

Common Internet Message Headers

Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

Abstract

This memo contains a table of commonly occurring headers in headings of e-mail messages. The document compiles information from other RFCs such as RFC 822, RFC 1036, RFC 1123, RFC 1327, RFC 1496, RFC 1521, RFC 1766, RFC 1806, RFC 1864 and RFC 1911. A few commonly occurring headers which are not defined in RFCs are also included. For each header, the memo gives a short description and a reference to the RFC in which the header is defined.

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1. Introduction

Many different Internet standards and RFCs define headers which may occur on Internet Mail Messages and Usenet News Articles. The intention of this document is to list all such headers in one document as an aid to people developing message systems or interested in Internet Mail standards.

The document contains all headers which the author has found in the following Internet standards: , RFC 822 [2], RFC 1036 [3], RFC 1123 [5], RFC 1327 [7], RFC 1496 [8], RFC 1521 [11], RFC 1766 [12], RFC 1806 [14], RFC 1864[17] and RFC 1911[20]. Note in particular that heading attributes defined in PEM (RFC 1421-1424) and MOSS (RFC 1848 [16]) are not included. PEM and MOSS headers only appear inside the body of a message, and thus are not headers in the RFC 822 sense. Mail attributes in envelopes, i.e. attributes controlling the message transport mechanism between mail and news servers, are not included. This means that attributes from SMTP [1], UUCP [18] and NNTP [15] are mainly not covered either. Headings used only in HTTP [19] are not included yet, but may be included in future version of this memo. A few additional headers which often can be found in e-mail headings but are not part of any Internet standard are also included.

For each header, the document gives a short description and a reference to the Internet standard or RFC, in which they are defined.

The header names given here are spelled the same way as when they are actually used. This is usually American but sometimes English spelling. One header in particular, "Organisation/Organization", occurs in e-mail headers sometimes with the English and other times with the American spelling.

The following words are used in this memo with the meaning specified below:

heading Formatted text at the top of a message, ended by a blank line

header = heading One field in the heading, beginning with a field name, colon, and followed by the field value(s)

It is my intention to continue updating this document after its publication as an RFC. The latest version, which may be more up-to-date (but also less fully checked out) will be kept available for downloading from URL
<http://www.dsv.su.se/~jpalme/ietf-mail-attributes.pdf>.

Please e-mail me (Jacob Palme <jpalme@dsv.su.se>) if you have noted headers which should be included in this memo but are not.

2. Use of gatewaying headers

RFC 1327 defines a number of new headers in Internet mail, which are defined to map headers which X.400 has but which were previously not standardized in Internet mail. The fact that a header occurs in RFC 1327 indicates that it is recommended for use in gatewaying messages between X.400 and Internet mail, but does not mean that the header is recommended for messages wholly within Internet mail. Some of these headers may eventually see widespread implementation and use in Internet mail, but at the time of this writing (1996) they are not widely implemented or used.

Headers defined only in RFC 1036 for use in Usenet News sometimes appear in mail messages, either because the messages have been gatewayed from Usenet News to e-mail, or because the messages were written in combined clients supporting both e-mail and Usenet News in the same client. These headers are not standardized for use in Internet e-mail and should be handled with caution by e-mail agents.

3. Table of headers

3.1 Phrases used in the tables

"not for general usage"	Used to mark headers which are defined in RFC 1327 for use in messages from or to Internet mail/X.400 gateways. These headers have not been standardized for general usage in the exchange of messages between Internet mail-based systems.
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"not standardized for use in e-mail"	Used to mark headers defined only in RFC 1036 for use in Usenet News. These headers have no standard meaning when appearing in e-mail, some of them may even be used in different ways by different software. When appearing in e-mail, they should be handled with caution. Note that RFC 1036, although generally used as a de-facto standard for Usenet News, is not an official IETF standard or even on the IETF standards track.
"non-standard"	This header is not specified in any of referenced RFCs which define Internet protocols, including Internet Standards, draft standards or proposed standards. The header appears here because it often appears in e-mail or Usenet News. Usage of these headers is not in general recommended. Some header proposed in ongoing IETF standards development work, but not yet accepted, are also marked in this way.
"discouraged"	This header, which is non-standard, is known to create problems and should not be generated. Handling of such headers in incoming mail should be done with great caution.
"controversial"	The meaning and usage of this header is controversial, i.e. different implementors have chosen to implement the header in different ways. Because of this, such headers should be handled with caution and understanding of the different possible interpretations.
"experimental"	This header is used for newly defined headers, which are to be tried out before entering the IETF standards track. These should only be used if both communicating parties agree on using them. In practice, some experimental protocols become de-facto-standards before they are made into IETF standards.

