimamie p. 10 |
|  | Deret-Difat-Hasir-Dimits-Rikrik | U+F4ED | Zimamie p. 36 |
|  | Difat-Difat-Hasir-Dimits-Rikrik | U+F615 |  |
| *TBD* | Deret-Hidet-Chiret |  | Zimarie Wemewasit p. 62 (review with Moges) |
| ** | Chiret-Hidet | U+F612 | Moges p. 134 |
|  | Qenat-Hidet | U+F4EA |  |
|  | Hasir Dimits Rikrik Hidet | U+F617 |  |
|  | Rikrik Hidet | U+F4E0 | Moges 1- |
|   | Yizet-Hidet | U+F60D, U+F60F | Moges p. 5(l) |
|    | Hidet-Yizet | U+F60C,  U+F60E | Moges p. 4(r) |
|   | Yizet-Yizet-Hidet | U+F609, U+F60A | Zimarie Wemewasit p. (Z) 52 (in red), 109 (top right), Moges p. 3(l), 66(l) |
|   | Hidet-Yizet-Yizet | U+F608,  U+F60A | Zimarie Wemewasit p. (Z) 95 |
|  | Difat-Hidet | U+F4E4, U+F4E5 | Tsome Digua p. 121 (3 examples) Ziq p. 101 (2nd column, middle page, disjoint)  Moges 19(r), 66(l) |
|  | Difat-Hidet-Deret | U+F616 |  |
| **Lateral Sequences (10)** | | | |
|  | Chiret-Chiret | U+F4D4 | Merha Liqawnt p. 19, YeZaima Arist Milikt p. 25, 190  Zimarie Wemewasit p. 4- |
|  | Chiret-Chiret-Chiret | U+F4D5 | YeZaima Arist Milikt p. 25, Zimamie (common) p. 13- |
|  | Four-Chiret | U+F4D6 | Zimamie (common)  p. 6, 10- |
|  | Five-Chiret | U+F4D7 | Zimamie p. 240-242 |
| ᎖᎔ | Difat-Left-Chiret |  | Ziq p. 42 |
| ᎓᎔ | Hasir-Dimits-Rikrik-Difat (horizontal?) |  | Zimarie Wemewasit p.2,4 |
| ᎖᎓ | Chiret-Hasir-Dimits-Rikrik |  | Zimarie Wemewasit p. 14, 51 |
|  | Hasir-Dimits-Rikrik-Chiret | U+F4D8 | Ziq p. 42,44, 45, 226  (2nd part መዝሙር ዘዘወረደ) 31, 32,  Zimarie Wemewasit p. 11, 36 |
| ᎒᎖᎓ | Rikrik-Chiret-Hasir-Dimits-Rikrik |  | Ziq. 100, 101 |
|  | Combining Hidet | U+F4E3 | Me’eraf p. 149 (used in a spanning deret-hidet)  Ziq p. 116 (used in a spanning deret-hidet) |
| **Qirts Variant Glyphs (5)** | | | |
|  | Forward Slanted Short Rikrik | U+F613 | Moges 1 |
|  | Back Slanted Short Rikrik | U+F614 | Moges 11(l), 49 |
|  | Forward Slanted Rikrik | U+F4E1 | Moges’ Book p. 49(l), 153 or 154  Zimarie p. 68 |
|  | Back Slanted Rikrik | U+F4E2 | Me’eraf 60-63  Tsome Digua 121, Zimarie Wemewasit 68,  Moges 1, 6(r), 49 |
|  | Kenat Alternative | U+F4EB | Moges 6 - |
| **Zaima Other (4)** | | | |
|  | Meta-Chiret | U+F4DA | Zimamie p. 1- |
|  | Wede Qegn (?) | U+F4B7 | Zimamie p. 1- |
|  | Meta, or Yizet-Meta | U+F4B6 | Moges |
|  | Unvoiced Mark | U+F50F | Moges |
| **Utility Marks (10)** | | | |
|  | *TBD* | U+F4A9 | Zimarie Wemewasit p. 68, 72, 151 |
|  | Insertion Mark (Mesay?) | U+F4B2 | Zimarie Wemewasit p. 17, 27, 32, 55, 58, 101, 110, 138 (M) 15,  Digua p. 307  Tsome Digua p. 19, 114,  Me’eraf 175  Ziq . 28, 78, 83, 38 (መዝሙር ዘደግረ ዘይት) Zimamie p. 30, 50, 79, 81, 110,150  Merha Liqawnt p. 12, 70, 103, 112, 125, 133, 149, 170 |
|  | Inverted Insertion Mark | U+F4B3 | Merha Liqawnt p. 33, 34, 56, 57, 62, 63, 69, 100, 108, 111, 118, 132, 138, 139  Zimamie p. 140 (red), 243  Ziq p. 212 |
|  | Left Insertion Mark | U+F4B4 | *A potential symbol not yet observed* |
|  | Right Insertion Mark | U+F4B5 | Merha Liqawnt p. 87, 139 |
|  | Mekfel | U+F4AA | Digua p. 387  Moges Aquaquam p. 77 |
|  | Selestu Neteb | U+F4E9 | Derus Tsion p. 19- |
|  | Harreg | Graphical | Regularly occuring |
|  | Mecheresha | U+F4F5 |  |
|  | Long Mecheresha ? | U+F4F6 |  |
| **Ligatures (2)** | | | |
|  | E-L Ligature | U+F500 |  |
|  | G-Zi Ligature | U+F501 | Ziq p. 11, 19, 22, 25, 26, 40, 42, 49, 54, 55, 81, 99, 226, 227 Zimamie p. 10, 34, 49, 135 Zimarie Wemewasit (Z) p. 4, 6, 7, 11 (M) p. 14 |
| **Rubricated Punctuation (9)** | | | |
|  | Rubricated Ethiopic Wordspace | U+F4F0, U+F4F1 |  |
|  | Rubricated Ethiopic Fullstop | U+F4F2 |  |
|  | Rubricated Ethiopic Semicolon | U+F4F3, U+F4F4 |  |
|  | Rubricated Ethiopic Comma |  | *A potential symbol not yet observed* |
