Fax Working Group
Internet Draft
June 8, 1998
Expires November 1998
draft-ietf-fax-dsn-extensions-01.txt

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Extensions to Delivery Status Notifications for Fax

Status of this memo

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1. Abstract

The Internet fax specification [RFC2305] describes a simple mode of operation for fax over SMTP. [EIFAX] requires that offramp gateways implemented using SMTP implement DSN [RFC1891], and this document provides extensions to message format of delivery status notifications [RFC1894] and error codes [RFC1893] to provide better support for fax offramps implemented as SMTP servers.

2. Introduction

This document describes the following enhancements to DSN [RFC1891-1894] for fax:

* fields for call length, dialed number, and number of pages transmitted (section 3)
* enhanced status codes for fax-specific errors (section 4)

[FAX-REQ] should be consulted for detailed background information.

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2.1. Definitions

offramp: A device which receives an SMTP message, calls a fax machine on the GSTN, translates the incoming SMTP message to a fax image, and transmits the fax image to the remote fax machine over the GSTN.

GSTN: Global Switched Telephone Network.

3. Delivery Status Notification Message Fields

A message that is gatewayed by a fax offramp will cause a telephone call to be made. This section describes mechanisms for the fax offramp to provide information about the telephone call: the the length of the call, number of pages transmitted, and the dialed telephone number.

3.1. New Message Fields

Two new per-recipient extension fields, as described in [RFC1894 section 2.3], are defined using the ABNF format described in [RFC2234]:

```
extension-field = call-duration / transmitted-pages

call-duration     = "Fax-Call-Duration" ":" elapsed-time
transmitted-pages = "Fax-Transmitted-Pages" ":" xmit-pages

elapsed-time = hour ":" minute ":" second [ ":" hundred ]

hour    = 2DIGIT
minute  = 2DIGIT
second  = 2DIGIT
hundred = 2DIGIT

xmit-pages = 1*DIGIT
```

Examples:

```
Fax-Call-Duration: 06:30:23.32
Fax-Call-Duration: 00:00:45

Fax-Transmitted-Pages: 104
```

Fax-Transmitted-Pages: 0

3.2. Use of Existing Message Fields

The Final-Recipient field can indicate the actual number dialed. Reference [RFC1894, section 2.3.2], for the format of the Final-Recipient field.

Delivery Status Notifications compliant with this document should have an "address-type" is "e164". The "generic-address" is a telephone number in the format of "global-phone", which is defined in [RFC2303].

Examples:

```
Final-Recipient: e164; +1-408-457-5208
Final-Recipient: e164; +599-78760
```

4. Enhanced Mail System Status Codes

While Enhanced Mail System Status Codes [RFC1893] is quite complete in its description of events specific to email, it does not provide error codes which map directly to all the error codes necessary for other services such as gatewaying to GSTN-based fax.

This document describes how existing codes from [ENH-CODES] can be used with a fax offramp, and documents new codes that are necessary to support fax offramps. [ENH-CODES] allows new codes to be defined. The following table maps fax-specific codes to [ENH-CODES] codes where possible, and defines new fax-specific codes if [ENH-CODES] doesn't already have a suitable mapping.

4.1. New Enhanced Mail System Status Codes for Fax

The new fax-specific per-recipient codes are:

"X.2.50 no carrier"

The number was successfully dialed, but no fax carrier was ever heard by the sending fax modem. This is useful as a persistent transient (4.X.X) or permanent error (5.X.X).

"X.2.51 unable to train"

The number was successfully dialed, and a fax carrier was heard, but the fax modem was unable to communicate with the remote fax machine successfully. This is useful as a persistent transient error (4.X.X).

"X.2.52 no confirmation received"

After transmission of a page to the remote fax machine the remote fax machine did not acknowledge receiving the page. This is useful as a persistent transient error (4.X.X).

4.2. Use of Existing Enhanced Mail System Status Codes

Many of the codes described in [ENH-CODES] map well to fax offramp failure and success codes, and should be used to promote interoperability between fax and email. The text shown in parentheses is from [RFC1893].

"X.1.1 No such telephone number"
("Bad destination mailbox address" in [RFC1893])

The telephone number does not exist or is not a dialable telephone number. This code is only useful for permanent failures (5.X.X).

"X.1.3 Unable to parse telephone number"
("Bad destination mailbox address syntax" in [RFC1893])

The destination address was syntactically invalid. This can apply to any field in the address. This code is only useful for permanent failures (5.X.X).

"X.4.1 No answer"
("No answer from host" in [RFC1893])

The outbound connection attempt was not answered. This is useful for both permanent (5.X.X) and persistent transient error (4.X.X).

"X.3.2 Persistently Busy"
("System not accepting network messages" in [RFC1893])

The dialed telephone number was busy. This is useful for both permanent (5.X.X) and presistent transient errors (4.X.X).

5. Security Considerations

The Final-Recipient could disclose long-distance access codes that would be otherwise unknown to the sender.

6. Acknowledgments

7. References

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