3.2 Trace information

Used to convey the information from the MAIL FROM envelope attribute in final delivery, when the message leaves the SMTP environment in which "MAIL FROM" is used.	Return-Path:	RFC 821, RFC 1123: 5.2.13.
Trace of MTAs which a message has passed.	Received:	RFC 822: 4.3.2, RFC 1123: 5.2.8.
List of MTAs passed.	Path:	RFC 1036: 2.1.6, only in Usenet News, not in e- mail.
Trace of distribution lists passed.	DL-Expansion- History- Indication:	RFC 1327, not for general usage.

3.3 Format and control information

An indicator that this message is formatted according to the MIME standard, and an indication of which version of MIME is utilized.	MIME-Version:	RFC 1521: 3.
Special Usenet News actions only.	Control:	RFC 1036: 2.1.6, only in Usenet News, not in e- mail.
Special Usenet News actions and a normal article at the same time.	Also-Control:	son-of-RFC1036 [21], non- standard, only in Usenet News, not in e-mail
Which body part types occur in this message.	Original- Encoded- Information- Types:	RFC 1327, not for general usage.

Controls whether this message may be forwarded to alternate recipients such as a postmaster if delivery is not possible to the intended recipient. Default: Allowed.

Alternate-Recipient:

RFC 1327, not for general usage.

Whether recipients are to be told the names of other recipients of the same message. This is primarily an X.400 facility. In X.400, this is an envelope attribute and refers to disclosure of the envelope recipient list. Disclosure of other recipients is in Internet mail done via the To:, cc: and bcc: headers.

Disclose-Recipients:

RFC 1327, not for general usage.

Whether a MIME body part is to be shown inline or is an attachment; can also indicate a suggested filename for use when saving an attachment to a file.

Content-Disposition:

RFC 1806, experimental

3.4 Sender and recipient indication

Authors or persons taking responsibility for the message.

From:

RFC 822: 4.4.1,
RFC 1123: 5.2.15-16, 5.3.7,
RFC 1036 2.1.1

Note difference from the "From " header (not followed by ":") below.

(1) This header should never appear in e-mail being sent, and should thus not appear in this memo. It is however included, since people often ask about it.

From

not standardized for use in e-mail

This header is used in the so-called Unix mailbox format, also known as Berkely mailbox format or the MBOX format. This is a format for storing a set of messages in a file. A line beginning with "From " is used to separate successive messages in such files.

This header will thus appear when you use a text editor to look at a file in the Unix mailbox format. Some mailers also use this format when printing messages on paper.

The information in this header should NOT be used to find an address to which replies to a message are to be sent.

(2) Used in Usenet News mail transport, to indicate the path through which an article has gone when transferred to a new host.

From
or
>From

RFC 976: 2.4 for
use in Usenet News

Sometimes called "From_" header.

Name of the moderator of the newsgroup to which this article is sent; necessary on an article sent to a moderated newsgroup to allow its distribution to the newsgroup members. Also used on certain control messages, which are only performed if they are marked as Approved.

Approved:

RFC 1036: 2.2.11,
not standardized
for use in e-mail.

The person or agent submitting the message to the network, if other than shown by the From: header.

Sender:

RFC 822: 4.4.2,
RFC 1123: 5.2.15-
16, 5.3.7.

Primary recipients.

To:

RFC 822: 4.5.1,
RFC 1123: 5.2.15-
16, 5.3.7.

