**Registration of Military Message Handling System (MMHS) header fields
for use in Internet Mail
draft-melnikov-mmhs-header-fields-00**

Abstract

   A Miltary Message Handling System (MMHS) processes formal messages
   ensuring release, distribution, security, and timely delivery across
   national and international strategic and tactical networks. The MMHS
   Elements of Service are defined as a set of extensions to the ITU-T
   X.400 (1992) international standards and are specified in STANAG 4406
   Edition 2. This document describes a method for enabling those MMHS
   Elements of Service that are defined as Heading Extension to be
   encoded as RFC 5322 (Internet Email) message header fields. These
   header field definitions support the provision of a STANAG 4406 MMHS
   over Internet Email, and also provides for a STANAG 4406 / Internet
   Email Gateway supporting message conversion compliant to this
   specification.

Status of This Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

   Internet-Drafts are working documents of the Internet Engineering
   Task Force (IETF). Note that other groups may also distribute
   working documents as Internet-Drafts. The list of current Internet-
   Drafts is at http://datatracker.ietf.org/drafts/current/.

   Internet-Drafts are draft documents valid for a maximum of six months
   and may be updated, replaced, or obsoleted by other documents at any
   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on September 8, 2011.

Copyright Notice

Table of Contents

1. Introduction

[RFC5322] defines a protocol for the format of electronic messages
exchanged on the Internet. MMHS is a military specification defined
in STANAG 4406 [STANAG-4406] which defines a number of extensions to
the basic X.400 (1992) protocol for the services required by military
mail.

This document enables the provision of most of the elements of
service defined in STANAG 4406 [STANAG-4406] for Internet Email.
This specification is written to extend the MIXER specification
[RFC2156] to enable inter-conversion in a MIXER gateway with the
X.400 IPMS heading extensions defined in STANAG 4406 Annex A.

The document is primarily aimed at the ability to represent MMHS
messages in RFC 5322. The RFC 5322 header fields defined are
prefixed with the string "MMHS-" to distinguish them from any other
header fields.

2. Conventions Used in This Document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
"SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
document are to be interpreted as described in [RFC2119].

The formal syntax use the Augmented Backus-Naur Form (ABNF) [RFC5234]
notation including the core rules defined in Appendix B of RFC 5234
[RFC5234].

3. Registration Templates

Header field entries are summarized in tabular form for convenience
of reference and presented in full in the following sections.

Any header field specified in this document MUST NOT appear more than
once in message headers.

3.1. Permanent MMHS Header Field Registrations

```
+----------------------------------+----------+---------------------+
| Header name                      | Protocol | Reference           |
+----------------------------------+----------+---------------------+
| MMHS-Exempted-Address            | mail     | [STANAG-4406], A1.1 |
|                                  |          | and B.105           |
| MMHS-Extended-Authorisation-Info | mail     | [STANAG-4406], A1.2 |
|                                  |          | and B.106           |
| MMHS-Subject-Indicator-Codes     | mail     | [STANAG-4406], A1.3 |
|                                  |          | and B.107           |
| MMHS-Handling-Instructions       | mail     | [STANAG-4406], A1.4 |
|                                  |          | and B.108           |
| MMHS-Message-Instructions        | mail     | [STANAG-4406], A1.5 |
|                                  |          | and B.109           |
| MMHS-Codress-Message-Indicator   | mail     | [STANAG-4406], A1.6 |
|                                  |          | and B.110           |
| MMHS-Originator-Reference        | mail     | [STANAG-4406], A1.7 |
|                                  |          | and B.111           |
| MMHS-Primary-Precedence          | mail     | [STANAG-4406], A1.8 |
|                                  |          | and B.101           |
| MMHS-Copy-Precedence             | mail     | [STANAG-4406], A1.9 |
|                                  |          | and B.102           |
| MMHS-Message-Type                | mail     | [STANAG-4406],      |
|                                  |          | A1.10 and B.103     |
| MMHS-Other-Recipient-Indicator   | mail     | [STANAG-4406],      |
|                                  |          | A1.12 and B.113     |
| MMHS-Acp127-Message-Identifier   | mail     | [STANAG-4406],      |
|                                  |          | A1.14 and B.116     |
| MMHS-Originator-PLAD             | mail     | [STANAG-4406],      |
|                                  |          | A1.15 and B.117     |
+----------------------------------+----------+---------------------+
```

