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J. Lyon
Microsoft Corp
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Purported Responsible Address in E-Mail Messages

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Abstract

The document defines an algorithm by which, given an e-mail message, one can extract the identity of the party that appears to have most proximately caused that message to be delivered. This identity is called the "Purported Responsible Address" (PRA).

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Conventions used in this document

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 [[RFC2119](#)].

[1.](#) Introduction

Most E-Mail flows relatively directly from a sender to a recipient, with a small number of Mail Transfer Agents (MTAs) in between. Some messages, however, are resent by forwarding agents, mailing list servers, and other such software. These messages effectively result in two or more mail transactions: one from the sender to the forwarding agent, and another from the agent to the destination.

In some cases, messages travel through more than one of these agents. This can occur, for example, when one mailing list is subscribed to another, or when the address subscribed to a mailing list is a forwarding service.

Further complicating the situation, in some cases the party that introduces a message is not the author of the message. For example, many news web sites have a "Mail this article" function that the public can use to e-mail a copy of the article to a friend. In this case, the mail is "from" the person who pressed the button, but is physically sent by the operator of the web site.

This document describes an algorithm that allows one to determine who appears to have most recently caused an e-mail message to be delivered. It does this by inspecting the headers in the message. [[RFC2822](#)] contains a detailed specification of all of the relevant headers.

Note that the results of this algorithm are only as truthful as the headers contained in the message; if a message contains fraudulent or incorrect headers, this algorithm will yield an incorrect result.

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For this reason, the result of the algorithm is called the "Purported Responsible Address" -- "purported" because it tells you what a message claims about where it came from, but not necessarily where it actually came from.

This document does not prescribe any particular uses for the Purported Responsible Address. However, [[SenderID](#)] describes a method of determining whether a particular MTA is authorized to send mail on behalf of the domain contained in the PRA.

2. Determining the Purported Responsible Address

The purported responsible address (PRA) of a message is determined by the following algorithm:

1. Locate the first non-empty Resent-Sender header in the message. If no such header is found, continue with step 2. If it is preceded by a non-empty Resent-From header and one or more Received or Return-Path headers occur after said Resent-From header and before the Resent-Sender header, continue with step 2. Otherwise, proceed to step 5.
2. Locate the first non-empty Resent-From header in the message. If a Resent-From header is found, proceed to step 5. Otherwise, continue with step 3.
3. Locate all the non-empty Sender headers in the message. If there are no such headers, continue with step 4. If there is exactly one such header, proceed to step 5. If there is more than one such header, proceed to step 6.
4. Locate all the non-empty From headers in the message. If there is exactly one such header, continue with step 5. Otherwise, proceed to step 6.
5. A previous step has selected a single header from the message. If that header is malformed (e.g. it appears to contain multiple mailboxes, or the single mailbox is hopelessly malformed, or the single mailbox does not contain a domain name), continue with step 6. Otherwise, return that single mailbox as the Purported Responsible Address.
6. The message is ill-formed, and it is impossible to determine a Purported Responsible Address.

Note that what constitutes a hopelessly malformed header or a hopelessly malformed mailbox in step 5 above is a matter for local

policy. Such local policy will never cause two implementations to return different PRAs. However it may cause one implementation to return a PRA where another implementation does not. This will only occur when dealing with a message containing headers of questionable legality.

Note that steps 1 and 2 above extract the Resent-Sender or Resent-From header from the first resent block (as defined by [section 3.6.6 of \[RFC2822\]](#)) if any. Steps 3 and 4 above extract the Sender or From header if there are no resent blocks.

[3. Security Considerations](#)

The PRA, as described by this document, is extracted from message headers that have historically not been verified. Thus, anyone using the PRA for any purpose MUST be aware that the headers from which is derived might be fraudulent, malicious, malformed and/or incorrect. [[SenderID](#)] describes one mechanism for validating the PRA.

[4. IANA Considerations](#)

This document contains no actions for IANA.

[5. Acknowledgements](#)

The PRA concept was first published in [[CallerID](#)]. It as been refined using valuable suggestions from members of the MARID working group.

[6. References](#)

[6.1 Normative References](#)

- [RFC2119] S. Bradner, "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#).
- [RFC2822] P. Resnick (editor), "Internet Message Format", [RFC 2822](#).

6.2 Informative References

- [CallerID] Microsoft Corporation, Caller ID for E-Mail Technical Specification,
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- [SenderID] J. Lyon and M. Wong, "Sender ID: Authenticating E-Mail",
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7. Author's Address

Jim Lyon
Microsoft Corporation
One Microsoft Way
Redmond, WA 98052
USA
jimlyon@microsoft.com

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