Secondary, informational recipients. (cc = Carbon Copy)	cc:	RFC 822: 4.5.2, RFC 1123: 5.2.15-16, 5.3.7.
Recipients not to be disclosed to other recipients. (bcc = Blind Carbon Copy).	bcc:	RFC 822: 4.5.3, RFC 1123: 5.2.15-16, 5.3.7.
Primary recipients, who are requested to handle the information in this message or its attachments.	For-Handling:	Non-standard
Primary recipients, who are requested to comment on the information in this message or its attachments.	For-Comment:	Non-standard
In Usenet News: group(s) to which this article was posted. Some systems provide this header also in e-mail although it is not standardized there.	Newsgroups:	RFC 1036: 2.1.3, not standardized and controversial for use in e-mail.

Unfortunately, the header can appear in e-mail with two different and contradictory meanings:

(a) Indicating the newsgroup recipient of an article/message sent to both e-mail and Usenet News recipients.

(b) In a personally addressed reply to an article in a newsgroup, indicating the newsgroup in which this discussion originated.

Inserted by Sendmail when there is no "To:" recipient in the original message, listing recipients derived from the envelope into the message heading. This behavior is not quite proper, MTAs should not modify headings (except inserting Received lines), and it can in some cases cause Bcc recipients to be wrongly divulged to non-Bcc recipients.

Apparently-To:

Non-standard, discouraged, mentioned in RFC 1211.

Geographical or organizational limitation on where this article can be distributed.

Distribution:

RFC 1036: 2.2.7, not standardized for use in e-mail.

Fax number of the originator.

Fax:,
Telefax:

Non-standard.

Phone number of the originator.

Phone:

Non-standard.

Information about the client software of the originator.

Mail-System-Version:,
Mailer:,
Originating-Client:, X-Mailer, X-Newsreader

Non-standard.

3.5 Response control

This header is meant to indicate where the sender wants replies to go. Unfortunately, this is ambiguous, since there are different kinds of replies, which the sender may wish to go to different addresses. In particular, there are personal replies intended for only one person, and group replies, intended for the whole group of people who read the replied-to message (often a mailing list, anewsgroup name cannot appear here because of different syntax, see "Followup-To" below.).

Reply-To:

RFC 822: 4.4.3,
RFC 1036: 2.2.1
controversial.

Some mail systems use this header to indicate a better form of the e-mail address of the sender. Some mailing list expanders puts the name of the list in this header. These practices are controversial. The personal opinion of the author of this RFC is that this header should be avoided except in special cases, but this is a personal opinion not shared by all specialists in the area.

Used in Usenet News to indicate that future discussions (=follow-up) on an article should go to a different set of newsgroups than the replied-to article. The most common usage is when an article is posted to several newsgroups, and further discussions is to take place in only one of them.

Followup-To: RFC 1036: 2.2.3,
not standardized
for use in e-mail.

In e-mail, this header may occur in a message which is sent to both e-mail and Usenet News, to show where follow-up in Usenet news is wanted. The header does not say anything about where follow-up in e-mail is to be sent.

Note that the value of this header must always be one or more newsgroup names, never e-mail addresses.

Address to which notifications are to be sent and a request to get delivery notifications. Internet standards recommend, however, the use of RCPT TO and Return-Path, not Errors-To, for where delivery notifications are to be sent.

Errors-To:, Non-standard,
Return- discouraged.
Receipt-To:

Whether non-delivery report is wanted at delivery error. Default is to want such a report.	Prevent-NonDelivery-Report:	RFC 1327, not for general usage.
Whether a delivery report is wanted at successful delivery. Default is not to generate such a report.	Generate-Delivery-Report:	RFC 1327, not for general usage.
Indicates whether the content of a message is to be returned with non-delivery notifications.	Content-Return:	RFC 1327, not for general usage.
Possible future change of name for "Content-Return:"	X400-Content-Return:	non-standard

