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# The mailto URL scheme

## Status of this Memo



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## Abstract

This document defines the format of Uniform Resource Locators (URL) for designating electronic mail addresses. It is one of a suite of documents which replace RFC 1738, 'Uniform Resource Locators', and RFC 1808, 'Relative Uniform Resource Locators'. The syntax of 'mailto' URLs from RFC 1738 is extended to allow creation of more RFC 822 messages by allowing the URL to express additional header and body fields.

## 1. Introduction

The mailto URL scheme is used to designate the Internet mailing address of an individual or service. In its simplest form, a mailto URL contains an Internet mail address.

For greater functionality, because interaction with some resources may require message headers or message bodies to be specified as well as the mail address, the mailto URL scheme is extended to allow setting mail header fields and the message body.

## 2. Syntax of a mailto URL

Following the syntax conventions of RFC 1738 [RFC1738], a "mailto" URL has the form:

```
mailtoURL  =  "mailto:" [ to ] [ headers ]
to         =  #mailbox
headers    =  "?" header *( "&" header )
header     =  hname "=" hvalue
hname      =  *urlc
hvalue     =  *urlc
```

"#mailbox" is as specified in RFC 822 [RFC822]. This means that it consists of zero or more comma-separated mail addresses, possibly including "phrase" and "comment" components. Note that all URL reserved characters in "to" must be encoded: in particular, parentheses, commas, and the percent sign ("%"), which commonly occur in the "mailbox" syntax.

"hname" and "hvalue" are encodings of an RFC 822 header name and value, respectively. As with "to", all URL reserved characters must be encoded.

The special hname "body" indicates that the associated hvalue is the body of the message. The "body" hname should contain the content for the first text/plain body part of the message. The mailto URL is primarily intended for generation of short text messages that are actually the content of automatic processing (such as "subscribe" messages for mailing lists), not general MIME bodies.

Within mailto URLs, the characters "?", "=", "&" are reserved.

Because the "&" (ampersand) character is reserved in HTML, any mailto URL which contains an ampersand must be spelled differently in HTML than in other contexts. A mailto URL which appears in an HTML document must use "&" instead of "&".

Also note that it is legal to specify both "to" and an "hname" whose value is "to". That is,

mailto:addr1%2C%20addr2

is equivalent to

mailto:?to=addr1%2C%20addr2

is equivalent to

mailto:addr1?to=addr2

8-bit characters in mailto URLs are forbidden. MIME encoded words (as defined in [RFC2047]) are permitted in header values, but not for any part of a "body" hname.

## 3. Semantics and operations

A mailto URL designates an "internet resource", which is the mailbox specified in the address. When additional headers are supplied, the resource designated is the same address, but with an additional profile for accessing the resource. While there are Internet resources that can only be accessed via electronic mail, the mailto URL is not intended as a way of retrieving such objects automatically.

In current practice, resolving URLs such as those in the "http" scheme causes an immediate interaction between client software and a host running an interactive server. The "mailto" URL has unusual semantics because resolving such a URL does not cause an immediate interaction. Instead, the client creates a message to the designated address with the various header fields set as default. The user can edit the message, send this message unedited, or choose not to send the message. The operation of how any URL scheme is resolved is not mandated by the URL specifications.

## 4. Unsafe headers

The user agent interpreting a mailto URL SHOULD choose not to create a message if any of the headers are considered dangerous; it may also choose to create a message with only a subset of the headers given in the URL. Only the Subject, Keywords, and Body headers are believed to be both safe and useful.

The creator of a mailto URL cannot expect the resolver of a URL to understand more than the "subject" and "body" headers. Clients that resolve mailto URLs into mail messages should be able to correctly create RFC 822-compliant mail messages using the "subject" and "body" headers.

## 5. Encoding

RFC 1738 requires that many characters in URLs be encoded. This affects the mailto scheme for some common characters that might appear in addresses, headers or message contents. One such character is space (" ", ASCII hex 20). Note the examples above that use "%20" for space in the message body. Also note that line breaks in the body of a message MUST be encoded with "%0D%0A".

People creating mailto URLs must be careful to encode any reserved characters that are used in the URLs so that properly-written URL interpreters can read them. Also, client software that reads URLs must be careful to decode strings before creating the mail message so

that the mail messages appear in a form that the recipient will understand. These strings should be decoded before showing the user the message.

The mailto URL scheme is limited in that it does not provide for substitution of variables. Thus, a message body that must include a user's email address can not be encoded using the mailto URL. This limitation also prevents mailto URLs that are signed with public keys and other such variable information.

