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Registration of Military Message Handling System (MMHS)  
Header Fields for Use in Internet Mail

Abstract

A Military 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 and ACP 123. This document specifies message header fields and associated processing for RFC 5322 (Internet Message Format) to provide a comparable messaging service. In addition, this document provides for a STANAG 4406 / Internet Email Gateway that supports message conversion.

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## 1. Introduction

[RFC5322] defines a protocol for the format of electronic messages exchanged on the Internet. MMHS is a military specification defined in ACP 123 [ACP123] (also specified in STANAG 4406 [STANAG-4406]), which defines a number of extensions to the basic X.400 (1992) protocol for the services required by military messaging.

This document supports translating most of the Elements of Service defined in ACP 123 [ACP123] to Internet message header fields (see Section 5 for more details). This specification is written to extend the Mime Internet X.400 Enhanced Relay (MIXER) specification

[RFC2156] to enable inter-conversion in a MIXER gateway with the X.400 Interpersonal Messaging System (IPMS) heading extensions defined in ACP 123 / STANAG 4406, Annex A.

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

Unless stated otherwise, all header fields described in this document are OPTIONAL in an Internet Message.

This document is structured as follows: Section 3 and its subsections formally define new Internet header fields and show some examples. Section 4 provides Augmented Backus-Naur Form (ABNF) syntax for them. Section 5 provides some background information about which features of ACP 123 / STANAG 4406 were not implemented in this specification. Subsequent sections talk about additional requirements for gatewaying to/from ACP 123 / STANAG 4406 and ACP 127 [ACP127] environments, respectively.

## 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 uses the ABNF [RFC5234] notation including the core rules defined in Appendix B of RFC 5234 [RFC5234].

## 3. Registration Templates

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

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

Header name	Protocol	Reference
MMHS-Exempted-Address	mail	[ACP123], Appendices A1.1 and B.105
MMHS-Extended-Authorisation-Info	mail	[ACP123], Appendices A1.2 and B.106
MMHS-Subject-Indicator-Codes	mail	[ACP123], Appendices A1.3 and B.107
MMHS-Handling-Instructions	mail	[ACP123][ACP123], Appendices A1.4 and B.108
MMHS-Message-Instructions	mail	[ACP123], Appendices A1.5 and B.109
MMHS-Codress-Message-Indicator	mail	[ACP123], Appendices A1.6 and B.110
MMHS-Originator-Reference	mail	[ACP123], Appendices A1.7 and B.111
MMHS-Primary-Precedence	mail	[ACP123], Appendices A1.8 and B.101
MMHS-Copy-Precedence	mail	[ACP123], Appendices A1.9 and B.102
MMHS-Message-Type	mail	[ACP123], Appendices A1.10 and B.103
MMHS-Other-Recipients-Indicator-To	mail	[ACP123], Appendices A1.12 and B.113
MMHS-Other-Recipients-Indicator-CC	mail	[ACP123], Appendices A1.12 and B.113
MMHS-Acp127-Message-Identifier	mail	[ACP123], Appendices A1.14 and B.116
MMHS-Originator-PLAD	mail	[ACP123], Appendices A1.15 and B.117

### 3.1. Header Field: MMHS-Exempted-Address

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-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 header field is absent from the message, 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>

### 3.2. Header Field: MMHS-Extended-Authorisation-Info

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-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 initially submitted to a communication facility for transmission.

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

Example:

MMHS-Extended-Authorisation-Info:  
Mon, 09 Aug 2010 15:27:40 +0100

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

### 3.3. Header Field: MMHS-Subject-Indicator-Codes

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

A Subject Indicator Code (SIC) is a mechanism for formally identifying the topic of a message. SICs are nested codes that provide information for message distribution after delivery to the recipient organization. SICs are usually three letters or three letters and digits, but may be up to eight characters long. Nations and organizations using SICs usually maintain a central registry.

When present, an MMHS-Subject-Indicator-Codes header field contains one or more SICs, which 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 the MMHS-Subject-Indicator-Codes header field is absent, then the local distribution will be in accordance with the message handling policy of the recipient's domain.

