SMTP Service Extension for Capabilities Exchange
draft-ietf-fax-smtp-capabilities-00.txt

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     Note: although this work has been discussed in the
     IETF-FAX working group, it does not purport to represent
     the consensus of the group.

0. **Administrivia**

0.1. **Changes since previous versions**

Changes from draft-wing-smtp-capabilities-00.txt to
draft-ietf-fax-smtp-capabilities-00.txt:

  * Filename changed from -wing- to -ietf-fax-.
  * More example methods to get recipient capabilities in section
    2.1.
  * Reference fax requirements document and fax profile for internet
    mail document.

1. **Abstract**

This document describes an extension to SMTP [SMTP] which provides a mechanism for capabilities exchange so the sender of a message can know selected capabilities of its ultimate recipient, or of the message transmission path to that recipient.

2. Introduction

This memo defines a mechanism to allow an SMTP client to determine the capabilities (such as viewers, word processors, and color support) and preferences (such as language) of a recipient, which allows the SMTP client to send a message in a format that is usable by the recipient.

This memo was motivated by an analysis of the requirements for using the Internet to deliver fax messages, described in [FAX-REQ] and [FAX-PROFILE]. While capabilities exchange is necessary for fax, it can be useful in other messaging scenerios such as delivery to cellular telephones via SMS, security [SMIME-40BIT], and to send normal messages that will be usable by the recipient.

2.1. CAPABILITIES Extension

The CAPABILITIES extension permits an SMTP client to easily obtain a list of a recipient's capabilities. These capabilities can be used by the client to send a message that is known to be readable, processable, or understood by the recipient, or to inform the mail user agent that the recipient will be unable to read the message.

The CAPS esmtp-keyword for the RCPT command causes the server to advertise recipient capabilities. These capabilities can be:

  (a) those of the actual recipient (if known through a mechanism
       such as [ACAP], [DIR-EMAIL], [DS-EMAIL], [SALUTATION], querying
       the next MTA in the SMTP path, or some other
       implementation-specific mechanism), or

  (b) the recipient's capabilities (from (a)), plus those capabilities
       the SMTP server is willing to accept and translate to the
       recipient's capabilities (text/8bit to text/quoted-printable, for
       example).

This memo uses the mechanism described in [SMTP-EXT] to define an extension to the SMTP protocol for indicating recipient's capabilities to the SMTP client.

2.2. Discussion of this draft

This draft is being discussed on the "ietf-fax" mailing list. To
subscribe, send a message to:
     ietf-fax-request@imc.org
with the line:
     subscribe
in the body of the message. Archives are available from
http://www.imc.org/ietf-fax.

2.3. Requirements notation

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 RFC 2119 [REQ].

3. Framework for capabilities extension

The following service extension is defined for capabilities exchange.

   (1) The name of the capabilities extension is Capabilities;

   (2) the EHLO keyword value associated with the capabilities extension
        is CAPABILITIES;

   (3) no parameters are allowed with this extension;

   (4) no new SMTP verbs are associated with this extension;

   (5) one optional parameter for the RCPT command, using the
        esmtp-keyword "CAPS", (used to request the capabilities of the
        recipient), is defined in section 4,

        no parameters are added to the MAIL command;

   (6) the maximum length of RCPT TO is increased by 5 characters.

4. Behavior of RCPT TO:<forward-path> CAPS

A RCPT command issued by a client may contain the optional esmtp-keyword
"CAPS" to indicate that the SMTP client wishes to receive recipient
capabilities information in the RCPT response from the SMTP server.

The server should be aware of the nature of the recipient via some
implementation-specific method (LDAP or other directory query,
contacting the destination system directly, [DIR-EMAIL], or some other

implementation-specific method).

4.1. Responses to RCPT TO esmtp-keyword CAPS

The response to the esmtp-keyword CAPS on a RCPT TO command is a
multiline reply, consisting of the standard SMTP reply, followed by
recipient capabilities in the format specified in section 6 and 8.2 of
[HTTP-NEG] and section 14 of [HTTP-1.1]. The response should be split
on multiple lines to not exceed the 512 character limit for a reply line
as specified in [RFC821, SMTP-UPD].

The SMTP server only needs to indicate capabilities if the SMTP server
is responding with a positive (2xx) reply. Non-positive replies don't
need to include capabilities and such capabilities are to be ignored by
the SMTP client if they are present.