3.2. Header field: MMHS-Exempted-Address

```
Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor5: this document]]
```

The exempted address header field, by its presence indicates the
addresses of members in an Address List (AL) that should not receive
the message. If this extension is absent from the Extensions heading
field, all members of an AL will be considered to be valid recipients
of the message. Note: There is no guarantee that the exempted
addresses will not receive the message as the result of redirection,
Distribution List (DL) expansion, etc.

Example:
MMHS-Exempted-Address: UK SHL CGT Samuals G
 <graham.samuals@shl.example.com>, UK SHL Duty Officer
<duty@shl.example.com>

3.3. Header field: MMHS-Extended-Authorisation-Info

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor7: this document]]

The extended authorisation info header field, by its presence
indicates either the date and the time when the message was
officially released by the releasing officer or the date and time
when the message was submitted to a communication facility for
transmission.

This header field SHOULD always be present in an email message which
complies with this specification.

Example:
MMHS-Extended-Authorisation-Info:
 Mon, 09 Aug 2010 15:27:40 +0200

The example above demonstrates use of folding white space (FWS
[RFC5322]).

3.4. Header field: MMHS-Subject-Indicator-Codes

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor9: this document]]

The subject indicator codes (SIC) header field, by its presence
indicates distribution information to a recipient or a recipient's
User Agent. This information can be used to perform automatic or
manual local distribution of a message. If this header field is
absent, then the local distribution will be in accordance with the
message handling policy of the recipient's domain.

[STANAG-4406] specifies two optional components of the Distribution
Code Element of Service. This header field covers only the SIC code
variant of distribution codes. SICs are the published, nested codes
that provide information for message distribution after delivery to
the recipient organisation.

Example:
MMHS-Subject-Indicator-Codes: SDM; KKZ ; BRL

The example above includes 3 SIC codes: "SDM" (GROUND/LAND
REQUIREMENTS), "KKZ" (HELICOPTER PUBLICATIONS/MANUALS) and "BRL"
(HILEX INCIDENTS).

3.5. Header field: MMHS-Handling-Instructions

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor11: this document]]

The handling instructions header field, by its presence indicates
human readable local handling instructions that requires some manual
handling by a traffic operator. If this header field is absent the
message will be considered as not requiring manual handling by a
traffic operator.

Handling instructions (also called transmission instructions) are a
part of format line 4 as defined in ACP 127, and concern the sending
of the message, e.g. that a particular system shall be used for
transfer of the message.

This header field is used only to support interoperability with ACP
127 systems. It is not a necessity within the MMHS and is for
transition purposes only.

Example:
MMHS-Handling-Instructions: ZNY; RRRRR

The example above includes 2 ACP127(G) handling instructions
examples: "ZNY" and "RRRRR". "ZNY" indicates that the message is
transmitted over networks that meet security criteria for classified
handling. "RRRRR" indicates that the network must be at least of
Restricted Sensitivity for transmitting the message.

3.6. Header field: MMHS-Message-Instructions

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor13: this document]]

The message instructions header field, by its presence indicates
message instructions accompanying the message (e.g., similar to the
operating signals specified in ACP 131). If this header field is

absent the message will be considered received without message
instructions.

The difference between Handling instructions and Message instructions
is that the former is only for manual handling by traffic operators,
while the latter also contains information of interest to the persons
reading the message.

Example:
MMHS-Message-Instructions: MINIMIZE CONSIDERED; NO DISTRIBUTION

The example above includes 2 ACP123(B) defined message instructions:
"MINIMIZE CONSIDERED" indicating that the originating user has
considered the Minimize status of the recipients and "NO
DISTRIBUTION", indicating that the recipients should not distribute
the message further without the originating user's approval.