[ACP123] specifies two optional components of the Distribution Code Element of Service. The MMHS-Subject-Indicator-Codes header field covers only the SIC code component of distribution codes.

Example:

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

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

### 3.4. Header Field: MMHS-Handling-Instructions

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-Handling-Instructions header field, by its presence, indicates human-readable local handling instructions that require 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 [ACP127] 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 to support interoperability with ACP 127 systems.

Example:

MMHS-Handling-Instructions: RXFPA ZOV MINDEF

The example above includes one ACP 131(F) handling instruction: "RXFPA ZOV MINDEF". The "ZOV MINDEF" indicates that MINDEF rerouted the message for some reason, and the correct routing is via RXFPA.

### 3.5. Header Field: MMHS-Message-Instructions

Applicable protocol: mail [RFC5322]

Status: informational

Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-Message-Instructions header field, by its presence, indicates message instructions (also known as "remarks") accompanying the message (e.g., similar to the operating signals specified in ACP 131 [ACP131]). 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 two message instructions defined by ACP123(B) [ACP123]: "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.

### 3.6. Header Field: MMHS-Codress-Message-Indicator

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF Specification document(s): [RFC6477]

The MMHS-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 all addresses, i.e., the sender and all recipients, are encrypted within the ACP 127 text (body) [ACP127]. The heading of any Codress message contains only the minimum amount of information that will enable a receiving station to deal properly and expeditiously with the particular transmission. The general rules for the preparation and transmission of Codress messages are given in ACP 121 [ACP121].

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

Example:  
MMHS-Codress-Message-Indicator: 23

### 3.7. Header Field: MMHS-Originator-Reference

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF Specification document(s): [RFC6477]

The MMHS-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 organizational unit and is further qualified within national policy.

Note: trailing and leading spaces in an originator reference are not allowed by syntax.

Example:  
MMHS-Originator-Reference: IMSCOM-JIC-612-78



### 3.8. Header Field: MMHS-Primary-Precedence

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-Primary-Precedence header field, by its presence, indicates the precedence level of the primary ("action") recipients. The message originating domain MUST 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, i.e., a Military Message with a higher MMHS-Primary-Precedence header field value SHOULD be handled before a Military Message with a lower MMHS-Primary-Precedence header field value.

The header field value is a non-negative integer, or one of the six 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"), optionally followed by a comment. Note that, according to ACP 123, values in the range from 0 to 15 are reserved for NATO-defined precedence levels, and values in the range from 16 to 31 are reserved for national users.

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

Example 2:  
MMHS-Primary-Precedence: FLASH

Example 3:  
MMHS-Primary-Precedence: 7

### 3.9. Header Field: MMHS-Copy-Precedence

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-Copy-Precedence header field, by its presence, indicates the precedence level of the copy ("information") recipients. The message originating domain MUST 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. i.e. a Military Message with higher MMHS-Copy-Precedence header field value SHOULD be handled before a Military Message with a lower MMHS-Copy-Precedence header field value.

The header field value is a non-negative 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"), optionally followed by a comment. Note that according to ACP 123, values in the range from 0 to 15 are reserved for NATO-defined precedence levels and values in the range from 16 to 31 are reserved for national users.

Example 1:  
MMHS-Copy-Precedence: 2 (priority)

Example 2:  
MMHS-Copy-Precedence: Priority

### 3.10. Header Field: MMHS-Message-Type

Applicable protocol: mail [RFC5322]  
Status: informational  
Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF  
Specification document(s): [RFC6477]

The MMHS-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. (Note that the list of types is extensible, and other types can be specified using the numeric form, see below).

It may include 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 of an undefined type.

The header field value is a non-negative integer, or one of the four predefined case-insensitive labels: "exercise" (same as "0"), "operation" (same as "1"), "project" (same as "2"), "drill" (same as "3"). Note that according to ACP 123, values in the range from 0 to 127 are reserved for NATO-defined Message Type identifiers and values in the range from 128 to 255 are not defined by NATO and may be used nationally or bilaterally.