|  | Rubricated Ethiopic Colon |  | *A potential symbol not yet observed* |
|  | Rubricated Ethiopic Paragraph Mark |  | *A potential symbol not yet observed* |
|  | Ethiopic Wordspace with Pen Drag | U+F4E6 |  |
|  | Ethiopic Fullstop with Pen Drag | U+F4E7 |  |
|  | Rubricated Ethiopic Fullstop with Pen Drag | U+F4FC |  |
|  | Pen Drag Continuation | U+F4E8 |  |
| **Numeral Forms (86)** | | | |
|  | ፩ዱ፡(አሐዱ)፣ምዕራፍ፣ዜማ/ዓራራይ፣ | U+F415 |  |
|  | ፫፡(ሠለስተ)፣ጾመ፡ድጓ፣ዜማ/ግዕዝ፣ | U+F417 |  |
|  | ፴፡(ሠላሳ)፣ዜማ/ዓራራይ፣ | U+F420 |  |
|  –  | Numerals Without Numeral Bars | U+F400 –  U+F414 |  |
|  –  | Numerals Without Lower Numeral Bar | U+F415 –  U+F429 |  |
|  –  | Numerals With Rubricated Bodies and Without Lower Numeral Bar | U+F42A –  U+F43E |  |
|  –  | Numerals With Rubricated Numeral Bars and Without Lower Numeral Bar | U+F43F –  U+F453 |  |
|  –  | Numerals With Rubricated Bodies and Numeral Bar Serif and Without Lower Numeral Bar | U+F454 –  U+F468 |  |
|  –  | Numerals With Rubricated Bodies | U+F469 –  U+F47D |  |
|  –  | Numerals With Rubricated Numeral Bars | U+F47E –  U+F491 |  |
|  –  | Numerals With Rubricated Bodies and Numeral Bar Serifs | U+F493 –  U+F4A6 |  |
|  –  | Numerals With Rubricated Numeral Bar Serifs | U+F510 –  U+F514 |  |
|  | Ethiopic Number Conjunctive Ten | U+F4A8 | Zimarie Wemewasit p. 1, 23, 55, 60, 63 (rubricated), 71, 82 (2 occuramces, 1 rubricated), 84 (2 occurances), 85 (3 occurances), 86 (3 occurances, compare with ጐ with bars on page 46), 101, 120,  Or 480, 14th century -15th century, ኦሪት The Octateuch, (Genesis, Exodus, Leviticus, Numbers, Deuteronomy, Joshua, Judges, Ruth) |
|  | Ethiopic Number Conjunctive Ten Without Numeral Bars | U+F414 |  |
|  | Ethiopic Number ConjunctiveTen With Rubricated Numeral Bar Serifs | U+F4A7 |  |
|  | Ask Moges about the red bars |  | Merha Liqawnt p.30,66 |

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**Reference Font Addresses**

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|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| F40 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F41 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F42 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F43 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F44 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F45 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F46 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F47 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F48 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F49 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F4A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F4B |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F4C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F4D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F4E |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F4F |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| F50 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F51 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F52 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F53 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| F60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F61 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **Magic Plane (Supplementary Private Use Area-A)**

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|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| F000 | 󰀀 | 󰀁 | 󰀂 | 󰀃 | 󰀄 | 󰀅 |  | 󰀇 | 󰀈 | 󰀉 | 󰀊 | 󰀋 | 󰀌 |  |  |  |
| F001 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F002 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F003 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |