

## Minimal FAX address format in Internet Mail

### Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

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### IESG NOTE

This memo describes a simple method of encoding PSTN addresses of facsimile devices in the local-part of Internet email addresses.

As with all Internet mail addresses, the left-hand-side (local- part) of an address generated according to this specification, is not to be interpreted except by the MTA that is named on the right-hand-side (domain).

### 1. Introduction

Since the very first e-mail to fax gateway objects appeared, a number of different methods to specify a fax address as an e-mail address have been used by implementors. Two major objectives for this were

- enable an e-mail user to send faxes from his/her e-mail interface;
- enable some kind of "fax over e-mail service" transport, to reduce the costs of fax transmissions, and use the existing e-mail infrastructure.

This memo describes the MINIMAL addressing method and standard extensions to encode FAX addresses in e-mail addresses, as required in reference [13]. The opposite problem, i.e. to allow a traditional numeric-only fax device user to access the e-mail transport service, is not discussed here.

All implementations supporting this FAX over e-mail address format MUST support as a minimum the specification described in this document. The generic complex case of converting the whole PSTN addressing in e-mail is out of scope in this minimal specification: there is some work in progress in the field, where also a number of standard optional extensions are being defined.

In this document the formal definitions are described using ABNF syntax, as defined into [7]. We will also use some of the "CORE DEFINITIONS" defined in "APPENDIX A - CORE" of that document. The exact meaning of the capitalised words

"MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD",  
"SHOULD NOT", "RECOMMENDED", "MAY", "OPTIONAL"

is defined in reference [6].

## 2. Minimal Fax address

The "service-selector" defined in [section 2](#) of reference [13] for the fax service is:

```
service-selector = "FAX"
```

The minimal addressing for the fax service also requires support for a "qualif-type1" element (see [section 2](#) of reference [13]). This element is an OPTIONAL element of the fax address, but its support, when present, is REQUIRED:

```
qualif-type1 = "/" t33-sep "=" sub-addr
```

where

```
t33-sep = "T33S"
```

```
sub-addr = 1*( DIGIT )
```

Thus, the minimal specification of a fax in e-mail address is:

```
fax-address = fax-mbox [ "/"T33S=" sub-addr ]
```

```
fax-mbox = "FAX=" global-phone
```

**Note:**

See [section 4.1](#) in case multiple sub-addr per fax-mbox need to be specified.

The Minimal supported syntax for global-phone (as described in [section reference \[13\]](#)) is:

```
global-phone = "+" 1*( DIGIT , written-sep )
```

```
written-sep = ( "-" / "." )
```

The use of other dialling schemas for PSTN numbers (like private numbering plans or local dialling conventions) is also allowed. However, this does not preclude nor remove the minimal compulsory requirement to support the "global-phone" syntax as defined above.

Any non "global-phone" dialling schema **MUST NOT** use the leading "+" between the "=" sign and the dialling string. The "+" sign is strictly reserved for the standard "global-phone" syntax.

**Note:**

The specification of these different dialling schemas is out of scope for this minimal specification.

User specification of PSTN e-mail addresses will be facilitated if they can insert these separators between dial elements like digits etc. For this reason we allow them in the syntax the written-sep element.

**Implementors' note:**

Use of the written-sep elements is allowed, but not recommended. Any occurrences of written-sep elements in a pstn-mbox **MUST** be ignored by all conformant implementations. User Agents **SHOULD** remove written-sep elements before submitting messages to the Message Transport System.

## 2.2 Some examples of a minimal "fax-address"

```
FAX=+3940226338
```

```
FAX=+12027653000/T33S=1387
```

```
FAX=+33-1-88335215
```

### 3. The e-mail address of the I-fax device: mta-I-fax

An "I-fax device" has an e-mail address, or to be more exact, a name which enables a mail system to identify it on the e-mail global system.

In Internet mail, this is the Right Hand Side (RHS) part of the address, i.e. the part on the right of the "@" sign. We will call this mta-I-fax

mta-I-fax = domain

For "domain" strings used in SMTP transmissions, the string MUST conform to the requirements of that standard's <domain> specifications [1], [3]. For "domain" strings used in message content headers, the string MUST conform to the requirements of the relevant standards [2], [3].