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

Note that some of the examples above demonstrate use of optional comments. See Section 4 for the exact syntax of this header field.

### 3.11. Header Field: MMHS-Other-Recipients-Indicator-To

Applicable protocol: mail [RFC5322]

Status: informational

Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF

Specification document(s): [RFC6477]

The MMHS-Other-Recipients-Indicator-To header field, by its presence, indicates the names of primary ("action") recipients that are intended to receive, or have received, the message via means other than MMHS. Note that the absence of both this header field and the MMHS-Other-Recipients-Indicator-CC header field (see Section 3.12) does not guarantee that all recipients are within the MMHS.

This header field enables a recipient to determine all action recipients of a Military Message. This header field is derived from the Other Recipient Indicator Element of Service.

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 the Military Message being inserted into the MMHS.

Example:

MMHS-Other-Recipients-Indicator-To: UK SHL COS; UK SHL IM

The example above includes names of two primary recipients that received the message via means other than MMHS.

### 3.12. Header Field: MMHS-Other-Recipients-Indicator-CC

Applicable protocol: mail [RFC5322]

Status: informational

Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF Specification document(s): [RFC6477]

The MMHS-Other-Recipients-Indicator-CC header field, by its presence, indicates the names of copy ("information") recipients that are intended to receive, or have received, the message via means other than MMHS. Note that the absence of both this header field and the MMHS-Other-Recipients-Indicator-To header field (see Section 3.11) does not guarantee that all recipients are within the MMHS.

This header field enables a recipient to determine all copy recipients of a Military Message. This header field is derived from the Other Recipient Indicator Element of Service.

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-Recipients-Indicator-CC: UK SHL LEGAD

The example above includes 1 copy (information) recipient that received the message via means other than MMHS.

### 3.13. Header Field: MMHS-Acp127-Message-Identifier

Applicable protocol: mail [RFC5322]

Status: informational

Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF Specification document(s): [RFC6477]

The MMHS-Acp127-Message-Identifier header field, by its presence, indicates an ACP 127 message identifier [ACP127] for a message that originated from an ACP 127 domain. If this extension is absent, then the message did not encounter an ACP 127 domain.

The MMHS-Acp127-Message-Identifier contains the contents of ACP 127 format line 3, which consists of three space-separated fields: the Calling Station (DERI), Station Serial Number (SSN), and Filing Time (JFT) [ACP127].

This header field is used only to support interoperability with ACP 127 systems, it should be treated as opaque by a pure MMHS system.

Example:

MMHS-Acp127-Message-Identifier: RPDLE 1234 0341215

### 3.14. Header Field: MMHS-Originator-PLAD

Applicable protocol: mail [RFC5322]

Status: informational

Author/change controller: IESG (iesg@ietf.org) on behalf of the IETF Specification document(s): [RFC6477]

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

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

This header field and the MMHS-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], [RFC5234], and [RFC2156].

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

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

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

```
quoted-military-string = DQUOTE military-string DQUOTE
```

```
military-string-sequence = military-string
                           *( [FWS] ";" [FWS] military-string )
```

```
Exempted-Address = "MMHS-Exempted-Address:"
                   [FWS] address-list [FWS] CRLF
```

```
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 )
               ; ACP 123 specifies that the maximum number of
               ; SICs is 8. Use of more than 8 SICs is
               ; permitted, but additional SICs might not
               ; be transferred to ACP 123 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] nonneg-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  
  
Designator = military-string  
  
OtherRecipIndicatorPrimary = "MMHS-Other-Recipients-Indicator-To:"  
                             [FWS] Designator *([FWS] ";" [FWS] Designator)  
                             [FWS] CRLF  
  
OtherRecipIndicatorCopy = "MMHS-Other-Recipients-Indicator-CC:"  
                           [FWS] Designator *([FWS] ";" [FWS] Designator)  
                           [FWS] CRLF  
  
Acpl27MessageIdentifier = "MMHS-Acpl27-Message-Identifier:"  
                           [FWS] military-string [FWS] CRLF
```

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

address-list = <Defined in RFC 5322>

## 5. Service in Comparison to ACP 123 / STANAG 4406

The service specified in this document is a subset of the functionality set out in Annex A1 "Military Heading Extensions" of [ACP123]. The majority of this functionality is supported in this document. A few capabilities have been left out, which would have significantly increased the complexity of this specification.