3.6 Message identification and referral headers

Unique ID of this message.	Message-ID:	RFC 822: 4.6.1 RFC 1036: 2.1.5.
Unique ID of one body part of the content of a message.	Content-ID:	RFC 1521: 6.1.
Base to be used for resolving relative URIs within this content part.	Content-Base:	Non-standard
URI with which the content of this content part might be retrievable.	Content-Location:	Non-standard
Reference to message which this message is a reply to.	In-Reply-To:	RFC 822: 4.6.2.
In e-mail: reference to other related messages, in Usenet News: reference to replied-to-articles.	References:	RFC 822: 4.6.3 RFC 1036: 2.1.5.
References to other related articles in Usenet News.	See-Also:	Son-of-RFC1036 [21], non-standard
Reference to previous message being corrected and replaced. Compare to "Supersedes:" below. This field may in the future be replaced with "Supersedes:".	Obsoletes:	RFC 1327, not for general usage.

Commonly used in Usenet News in similar ways to the "Obsoletes" header described above. In Usenet News, however, Supersedes causes a full deletion of the replaced article in the server, while "Supersedes" and "Obsoletes" in e-mail is implemented in the client and often does not remove the old version of the text.

Supersedes: son-of-RFC1036
[21], non-standard

Only in Usenet News, similar to "Supersedes:" but does not cause the referenced article to be physically deleted.

Article-Updates: son-of-RFC1036
[21], non-standard

Reference to specially important articles for a particular Usenet Newsgroup.

Article-Names: son-of-RFC1036
[21], non-standard

3.7 Other textual headers

Search keys for data base retrieval.

Keywords: RFC 822: 4.7.1
RFC 1036: 2.2.9.

Title, heading, subject. Often used as thread indicator for messages replying to or commenting on other messages.

Subject: RFC 822: 4.7.1
RFC 1036: 2.1.4.

Comments on a message.

Comments: RFC 822: 4.7.2.

Description of a particular body part of a message.

Content-Description: RFC 1521: 6.2.

Organization to which the sender of this article belongs.

Organization: RFC 1036: 2.2.8,
not standardized
for use in e-mail.

See Organization above.

Organisation: Non-standard.

Short text describing a longer article. Warning: Some mail systems will not display this text to the recipient. Because of this, do not use this header for text which you want to ensure that the recipient gets.

Summary: RFC 1036: 2.2.10,
not standardized
for use in e-mail,
discouraged.

A text string which identifies the content of a message.

Content-
Identifier:

RFC 1327, not for
general usage.

3.8 Headers containing dates and times

The time when a message was delivered to its recipient.

Delivery-
Date:

RFC 1327, not for
general usage.

In Internet, the date when a message was written, in X.400, the time a message was submitted. Some Internet mail systems also use the date when the message was submitted.

Date:

RFC 822: 5.1,
RFC 1123: 5.2.14
RFC 1036: 2.1.2.

A suggested expiration date. Can be used both to limit the time of an article which is not meaningful after a certain date, and to extend the storage of important articles.

Expires:

RFC 1036: 2.2.4,
not standardized
for use in e-mail.

Time at which a message loses its validity. This field may in the future be replaced by "Expires:".

Expiry-Date:

RFC 1327, not for
general usage.

Latest time at which a reply is requested (not demanded).

Reply-By:

RFC 1327, not for
general usage.

3.9 Quality information

Can be "normal", "urgent" or "non-urgent" and can influence transmission speed and delivery.

Priority:

RFC 1327, not for
general usage.

Sometimes used as a priority value which can influence transmission speed and delivery. Common values are "bulk" and "first-class". Other uses is to control automatic replies and to control return-of-content facilities, and to stop mailing list loops.

Precedence:

Non-standard,
controversial,
discouraged.

A hint from the originator to the recipients about how important a message is. Values: High, normal or low. Not used to control transmission speed.

Importance:

RFC 1327 and
RFC 1911,
experimental

How sensitive it is to disclose this message to other people than the specified recipients. Values: Personal, private, company confidential. The absence of this header in messages gatewayed from X.400 indicates that the message is not sensitive.

Sensitivity:

RFC 1327 and
RFC 1911,
experimental

Body parts are missing.

Incomplete-
Copy:

RFC 1327, not for
general usage.

3.10 Language information

Can include a code for the natural language used in a message, e.g. "en" for English.

Language:

RFC 1327, not for
general usage.