3.7. Header field: MMHS-Codress-Message-Indicator

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor15: this document]]

The codress message indicator header field, by its presence indicates
that the message is in codress format. If this header field is
absent the message will be considered received without the codress
format.

A Codress message is one in which the entire address is encrypted
within the text. The Heading of the Codress message contains
information only necessary for appropriately trained staff to handle
the message properly.

This header field is used only to support interoperability with ACP
127 systems.

Example:
MMHS-Codress-Message-Indicator: 23

3.8. Header field: MMHS-Originator-Reference

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor17: this document]]

The originator reference header field, by its presence indicates a

user defined reference called the "originator's number". If this
header field is absent, then the message will be considered received
without any user defined reference.

The "originator's number" is used by the originating organisational
unit and is further qualified within national policy.

Note: trailing and leading spaces in an originator reference are not
allowed. Any leading or trailing spaces would be stripped.

Example:
MMHS-Originator-Reference: UNCLAS WHAT WAS 1500Z POSITION OF USS
ESTES

3.9. Header field: MMHS-Primary-Precedence

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor19: this document]]

The primary precedence header field, by its presence indicates the
precedence level of the primary ("action") recipients. The message
originating domain shall ensure that this header field is always
present if the message contains "To:" (action) addresses.

The MMHS Primary Precedence Element of Service indicates the relative
order in which Military Messages are to be handled for primary
(action) recipients.

The header field value is an integer, or one of the 6 predefined
case-insensitive labels: "deferred" (same as "0"), "routine" (same as
"1"), "priority" (same as "2"), "immediate" (same as "3"), "flash"
(same as "4"), or "override" (same as "5").

Example 1:
MMHS-Primary-Precedence: 0 (Deferred)

Example 2:
MMHS-Primary-Precedence: FLASH

Example 3:
MMHS-Primary-Precedence: 7

3.10. Header field: MMHS-Copy-Precedence

Applicable protocol: mail [RFC5322]
Status: informational

   Author/change controller:
   Specification document(s): [[anchor21: this document]]

   The copy precedence header field by its presence indicates the
   precedence level of the copy ("information") recipients. The message
   originating domain shall ensure that this header field is always
   present if the message contains "Cc:" or "Bcc:" (information)
   addresses.

   The MMHS Copy Precedence Element of Service indicates the relative
   order in which Military Messages are to be handled for copy
   (information) recipients.

   The header field value is an integer, or one of the 6 predefined
   case-insensitive labels: "deferred" (same as "0"), "routine" (same as
   "1"), "priority" (same as "2"), "immediate" (same as "3"), "flash"
   (same as "4"), or "override" (same as "5").

   Example 1:
   MMHS-Copy-Precedence: 4 (flash)

   Example 2:
   MMHS-Copy-Precedence: Flash

3.11. Header field: MMHS-Message-Type

   Applicable protocol: mail [RFC5322]
   Status: informational
   Author/change controller:
   Specification document(s): [[anchor23: this document]]

   The message type heading extension, by its presence indicates whether
   the message is to be considered as an exercise, an operation, a
   project or a drill. It may includes an optional parameter specifying
   the name of the exercise, operation, project or drill. If this
   extension is absent the message will be considered to be an undefined
   typed.

   The header field value is a non-negative integer, or one of the 4
   predefined case-insensitive labels: "exercise" (same as "0"),
   "operation" (same as "1"), "project" (same as "2"), "drill" (same as
   "3").

   Example 1:
   MMHS-Message-Type: 0(exercise); identifier="CANDLE FISH"

   Example 2:
   MMHS-Message-Type: 3

```
   Example 3:
   MMHS-Message-Type: 2 (projet)

   Example 4:
   MMHS-Message-Type: project
```

3.12. Header field: MMHS-Other-Recipient-Indicator

```
   Applicable protocol: mail [RFC5322]
   Status: informational
   Author/change controller:
   Specification document(s): [[anchor25: this document]]
```

   The other recipients indicator header field, by its presence
   indicates the names of recipients, as well as the category (primary
   or copy) in which they are placed, that are intended to receive or
   have received the message via means other than MMHS. The absence of
   this element does not guarantee that all recipients are within the
   MMHS.

