Content-ID header field in Session Initiation Protocol (SIP)
draft-ietf-sipcore-content-id-05

Abstract

   This document specifies the Content-ID header field for usage in the
   Session Initiation Protocol (SIP). The document also updates RFC
   5621, to enable a Content-ID URL to reference a complete message-body
   and metadata provided by some additional SIP header fields.

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   This Internet-Draft will expire on November 10, 2017.

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1. Introduction

1.1. Identifying a body part

   A SIP message consists of a start-line, one or more header fields, an
   empty line indicating the end of the header fields, and an optional
   message-body, as specified in [RFC3261].

   The message-body can be a non-multipart message-body or a multipart
   message-body as specified in [RFC3261].

   [RFC5621] defines generic handling of a multipart message-body in a
   SIP message.

   A multipart message-body contains zero, one or several body parts,
   encoded using [RFC2045] format.

   A body part in the multipart message-body is described using header
   fields such as Content-Disposition, Content-Encoding, and Content-
   Type, which provide information on the content of the body part, as
   specified in [RFC5621]. A body part in the multipart message-body

can also contain a Content-ID header field with an ID value uniquely
identifying the body part, as specified in [RFC2045].

1.2. Referencing a body part

A SIP header field can reference a body part using a Content-ID URL,
as specified in [RFC5621].

The Content-ID URL is specified in [RFC2392]. [RFC2392] specifies
how to identify the body part referenced by a Content-ID URL. The
Content-ID URL value is included in the Content-ID header field of
the body part.

Examples of SIP header fields referencing a body part using a
Content-ID URL are:

o [RFC6442] specifies how a Geolocation header field references a
   body part using a Content-ID URL, for providing location.
o [RFC5368] specifies how a Refer-To header field references a body
   part using a Content-ID URL, to provide a list of targets.

1.3. Problem statement

It is currently not specified how to uniquely identify a complete
message-body of a SIP message using a Content-ID header field, and
how to reference a complete message-body using a Content-ID URL.

1.4. Consequences

The examples below shows the consequences of the problem described
above.

1.4.1. Example 1

If a UAC sends an INVITE request conveying location as specified in
[RFC6442], if the UAC decides not to include an SDP offer, and if the
location is conveyed by value, then the UAC needs to include only one
MIME entity in the INVITE request. This MIME entity can be e.g. of
the application/pidf+xml MIME type.

However, due to [RFC6442] requiring inclusion of a Geolocation header
field referencing the body part with the location information, the
UAC includes a multipart message-body with single body part in the
INVITE request, and includes the location information of application/
pidf+xml MIME type and an associated Content-ID header field in the
body part.

1.4.2. **Example 2**

   If a UAC sends an REFER request including a list of targets as
   specified in [RFC5368], then the UAC needs to include only one MIME
   entity in the REFER request. This MIME entity is of the application/
   resource-lists+xml MIME type.

   However, due to [RFC5368] requiring inclusion of a Refer-To header
   field referencing the body part containing the list of targets, the
   UAC includes a multipart message-body with single body part in the
   REFER request, and includes the list of targets of application/
   resource-lists+xml MIME type and an associated Content-ID header
   field in the body part.

1.5. **Solution**

   In order to solve the problems described above, this document:

   o Specifies and registers the Content-ID header field as a SIP
      header field; and
   o Specifies that, when used as a SIP header field, the Content-ID
      header field identifies the complete message-body, and metadata
      provided by some additional SIP header fields, of the SIP message;
      and
   o Updates [RFC5621], to enable a Content-ID URL to reference a
      complete message-body and metadata provided by some additional SIP
      header fields.

   NOTE: In [RFC5621], the Content-ID URL references a specific body
   part only.

2. **Conventions**

   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].

3. **Content-ID header field**

3.1. **Introduction**

   This section defines the usage of the Content-ID header field for
   SIP.

3.2. Syntax

The ABNF [RFC5234] for the Content-ID header field is:

```
Content-ID = "Content-ID" HCOLON msg-id

msg-id     = "<" id-left "@" id-right ">"

NOTE: id-left and id-right are specified in [RFC5322]. HCOLON is
defined in [RFC3261].

NOTE: When used in a SIP header field, the msg-id syntax has been
simplified compared to the syntax in [RFC5322].
```

3.3. Semantics

The Content-ID header field included in the header fields of a SIP
message identifies the message-body of the SIP message, and the
metadata provided by:

o a MIME-Version header field, if included in the header fields of
   the SIP message; and
o any 'Content-' prefixed header fields (including the Content-ID
   header field itself) included in the header fields of the SIP
   message.

The Content-ID header field can be included in any SIP message which
is allowed to contain a message-body.

3.4. Procedures

3.4.1. UA procedures

A UA MAY include a Content-ID header field in any SIP message that is
allowed to contain a message-body.

A UA MUST NOT include a Content-ID header field in any SIP message
that is not allowed to contain a message-body.

The UA MUST set the value of the Content-ID header field to a
globally unique value.

3.4.2. Proxy procedures

A proxy MUST NOT add a Content-ID header field in a SIP message.

A proxy MUST NOT modify a Content-ID header field included in a SIP
message.

A proxy MUST NOT delete a Content-ID header field from a SIP message.

4. Update to RFC 5621

This section updates section 9.1 of [RFC5621], by allowing a Content-
ID URL to reference a message-body and the related metadata
(Section 3.3), in addition to allowing a reference to a body part.

OLD TEXT:

  Content-ID URLs allow creating references to body parts. A given
  Content-ID URL [RFC2392], which can appear in a header field or
  within a body part (e.g., in an SDP attribute), points to a
  particular body part.

NEW TEXT:

  Content-ID URLs allow creating references to body parts or
  message-bodies (and the header fields describing the
  message-bodies). A given Content-ID URL [RFC2392], which can appear
  in a header field or within a body part (e.g., in an SDP attribute),
  points to a particular body part or the message-body (and the
  header fields describing the message-body).

5. Security considerations

The Content-ID header field value MUST NOT reveal sensitive user
information.

If the message-body associated with the Content-ID header field is an
encrypted body, it MUST NOT be possible to derive a key that can be
used to decrypt the body from the Content-ID header field value.

6. IANA considerations

This specification registers a new SIP header field according to the
procedures in [RFC3261].

6.1. Header field

The header field described in Section 3 has been registered in the
"Header Fields" sub-registry of the "Session Initiation Protocol
(SIP) Parameters" registry by adding a row with these values:

[RFC EDITOR NOTE: Please replace XXXX with the RFC number of this
document when publishing]

   Header Name: Content-ID

   compact:

   Reference: RFCXXXX

7. Change log

[RFC EDITOR NOTE: Please remove this section when publishing]

Changes from draft-ietf-sipcore-content-id-04

o Minor editorial fix.

Changes from draft-ietf-sipcore-content-id-03

o Changes based on doc shepard review:
o - Reference to RFC 5234 added.
o - Editorial changes.

Changes from draft-ietf-sipcore-content-id-02

o Editorial changes based on comments from Paul Kyzivat.

Changes from draft-ietf-sipcore-content-id-01

o Update to RFC 5621 added.
o Editorial changes.

8. Normative references

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   [RFC6442] Polk, J., Rosen, B., and J. Peterson, "Location Conveyance
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