Can include a code for the natural language used in a message, e.g. "en" for English.

Content-
Language:

RFC 1766, proposed
standard.

3.11 Size information

Inserted by certain mailers to indicate the size in bytes of the message text. This is part of a format some mailers use when showing a message to its users, and this header should not be used when sending a message through the net. The use of this header in transmission of a message can cause several robustness and interoperability problems.

Content-
Length:

Non-standard,
discouraged.

Size of the message.

Lines:

RFC 1036: 2.2.12,
not standardized
for use in e-mail.

3.12 Conversion control

The body of this message may not be converted from one character set to another. Values: Prohibited and allowed.	Conversion:	RFC 1327, not for general usage.
Non-standard variant of Conversion: with the same values.	Content-Conversion:	Non-standard.
The body of this message may not be converted from one character set to another if information will be lost. Values: Prohibited and allowed.	Conversion-With-Loss:	RFC 1327, not for general usage.

3.13 Encoding information

Format of content (character set etc.) Note that the values for this header are defined in different ways in RFC 1049 and in MIME (RFC 1521), look for the "MIME-version" header to understand if Content-Type is to be interpreted according to RFC 1049 or according to MIME. The MIME definition should be used in generating mail.	Content-Type:	RFC 1049, RFC 1123: 5.2.13, RFC 1521: 4. RFC 1766: 4.1
RFC 1766 defines a parameter "difference" to this header.		
Information from the SGML entity declaration corresponding to the entity contained in the body of the body part.	Content-SGML-Entity:	non-standard
Coding method used in a MIME message body.	Content-Transfer-Encoding:	RFC 1521: 5.
Only used with the value "Delivery Report" to indicates that this is a delivery report gatewayed from X.400.	Message-Type:	RFC 1327, not for general usage.

Used in several different ways by different mail systems. Some use it for a kind of content-type information, some for encoding and length information, some for a kind of boundary information, some in other ways.

Encoding: RFC 1154,
RFC 1505,
experimental.

3.14 Resent-headers

When manually forwarding a message, headers referring to the forwarding, not to the original message. Note: MIME specifies another way of resending messages, using the "Message" Content-Type.

Resent-Reply- RFC 822: C.3.3.
To:,
Resent-From:,
Resent-Sender:,
Resent-From:,
Resent-Date:,
Resent-To:,
Resent-cc:,
Resent-bcc:,
Resent-
Message-ID:

3.15 Security and reliability

Checksum of content to ensure that it has not been modified.

Content-MD5: RFC 1864, proposed standard.

Used in Usenet News to store information to avoid showing a reader the same article twice if it was sent to more than one newsgroup. Only for local usage within one Usenet News server, should not be sent between servers.

Xref: RFC 1036: 2.2.13,
only in Usenet
News, not in e-
mail.

3.16 Miscellaneous

Name of file in which a copy of this message is stored.

Fcc: Non-standard.

Has been automatically forwarded.

Auto-Forwarded: RFC 1327, not for general usage.

Can be used in Internet mail to indicate X.400 IPM extensions which could not be mapped to Internet mail format.

Discarded-
X400-IPMS-
Extensions:

RFC 1327, not for
general usage.

Can be used in Internet mail to indicate X.400 MTS extensions which could not be mapped to Internet mail format.

Discarded-
X400-MTS-
Extensions:

RFC 1327, not for
general usage.

This field is used by some mail delivery systems to indicate the status of delivery for this message when stored. Common values of this field are:

Status:

Non-standard,
should never
appear in mail in
transit.

U message is not downloaded
 and not deleted.

R message is read or
 downloaded.

O message is old but not
 deleted.

D to be deleted.

N new (a new message also
 sometimes is distinguished
 by not having any "Status:"
 header.

Combinations of these characters
can occur, such as "Status: OR"
to indicate that a message is
downloaded but not deleted.

4. Acknowledgments

Harald Tveit Alvestrand, Ned Freed, Olle Jdrnefors, Keith Moore, Nick Smith and several other people have helped me with compiling this list. I especially thank Ned Freed and Olle Jdrnefors for their thorough review and many helpful suggestions for improvements. I alone take responsibility for any errors which may still be in the list.