   This MMHS Element of Service enables an MMHS recipient to determine
   all recipients of a Military Message. There are several reasons as
   to why a recipient of a Military Message may be identified by this
   header:

   1. The recipient is not part of the MMHS

   2. The path to the recipient through the MMHS may not be secure,
       therefore, the originator has used alternative mechanisms to
       distribute the Military Message

   3. The recipient was already in receipt of the Military Message
       prior to it being inserted into the MMHS

```
   Example:
   MMHS-Other-Recipient-Indicator: primary="UK SHL COS"; COPY = "UK SHL
   LEGAD"
```

   The example above includes names of 2 recipients which received the
   message via means other than MMHS. One of the recipients is primary
   (action) and another is a copy (information) recipient.

3.13. Header field: MMHS-Acp127-Message-Identifier

```
   Applicable protocol: mail [RFC5322]
   Status: informational
   Author/change controller:
   Specification document(s): [[anchor27: this document]]
```

The ACP127 message identifier header field, by its presence indicates an ACP 127 message identifier which originated from an ACP 127 domain. If this extension is absent, then the message did not encounter an ACP 127 domain.

The acp127-message-identifier contains the contents of ACP127 format line 3 consisting of the Calling Station (DERI), Station Serial Number (SSN), and Filing Time (JFT).

This header field is used only to support interoperability with ACP 127 systems.

Example:
MMHS-Acp127-Message-Identifier: RPDLE 123 11/1215Z

3.14. Header field: MMHS-Originator-PLAD

Applicable protocol: mail [RFC5322]
Status: informational
Author/change controller:
Specification document(s): [[anchor29: this document]]

The originator Plain Language Address Designators (PLAD) header field, by its presence indicates the plain language address associated with an originator for cross reference purposes. If this header field is absent, then the message will be considered to not having an originators PLAD cross reference between the MMHS and ACP 127 domains.

This header field is used only to support interoperability with ACP 127 systems.

This MMHS header field and the Extended Authorisation Info header field provide a cross reference for message identification in both ACP 127 and MMHS domains.

Example:
MMHS-Originator-PLAD: SACLANT

4. Formal Syntax

The following syntax specification uses the Augmented Backus-Naur Form (ABNF) as described in [RFC5234]. Terms not defined here are taken from [RFC5322] and [RFC2156].

```
 NZ-DIGIT       =  %x31-39
                   ; "1".."9"
```

```
     nonneg-integer = "0" / (NZ-DIGIT *DIGIT)

     integer = ["-" / "+"] nonneg-integer
               ; ////Any min/max limit?

     military-string = 1*69( ps-char )

     quoted-military-string = DQUOTE military-string DQUOTE

     military-string-sequence = military-string [ [FWS] ";" [FWS] military-
     string-sequence ]

     Exempted-Address = "MMHS-Exempted-Address:" [FWS] address-list [FWS] CRLF
      ;; /////Are "[FWS]" around address-list needed/allowed?

     Extended-Authorisation-Info = "MMHS-Extended-Authorisation-Info:" [FWS]
date-time CRLF

     Subject-Indicator-Codes = "MMHS-Subject-Indicator-Codes:" [FWS] [sic-
sequence] [FWS] CRLF

     sic-sequence = sic *( [FWS] ";" [FWS] sic )
                   ; STANAG 4406 specifies that the maximum number of SICs is
8.
                   ; Use of more than 8 SIC codes is permitted, but additional
                   ; SIC codes might not be transferred to STANAG 4406 system

     sic = 3*8( ps-char )

     Handling-Instructions = "MMHS-Handling-Instructions:"
                             [FWS] military-string-sequence [FWS] CRLF

     Message-Instructions = "MMHS-Message-Instructions:"
                             [FWS] military-string-sequence [FWS] CRLF

     Codress-Message-Indicator = "MMHS-Codress-Message-Indicator:" [FWS] integer
[FWS] CRLF

     Originator-Reference = "MMHS-Originator-Reference:"
                             [FWS] military-string [FWS] CRLF

     PrimaryPrecedence = "MMHS-Primary-Precedence:" [FWS] precedence CRLF

     CopyPrecedence = "MMHS-Copy-Precedence:" [FWS] precedence CRLF

     precedence = (nonneg-integer / std-precedence) [CFWS]

     std-precedence = "deferred" / "routine" / "priority" /
                      "immediate" / "flash" / "override"
```

```
                            ; deferred == 0
                            ; routine == 1
                            ; priority == 2
                            ; immediate == 3
```

```
                        ; flash == 4
                        ; override == 5

   MessageType = "MMHS-Message-Type:" [FWS] message-type [CFWS]
                 [";" [FWS] MessageTypeParam ] [FWS] CRLF

   message-type = nonneg-integer / std-message-type

   std-message-type = "exercise" / "operation" / "project" /  "drill"
                        ; exercise  == 0
                        ; operation == 1
                        ; project == 2
                        ; drill == 3

   MessageTypeParam = "identifier" [FWS] "=" [FWS] quoted-military-string

   DesignatorType = "primary" / "copy"

   Designator = DesignatorType [FWS] "=" [FWS] quoted-military-string

   OtherRecipientIndicator = "MMHS-Other-Recipient-Indicator:"
                                [FWS] Designator *([FWS] ";" [FWS] Designator)
[FWS] CRLF

   Acp127MessageIdentifier = "MMHS-Acp127-Message-Identifier:"
                                [FWS] military-string [FWS] CRLF

   OriginatorPLAD = "MMHS-Originator-PLAD:" [FWS] military-string [FWS] CRLF
```