Note: in both cases, the standards permit use of "domain names" or "domain literals" in addresses.

### 4. The fax-email

The complete structure used to transfer a minimal FAX address over the Internet e-mail transport system is called "fax-email". This object is an e-mail address which conforms to RFC822 [2] and RFC1123 [3] "addr-spec" syntax, with some extra structure which allows the FAX number to be identified.

fax-email = [ "/" ] fax-address [ "/" ] "@" mta-I-fax

#### Implementors' note:

The optional "/" characters can result from other mail transport services gateways, where it is also an optional element. Implementations MUST accept the optional slashes but SHOULD NOT generate them. Gateways are allowed to strip them off when converting to Internet mail addressing.

It is essential to remind that "fax-address" element MUST strictly follow the "quoting rules" specified in the relevant standards [2], [3]

#### 4.1 Multiple subaddresses

In case a particular service requires multiple T.33 subaddresses, and these subaddresses need to be given on the same "fax-mbox", multiple "fax-email" elements will be used.

Implementors' note:

The UA could accept multiple subaddress elements for the same global-phone, but it must generate multiple "fax-mbox" elements when passing the message to the MTA.

#### 4.2 Some examples of minimal "fax-email"

FAX=+3940226338@faxworld.org

FAX=+12027653000/T33S=1387@faxworld.org

/FAX=+33-1-88335215/@faxworld.org

#### 5. Conclusion

This proposal creates a minimal standard encoding for FAX addresses within the global e-mail transport system. The proposal requires no changes to existing e-mail software.

#### 6. Security Considerations

This document specifies a means by which FAX addresses can be encoded into e-mail addresses. As routing of e-mail messages is determined by Domain Name System (DNS) information, a successful attack on this service could force the mail path via some particular gateway or message transfer agent where mail security can be affected by compromised software.

There are several means by which an attacker might be able to deliver incorrect mail routing information to a client. These include: (a) compromise of a DNS server, (b) generating a counterfeit response to a client's DNS query, (c) returning incorrect "additional information" in response to an unrelated query. Clients SHOULD ensure that mail routing is based only on authoritative answers. Once DNS Security mechanisms [5] become more widely deployed, clients SHOULD employ those mechanisms to verify the authenticity and integrity of mail routing records.

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## 8. References

- [1] Postel, J., "Simple Mail Transfer Protocol", STD 10, [RFC 821](#), August 1982.
- [2] Crocker, D., "Standard for the format of ARPA Internet text messages", STD 11, [RFC 822](#), August 1982.
- [3] Braden, R., "Requirements for Internet hosts - application and support", [RFC 1123](#), October 1989.
- [4] Malamud, C. and M. Rose, "Principles of Operation for the TPC.INT Subdomain: Remote Printing -- Technical Procedures", [RFC 1528](#), October 1993.
- [5] Eastlake, D. and C. Kaufman, "Domain Name System Security Extensions", [RFC 2065](#), January 1997.
- [6] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#), March 1997.
- [7] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications", [RFC 2234](#), November 1997.
- [8] ITU F.401 - Message Handling Services: Naming and Addressing for Public Message Handling Service; recommendation F.401 (August 1992)
- [9] ITU F.423 - Message Handling Services: Intercommunication Between the Interpersonal Messaging Service and the Telefax Service; recommendation F.423 (August 1992)
- [10] ITU E.164 - Numbering plan for the ISDN era; recommendation E.164/I.331 (August 1991)
- [11] ITU T.33 - Facsimile routing utilizing the subaddress; recommendation T.33 (July, 1996)
- [12] ETSI I-ETS 300,380 - Universal Personal Telecommunication (UPT): Access Devices Dual Tone Multi Frequency (DTMF) sender for acoustical coupling to the microphone of a handset telephone (March 1995)

- [13] Allocchio, C., " Minimal FAX address format in Internet Mail",  
[RFC 2303](#), March 1998.
- [14] Kille, S., "MIXER (Mime Internet X.400 Enhanced Relay): Mapping  
between X.400 and [RFC 822/MIME](#)", [RFC 2156](#), January 1998.

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