## 6. Examples

URLs for an ordinary individual mailing address:

```
<mailto:chris@example.com>
```

A URL for a mail response system that requires the name of the file in the subject:

```
<mailto:infobot@example.com?subject=current-issue>
```

A mail response system that requires a "send" request in the body:

```
<mailto:infobot@example.com?body=send%20current-issue>
```

A similar URL could have two lines with different "send" requests (in this case, "send current-issue" and, on the next line, "send index".)

```
<mailto:infobot@example.com?body=send%20current-
issue%0D%0Asend%20index>
```

An interesting use of your mailto URL is when browsing archives of messages. Each browsed message might contain a mailto URL like:

```
<mailto:foobar@example.com?In-Reply-
To=%3c3469A91.D10AF4C@example.com>
```

A request to subscribe to a mailing list:

```
<mailto:majordomo@example.com?body=subscribe%20bamboo-l>
```

A URL for a single user which includes a CC of another user:

```
<mailto:joe@example.com?cc=bob@example.com&body=hello>
```

Another way of expressing the same thing:

```
<mailto:?to=joe@example.com&cc=bob@example.com&body=hello>
```

Note the use of the "&" reserved character, above. The following example, by using "?" twice, is incorrect:

```
<mailto:joe@example.com?cc=bob@example.com?body=hello>   ; WRONG!
```

According to RFC 822, the characters "?", "&", and even "%" may occur in addr-specs. The fact that they are reserved characters in this URL scheme is not a problem: those characters may appear in mailto URLs, they just may not appear in unencoded form. The standard URL encoding mechanisms ("%" followed by a two-digit hex number) must be used in certain cases.

To indicate the address "gorby%kremvax@example.com" one would do:

```
<mailto:gorby%25kremvax@example.com>
```

To indicate the address "unlikely?address@example.com", and include another header, one would do:

```
<mailto:unlikely%3Faddress@example.com?blat=foop>
```

As described above, the "&" (ampersand) character is reserved in HTML and must be replacded with "&". Thus, a complex URL that has internal ampersands might look like:

```
Click
<a href="mailto:?to=joe@xyz.com&amp;cc=bob@xyz.com&amp;body=hello">
mailto:?to=joe@xyz.com&amp;cc=bob@xyz.com&amp;body=hello</a> to
send a greeting message to <i>Joe and Bob</i>.
```

## 7. Security Considerations

The mailto scheme can be used to send a message from one user to another, and thus can introduce many security concerns. Mail messages can be logged at the originating site, the recipient site, and intermediary sites along the delivery path. If the messages are not encoded, they can also be read at any of those sites.

A mailto URL gives a template for a message that can be sent by mail client software. The contents of that template may be opaque or difficult to read by the user at the time of specifying the URL. Thus, a mail client should never send a message based on a mailto URL without first showing the user the full message that will be sent (including all headers that were specified by the mailto URL), fully decoded, and asking the user for approval to send the message as electronic mail. The mail client should also make it clear that the user is about to send an electronic mail message, since the user may not be aware that this is the result of a mailto URL.

A mail client should never send anything without complete disclosure to the user of what is will be sent; it should disclose not only the message destination, but also any headers. Unrecognized headers, or headers with values inconsistent with those the mail client would normally send should be especially suspect. MIME headers (MIME-Version, Content-*) are most likely inappropriate, as are those relating to routing (From, Bcc, Apparently-To, etc.)

Note that some headers are inherently unsafe to include in a message generated from a URL. For example, headers such as "From:", "Bcc:", and so on, should never be interpreted from a URL. In general, the fewer headers interpreted from the URL, the less likely it is that a sending agent will create an unsafe message.

Examples of problems with sending unapproved mail include:

* mail that breaks laws upon delivery, such as making illegal threats;

* mail that identifies the sender as someone interested in breaking laws;

* mail that identifies the sender to an unwanted third party;

* mail that causes a financial charge to be incurred on the sender;

* mail that causes an action on the recipient machine that causes damage that might be attributed to the sender.

Programs that interpret mailto URLs should ensure that the SMTP "From" address is set and correct.

## 8. IANA Considerations

This document changes the definition of the mailto: URI scheme; any registry of URI schemes should refer to this document rather than its predecessor, RFC 1738.

## 9. References

[RFC822] Crocker, D., "Standard for the Format of ARPA Internet Text Messages", STD 11, RFC 822, August 1982.

[RFC1738] Berners-Lee, T., Masinter, L., and M. McCahill, Editors, "Uniform Resource Locators (URL)", RFC 1738, December 1994.

[RFC1808] Fielding, R., "Relative Uniform Resource Locators", RFC 1808, June 1995.

[RFC2047] Moore, K., "MIME Part Three: Message Header Extensions for Non-ASCII Text", RFC 2047, November 1996.

## A. Change from RFC 1738

RFC 1738 defined only a simple 'mailto' with no headers, just an addr-spec (not a full mailbox.) However, required usage and implementation has led to the development of an extended syntax that included more header fields.

## B. Acknowledgments

This document was derived from RFC 1738 and RFC 1808 [RFC1808]; the acknowledgments from those specifications still applies.

The following people contributed to this memo or had and discussed similar ideas for mailto.

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