5. Service in Comparison to STANAG 4406

The service specified in this document is a subset of the
functionality set out in Annex A1 "Military Heading Extensions" of
[STANAG-4406]. The majority of this functionality is supported. A
few capabilities have been left out which would have significantly
increased the complexity of this specification, and do not appear to
be of significant benefit.

For Distribution Codes (A.1.3) only Subject Indicator Codes are
supported and Distribution Extensions are omitted. Distribution
extensions are not widely used, and encoding ANY DEFINED BY in this
specification would be difficult.

Address List Indication (A.1.11) is not supported. This complex
extension is deprecated in [STANAG-4406].

Pilot Forwarding Information (A.1.13) is not supported. This complex
extension is only for ACP 127 transition, and is not widely used.

Security Information Labels (A.1.16) is not supported. This
extension is deprecated in favour of Annex A, which uses ESS Labels
[RFC2634] which can be supported in a directly compatible manner in
S/MIME.

6. Gatewaying with STANAG 4406

The header fields defined in this specification are designed to be
mapped with STANAG 4406 Annex A1 heading extensions as part of a
MIXER mapping according to [RFC2156]. The syntax of these headings
is defined such that mapping is mechanical. OR Names should be
mapped with Internet Email addresses according to [RFC2156].

This section summarizes how a gateway between [STANAG-4406] and
[RFC5322] conformant to this specification operates.

If an incoming X.400 message is encoded as P772, [RFC5322] header
fields MUST be generated according to this specification for all
STANAG 4406 heading extensions where an equivalent header is defined
in this specification. For the three heading extensions where no
mapping is defined the heading extension MAY be discarded or mapped
in a proprietary manner. If a Distribution Extension is encoded this
MAY be discarded or represented as a comment. The whole message MAY
be signed according to [RFC5652]. These rules also apply to heading
extensions in forwarded messages. Forwarded content MUST be treated
as a forwarded message for the purposes of MIXER mapping.

If an incoming SMTP message contains any of the header fields defined
in this specification, the outgoing X.400 message MUST be encoded as
P772. The outgoing message MAY be encoded as P772 for other reasons,
such as policy or characteristics such as the message containing a
military body part. The X.400 message MAY be signed according to
STANAG 4406 Annex B and Annex G. message/rfc822 body parts included
in the message SHOULD be mapped to forwarded content, and the heading
mapping rules applied.