An earlier version of this list has been published as part of [13].

5. References

Ref.	Author, title	IETF status (July 1996)
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[2]	D. Crocker: "Standard for the format of ARPA Internet text messages." STD 11, RFC 822, August 1982.	Standard, Recommended
[3]	M.R. Horton, R. Adams: "Standard for interchange of USENET messages", RFC 1036, December 1987.	Not an offi- cial IETF standard, but in reality a de- facto standard for Usenet News
[4]	M. Sirbu: "A Content-Type header header for internet messages", RFC 1049, March 1988.	Standard, Recommended, but can in the future be expected to be replaced by MIME
[5]	R. Braden (editor): "Requirements for Internet Hosts -- Application and Support", STD-3, RFC 1123, October 1989.	Standard, Required
[6]	D. Robinson, R. Ullman: "Encoding Header Header for Internet Messages", RFC 1154, April 1990.	Non-standard

- | | | |
|------|---|-----------------------------|
| [7] | S. Hardcastle-Kille: "Mapping between X.400(1988) / ISO 10021 and RFC 822", RFC 1327 May 1992. | Proposed standard, elective |
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| [12] | H. Alvestrand: "Tags for the Identification of Languages", RFC 1766, February 1995. | Proposed standard, elective |
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| [16] | 1848 PS S. Crocker, N. Freed, J. Galvin, S. Murphy, "MIME Object Security Services", RFC 1848, March 1995. | Proposed standard |
| [17] | J. Myers, M. Rose: The Content-MD5 Header Header, RFC 1864, October 1995. | Draft standard |

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- [20] G. Vaudreuil: Voice Profile for Internet Mail, RFC 1911, February 1996. Experimental
- [21] H. Spencer: News Article Format and Transmission, June 1994,
FTP://zoo.toronto.edu/pub/news.ps
FTP://zoo.toronto.edu/pub/news.txt.Z
This document is often referenced under the name "son-of-RFC1036". Not even an RFC, but still widely used and partly almost a de-facto standard for Usenet News

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Appendix A:

Headers sorted by Internet RFC document in which they appear.

RFC 822

bcc

cc

Comments

Date

From

In-Reply-To

Keywords

Message-ID

Received

References

Reply-To

Resent-

Resent-bcc

Resent-cc

Resent-Date

Resent-From

Resent-From

Resent-Message-ID

Resent-Reply-To

Resent-To

Return-Path

Sender

Sender

Subject

To

RFC 976

"From " (followed by space, not colon (:))

RFC 1036

Approved
Control
Distribution
Expires
Followup-To
Lines
Newsgroups
Organization
Path
Summary
Xref

RFC 1049

Content-Type

RFC 1327

Alternate-recipient
Auto-Forwarded
Autoforwarded
Content-Identifier
Content-Return
Conversion
Conversion-With-Loss
Delivery-Date
Discarded-X400-IPMS-Extensions
Discarded-X400-MTS-Extensions
Disclose-Recipients
DL-Expansion-History
Expiry-Date
Generate-Delivery-Report
Importance
Incomplete-Copy
Language
Message-Type Delivery
Obsoletes
Original-Encoded-Information-Types
Prevent-NonDelivery-Report
Priority
Reply-By
Report
Sensitivity

RFC 1505

Encoding

RFC 1521

Content-Description

Content-ID

Content-Transfer-Encoding

Content-Type

MIME-Version

RFC 1806

Content-Disposition

RFC 1864

Content-MD5

RFC 1911

Importance

Sensitivity

son-of-RFC1036 [21]

Also-Control

Article-Names

Article-Updates

See-Also

Supersedes

Not Internet standard

Apparently-to
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Content-Length
Content-Location
Content-SGML-Entity
Encoding
Errors-To
Return-Receipt-To
Fax
"From " (not followed by ":")
Telefax
Fcc
For-Comment
For-Handling
Mail-System-Version
Mailer
Organisation
Originating-Client
Phone
Status
Supersedes
X400-Content-Return
X-Mailer
X-Newsreader

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