For Distribution Codes (A.1.3) only Subject Indicator Codes are supported and Distribution Extensions are omitted. Authors of this document believe that distribution extensions are not widely used.

Address List Indication (A.1.11) is not supported. This complex extension is deprecated in [ACP123].

Pilot Forwarding Information (A.1.13) is not supported.

Security Information Labels (A.1.16) is not supported. This extension is deprecated in favor of Annex A of [ACP123], which uses Enhanced Security Services (ESS) Labels [RFC2634] that can be supported in a directly compatible manner in S/MIME [RFC5751].

ACP 127 Notification Requests (see Annex A.2.1 of [ACP123]) and Responses (see Annex A.3.1 of [ACP123]) are not supported. These extensions are used to request and return notifications from ACP 127 gateways, and are not relevant to an SMTP gateway.

## 6. Gatewaying with ACP 123 / STANAG 4406

The header fields defined in this specification are designed to be mapped with ACP 123 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 [ACP123] 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 ACP 123 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 (<CFWS>). The whole message MAY be signed according to [RFC5652]. These rules also apply to heading extensions in forwarded messages. MM-Message MUST be treated as a forwarded message for the purposes of MIXER mapping. If an ACP 127 Notification Request is present, this MAY be discarded or represented as a comment (<CFWS>).

Incoming X.400 notifications are encoded according to [RFC2156]. If an ACP 127 Notification Response is present, this MAY be discarded or mapped in a proprietary manner.

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, for instance, policy or characteristics such as the message containing a military body part. The X.400 message might be signed according to ACP 123 Annex B [ACP123] or STANAG 4406 Annex G [STANAG-4406]. message/rfc822 body parts included in the message SHOULD be mapped to MM-Message 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-Authorization-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 message need not be considered a Military Message and can be handled according to a local policy.
- c. Copy Precedence is required if the Cc header field is present and there is an MMHS-Copy-Precedence header field that is different from the MMHS-Primary-Precedence header field.
- d. For Message-ID fields, ACP 123 applies additional constraints over X.400, leading to the following rules in addition 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 it is not usually generated by an [RFC2156] mapping. It is mandatory in ACP 123. 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 Elements of Service specific to ACP 127 [ACP127]. 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 headings be mapped to ACP 123 and hence into ACP 127 following the Annex D (Gateway Translation) of [STANAG-4406].

## 8. IANA Considerations

IANA has added the list of header fields specified in subsections of Section 3 to the "Permanent Message Header Field Names" registry defined by "Registration Procedures for Message Header Fields" [RFC3864].

## 9. Security Considerations

Annex B of [ACP123] describes how MMHS messages can be protected in an X.400 environment. Similar protection can be provided using S/MIME [RFC5751] and/or DKIM [RFC6376]. In particular, DKIM can be used to protect against alteration, deletion, or insertion of header fields specified in this document that can affect disposition and quality of service applied to processing of the protected Internet message by receiving gateways/endpoints that support this specification. (Note that most of the header fields defined in this document might affect processing of the message by the receiving gateway/end system, MMHS-Subject-Indicator-Codes and MMHS-Primary-Precedence/MMHS-Copy-Precedence header fields being the most important examples. For example, alteration of the MMHS-Primary-Precedence header field value might affect processing speed of the message by the recipient Message Transfer Agent (MTA).)

When the original message header fields are digitally signed, the act of gatewaying messages with such header fields to/from an Internet environment from/to an ACP 123 environment breaks digital signatures. The gateway can sign the translated message itself (e.g., with DKIM), but a message recipient would be unable to verify that the message was generated by the original sender.

## 10. References

### 10.1. Normative References

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## Appendix A. Acknowledgements

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