Generated P772 messages SHOULD follow the following rules, generating
heading extensions if needed.

a. Extended Authorization is required. If the MMHS-Extended-
    Authorisation-Info header field is absent, then the default value
    is taken from the Date: header field.

b. Primary Precedence is required if the To header field is present.
    If the MMHS-Primary-Precedence header field is absent, the
    default value is "priority".

c. Copy Precedence is required if the Cc header field is present.
    If the MMHS-Copy-Precedence header field is absent, then the
    Default value is the value of the Primary Precedence as
    constructed above.

d. For Message-ID fields, STANAG 4406 applies additional constraints
    over X.400, leading to the following rules additional to
    [RFC2156] which SHOULD be followed by a gateway following this
    specification.

    1. The local identifier MUST be at least 15 characters long. If
        the [RFC2156] generated value is shorter than this, then it
        is padded with spaces to 15 characters. This value will
        correctly reverse map.

    2. The OR Address part is required, and not usually generated by
        an [RFC2156] mapping. It is mandatory in STANAG 4406. The
        gateway SHOULD generate an OR Address in a manner that can be
        reverse mapped. It MAY use the OR Address to encode long
        message ids that cannot be encoded in the local identifier.

7. Gatewaying with ACP 127

The header fields defined in this specification include fields to
carry ACP 127 specific elements of service. This specification does
not define a mapping of these header fields to ACP 127. In the
absence of this mapping, it is recommended that these heading should
be mapped to STANAG 4406 and hence into ACP 127 following the Annex D
(Gateway Translation) of [STANAG-4406].

8. IANA Considerations

IANA is requested to add the list of header fields specified in
Section 3 (and its subsections) to the "Permanent Message Header
Field Registry", defined by Registration Procedures for Message
Header Fields [RFC3864].

9. Security Considerations

No security considerations are introduced by this document beyond
those already inherent in use of the P772 header fields referenced.

10. References

10.1. Normative References

[RFC2119]   Bradner, S., "Key words for use in RFCs to Indicate
                Requirement Levels", BCP 14, RFC 2119, March 1997.

   [RFC5322]   Resnick, P., Ed., "Internet Message Format", RFC 5322,
                   October 2008.

   [RFC5234]   Crocker, D. and P. Overell, "Augmented BNF for Syntax
                   Specifications: ABNF", STD 68, RFC 5234, January 2008.

   [RFC2156]   Kille, S., "MIXER (Mime Internet X.400 Enhanced
                   Relay): Mapping between X.400 and RFC 822/MIME",
                   RFC 2156, January 1998.

   [RFC3864]   Klyne, G., Nottingham, M., and J. Mogul, "Registration
                   Procedures for Message Header Fields", BCP 90,
                   RFC 3864, September 2004.

   [RFC5652]   Housley, R., "Cryptographic Message Syntax (CMS)",
                   STD 70, RFC 5652, September 2009.

   [STANAG-4406]   NATO, "STANAG 4406 Edition 2: Military Message
                   Handling System", STANAG 4406, March 2005.

10.2. Informative References

   [RFC2634]   Hoffman, P., "Enhanced Security Services for S/MIME",
                   RFC 2634, June 1999.

Appendix A. Acknowledgements

   This document copies lots of text from
   draft-onions-x400p772-822-mapping-01.txt and STANAG 4066 (2nd
   Edition). So the author of this document would like to acknowledge
   contributions made by the authors of
   draft-onions-x400p772-822-mapping: Graeme Lunt and Julian Onions.

   Many thanks for input and text provided by Steve Kille, Alan Ross,
   David Wilson and James Usmar.

Authors' Addresses

   Alexey Melnikov
   Isode Ltd
   5 Castle Business Village
   36 Station Road
   Hampton, Middlesex TW12 2BX
   UK

   EMail: Alexey.Melnikov@isode.com

      Graeme Lunt
      SMHS Ltd
      Bescar Moss Farm
      Bescar Lane
      Ormskirk L40 9QN
      UK

      EMail: graeme.lunt@smhs.co.uk