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SMTP Service Extension for 8bit-MIMEtransport

Status of this Memo

This RFC specifies an IAB standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "IAB Official Protocol Standards" for the standardization state and status of this protocol. Distribution of this memo is unlimited.

1. Abstract

This memo defines an extension to the SMTP service whereby an SMTP content body containing octets outside of the US ASCII octet range (hex 00-7F) may be relayed using SMTP.

2. Introduction

Although SMTP is widely and robustly deployed, various extensions have been requested by parts of the Internet community. In particular, a significant portion of the Internet community wishes to exchange messages in which the content body consists of a MIME message [3] containing arbitrary octet-aligned material. This memo uses the mechanism described in [5] to define an extension to the SMTP service whereby such contents may be exchanged. Note that this extension does NOT eliminate the possibility of an SMTP server limiting line length; servers are free to implement this extension but nevertheless set a line length limit no lower than 1000 octets.

3. Framework for the 8bit MIME Transport Extension

The 8bit MIME transport extension is laid out as follows:

(1) the name of the SMTP service extension defined here is 8bit-MIMEtransport;

(2) the EHLO keyword value associated with the extension is 8BITMIME;

(3) no parameter is used with the 8BITMIME EHLO keyword;

(4) one optional parameter using the keyword BODY is added to the MAIL FROM command. The value associated with this parameter is a keyword indicating whether a 7bit message (in strict compliance with [1]) or a MIME message (in strict compliance with [3]) with arbitrary octet content is being sent. The syntax of the value is as follows, using the ABNF notation of [2]:

```
body-value ::= "7BIT" / "8BITMIME"
```

(5) no additional SMTP verbs are defined by this extension; and,

(6) the next section specifies how support for the extension affects the behavior of a server and client SMTP.

4. The 8bit-MIMEtransport service extension

When a client SMTP wishes to submit (using the MAIL command) a content body consisting of a MIME message containing arbitrary octet-aligned material, it first issues the EHLO command to the server SMTP. If the server SMTP responds with code 250 to the EHLO command, and the response includes the EHLO keyword value 8BITMIME, then the server SMTP is indicating that it supports the extended MAIL command and will accept MIME messages containing arbitrary octet-aligned material.

The extended MAIL command is issued by a client SMTP when it wishes to transmit a content body consisting of a MIME message containing arbitrary octet-aligned material. The syntax for this command is identical to the MAIL command in [1], except that a BODY parameter must appear after the address.

The complete syntax of this extended command is defined in [5]. The esmtp-keyword is BODY and the syntax for esmtp-value is given by the syntax for body-value shown above.

The value associated with the BODY parameter indicates whether the content body which will be passed using the DATA command consists of a MIME message containing some arbitrary octet-aligned material

("8BITMIME") or is encoded entirely in accordance with [1] ("7BIT").

A server which supports the 8-bit MIME transport service extension shall preserve all bits in each octet passed using the DATA command.

Naturally, the usual SMTP data-stuffing algorithm applies so that a content which contains the five-character sequence of

<CR> <LF> <DOT> <CR> <LF>

or a content that begins with the three-character sequence of

<DOT> <CR> <LF>

does not prematurely terminate the transfer of the content. Further, it should be noted that the CR-LF pair immediately preceeding the final dot is considered part of the content. Finally, although the content body contains arbitrary octet-aligned material, the length of each line (number of octets between two CR-LF pairs), is still subject to SMTP server line length restrictions (which may allow as few as 1000 octets on a single line).

Once a server SMTP supporting the 8bit-MIMEtransport service extension accepts a content body containing octets with the high-order (8th) bit set, the server SMTP must deliver or relay the content in such a way as to preserve all bits in each octet.

If a server SMTP does not support the 8-bit MIME transport extension (either by not responding with code 250 to the EHLO command, or by not including the EHLO keyword value 8BITMIME in its response), then the client SMTP must not, under any circumstances, attempt to transfer a content which contains characters outside the US ASCII octet range (hex 00-7F).

A client SMTP has two options in this case: first, it may implement a gateway transformation to convert the message into valid 7bit MIME, or second, or may treat this as a permanent error and handle it in the usual manner for delivery failures. The specifics of the transformation from 8bit MIME to 7bit MIME are not described by this RFC; the conversion is nevertheless constrained in the following ways:

(1) it must cause no loss of information; MIME transport encodings must be employed as needed to insure this is the case, and

(2) the resulting message must be valid 7bit MIME.

5. Usage Example

The following dialogue illustrates the use of the 8bit-MIMEtransport service extension:

```
S: <wait for connection on TCP port 25>
C: <open connection to server>
S: 220 dbc.mtview.ca.us SMTP service ready
C: EHLO ymir.claremont.edu
S: 250-dbc.mtview.ca.us says hello
S: 250 8BITMIME
C: MAIL FROM:<ned@ymir.claremont.edu> BODY=8BITMIME
S: 250 <ned@ymir.claremont.edu>... Sender and 8BITMIME ok
C: RCPT TO:<mrose@dbc.mtview.ca.us>
S: 250 <mrose@dbc.mtview.ca.us>... Recipient ok
C: DATA
S: 354 Send 8BITMIME message, ending in CRLF.CRLF.
 ...
C: .
S: 250 OK
C: QUIT
S: 250 Goodbye
```

6. Security Considerations

This RFC does not discuss security issues and is not believed to raise any security issues not already endemic in electronic mail and present in fully conforming implementations of [1].

7. Acknowledgements

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8. References

[1] Postel, J., "Simple Mail Transfer Protocol", STD 10, RFC 821, USC/Information Sciences Institute, August 1982.

[2] Crocker, D., "Standard for the Format of ARPA Internet Text Messages", STD 11, RFC 822, UDEL, August 1982.

[3] Borenstein, N., and N. Freed, "Multipurpose Internet Mail Extensions", RFC 1341, Bellcore, Innosoft, June 1992.

[4] Moore, K., "Representation of Non-ASCII Text in Internet Message Headers", RFC 1342, University of Tennessee, June 1992.

[5] Klensin, J., WG Chair, Freed, N., Editor, Rose, M., Stefferud, E., and D. Crocker, "SMTP Service Extensions" RFC 1425, United Nations University, Innosoft International, Inc., Dover Beach Consulting, Inc., Network Management Associates, Inc., The Branch Office, February 1993.

[6] Partridge, C., "Mail Routing and the Domain System", RFC 974, BBN, January 1986.

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