The positive response, in [ABNF] form is:

```
  caps-response = rsp-code SP rcpt-response CR LF /
                  ( rsp-code "-" rcpt-response CR LF
                    1*( rsp-code "-" caps-line CR LF )
                    rsp-code SP caps-line CR LF )

  rsp-code = "2" 2DIGIT

  rcpt-response = <normal response to RCPT command by this SMTP server
                    in the absence of the esmtp-keyword CAPABILITIES>

  caps-line = [status-code SP] features-line CR LF

  features-line = http-line / ( ttl-caps ttl-seconds )

  status-code   = <This is <status-code> of section 4 of [SMTP-ENH-ERR]
                    if SMTP server implements [SMTP-ENH-ERR]>

  http-line     = <Accept-Features, as described in [HTTP-NEG]>

  ttl-caps    = "ttl=" ttl-seconds
  ttl-seconds = 1*DIGIT
```


(XXX - ttl-caps and ttl-seconds aren't defined in [HTTP-NEG], but
 they should probably be moved there, as they're more appropriate
 there

 The purpose of <ttl> is to indicate how long the list of capabilties
 should be considered an authoritative list of capabilities. The ttl is

 decremented by the SMTP server for the length of time since the data
 was last refreshed. A ttl of 0 indicates the capabilities list is
 out-of-date but newer authoritative capabilities are not obtainable at
 this time.)

4.2. SMTP server unable to obtain capabilities

If the SMTP server receives a request for recipient capabilities but
cannot determine the capabilities of the recipient for some reason, the
SMTP server may reply with:

  (1) ttl=0, or
  (2) an expired capabilities list and ttl=0

This allows the SMTP client to:

  (a) abort the transaction, or
  (b) send whatever data it wishes (case 1, above), or
  (c) send data meeting the capabilities listed in (case 2, above).

4.3. Behavior when client exceeds recipient's capabilities

The SMTP server MAY verify that the SMTP client did not exceed the
recipient capabilities advertised by the server. If the SMTP server
determines that the SMTP client exceeded the advertised capabilities,
the SMTP server can reject the message after the end-of-mail-data
indicator. See the discussion in section 2.4.1 in [SMTP-UPD] for more
information.

5. Examples

5.1. Simple capabilities exchange

  S: 220 gw.cisco.com ESMTP service ready
  C: EHLO joffe-pc.cisco.com
  S: 250-gw.cisco.com says hello
  S: 250 CAPABILITIES
  C: MAIL FROM:<njoffe@cisco.com>
  S: 250 <njoffe@cisco.com> sender okay
  C: RCPT TO:<masinter@parc.xerox.com> CAPS
  S: 250-<masinter@parc.xerox.com> recipient ok
  S: 250-Accept: audio/basic
  S: 250-Accept: text/*

```
S: 250-Accept: image/tiff;application=f, image/tiff;application=fx,
      application/octet-stream; q=0.2
S: 250-Accept-Features: papersize=na-letter, papersize=iso-a4
S: 250-Accept-Features: pix-x=1728, res=204x196
S: 250 ttl=500
C: DATA
S: 354 Send your data
...
```

5.2. SMTP server isn't able to obtain capabilities for recipient

```
S: 220 gw.cisco.com SMTP service ready
C: EHLO wing-pc.cisco.com
S: 250-gw.cisco.com says hello
S: 250 CAPABILITIES
C: MAIL FROM:<dwing@cisco.com>
S: 250 <dwing@cisco.com> sender okay
C: RCPT TO:<adelman@adelman.com> CAPS
S: 250 <adelman@adelman.com> recipient ok
C: DATA
S: 354 Send your data
...
```

5.3. SMTP server can only obtain expired capabilities information

```
S: 220 gw.cisco.com SMTP service ready
C: EHLO wing-pc.cisco.com
S: 250-gw.cisco.com says hello
S: 250 CAPABILITIES
C: MAIL FROM:<dwing@cisco.com>
S: 250 <dwing@cisco.com> sender okay
C: RCPT TO:<benefits@cisco.com>
S: 250-<benefits@cisco.com> recipient ok
S: 250-Accept: text/*
S: 250-Accept: application/ms-word, application/powerpoint
S: 250 ttl=0
C: DATA
S: 354 Send your data
...
```

6. Security Considerations

As detailed in section 14 of [HTTP-NEG], Accept- headers, in particular
Accept-Language headers, may reveal information which the user would
rather keep private. For this reason it may be desirable to restrict
externally-accessible information on user preferences and capabilities.

7. Acknowledgments

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Working Group.

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Larry Masinter (Xerox PARC) for their contributions to this work.

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