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**The MIME Message/i18n Media Type
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Abstract

Efforts to design an internationalization model for electronic mail frequently encounter situations in which an internationalized message -- perhaps one containing some headers with characters coded in UTF-8 -- must be converted and transported over a traditional, 7-bit infrastructure. This document provides a specification, building on the design of message/rfc822, for encapsulating messages with internationalized headers and/or body part content types.

This specification is one of a group intended to provide a modified and extended email environment for fully internationalized email. If approved, it is expected to update the discussion of "message/" content types in [RFC 2046](#).

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1. Introduction

If a message is permitted to contain headers in UTF-8 (see, e.g., [[I-D.hoffman.utf-8](#)] and the discussion in [[I-D.klensin.email-i18n](#)]), the need will periodically arise to carry it over a traditional 7bit (unextended SMTP or ESMTP) infrastructure. In general, there are two ways to approach that problem. One is to specify and implement a model for "downgrading", or otherwise encoding, all of the fields that contain (or potentially content) non-ASCII information. That approach is difficult to define properly, especially given the number of variations in email header fields and the number of fields whose precise syntax and semantics are not defined anywhere. The alternative is to simply encapsulate the message and headers, using a content-transfer-encoding to deal with the 8bit material if needed, and retaining in the outermost headers only that information that can be retained without ambiguity or is required by the message format specification [[RFC2822](#)]. The general strategy for this type of encapsulation was developed in the base MIME specification [[RFC2046](#)]; this document extends that one to provide a specification for encapsulation of internationalized messages.

1.1 Terminology

This document assumes a reasonable understanding of the protocols and terminology of the most recent core email standards documented in [RFC 2821](#) [[RFC2821](#)] and [RFC 2822](#) [[RFC2822](#)] and of the MIME media type structures described in [[RFC2046](#)].

In this document, an address or header field is "all-ASCII" if every character in the address or field is in the ASCII character repertoire [ASCII]; an address, header field, or string is "non-ASCII" if any character is not in the ASCII character repertoire.

The key words "MUST", "SHALL", "REQUIRED", "SHOULD", "RECOMMENDED", and "MAY" in this document are to be interpreted as described in [RFC 2119](#) [[RFC2119](#)].

1.2 Mailing List

This document is being discussed on the ietf-ima mailing list. See <http://www.imc.org/ietf-ima/> for information about subscribing and the list's archive.

2. Proposal Overview

Two different models are possible for encapsulating an internationalized message into a MIME body part. While they are

quite similar, the community should examine the tradeoffs and select one of them. Even were the choice arbitrary, interoperability would call for a single choice, without options.

Message Encapsulation In this model, the message body (including headers) is encapsulated, identically to the model for "message/[rfc822](#)" but with the expectation that some or all headers may contain UTF-8 data and therefore may require encoding. This may raise issues with the multiple encoding rule, which will need to be worked out if this option is chosen.

Mail Transaction Encapsulation In this model, the entire message transmission, including the ESMTP envelope, is encapsulated and incorporated into the message body. This model is identical to the one outlined in [[RFC2442](#)]. That standard already provides for header and envelope information potentially being in UTF-8 form, not exclusively in ASCII. However, obviously, for this extension to be permitted to be encapsulated, the list of permitted SMTP extensions must be expanded to include this one.

3. Protocol open questions

1. As noted in [Section 2](#), above, these encapsulations, especially the simple one that does not include the Envelope, may cause conflicts with the "no multiple encodings" rule in MIME. Whichever option is chosen, that issue needs to be carefully studied, the cases examined, and an appropriate solution defined.

4. Security considerations

Since the approach described here essentially tunnels mail traffic through the mail system, some of the same issues raised in the Security Considerations to [RFC 2442](#) may apply. In particular, if the mechanism is used other than as a encapsulation mechanism for internationalized messages that could be delivered without encapsulation if all relevant SMTP servers were fully upgraded, tunnels may be used to bypass existing security and verification restrictions. For example, as [RFC 2442](#) points out, such a tunnel might allow someone to bypass relay or source- or target-address filtering restrictions imposed to block distribution or redistribution of spam.

5. Acknowledgements

The encapsulation mechanism for internationalized messages proposed here was first mentioned in passing in another draft [[I-D.klensin.email-i18n](#)]. After a discussion with Paul Hoffman about that draft and how it might relate to other work and proposals, it became clear that it would be helpful to write the encapsulation proposal up separately for further discussion.

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Normative References

- [RFC2046] Freed, N. and N. Borenstein, "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", [RFC 2046](#), November 1996.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#), March 1997.
- [RFC2442] Freed, N., Newman, D. and Hoy, M., "The Batch SMTP Media Type", [RFC 2442](#), November 1998.
- [RFC2821] Klensin, J., "Simple Mail Transfer Protocol", [RFC 2821](#), April 2001.
- [RFC2822] Resnick, P., "Internet Message Format", [RFC 2822](#), April 2001.

Informational References

- [I-D.hoffman.utf-8]
Hoffman, P., "SMTP Service Extensions for Transmission of Headers in UTF-8 Encoding", [draft-hoffman-utf8headers-00](#) (work in progress), December 2003.
- [I-D.klensin.email-i18n]
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