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       The SDP (Session Description Protocol) Label Attribute
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Abstract

   This document defines a new Session Description Protocol (SDP)
   media-level attribute: "label". The "label" attribute carries a
   pointer to a media stream in the context of an arbitrary network
   application that uses SDP. The sender of the SDP document can attach
   the "label" attribute to a particular media stream or streams. The
   application can then use the provided pointer to refer to each

   particular media stream in its context.

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1. Introduction

   SDP is being used by a variety of distributed over the network
   applications. These applications deal with multiple sessions being
   described by SDP [4] and serving multiple users or services in the
   context of a single application instance. Applications of this kind
   need a means to identify a particular media stream across multiple
   SDP descriptions exchanged with different users.

   The XCON framework is an example of a centralized conference
   architecture that uses SDP according to the offer/answer mechanism
   defined in [3] to establish media streams with each of the conference
   participants. Additionally, XCON identifies the need to uniquely
   identify a media stream in terms of its role in a conference
   regardless of its media type, transport protocol, and media format.
   This can be acomplished by using an external document that points to
   the appropriate media stream and provides information (e.g., the
   media stream's role in the conference) about it.

   This specification defines the SDP [4] "label" media-level attribute,
   which provides a pointer to a media stream which is described by an
   'm' line in an SDP session description.

2. Terminology

   In this document, the key words "MUST", "MUST NOT", "REQUIRED",
   "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT
   RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as
   described in BCP 14, RFC 2119 [1] and indicate requirement levels for
   compliant implementations.

3. Motivation for the New label Attribute

   Even though SDP and its extensions already provide a few ways to
   refer to a media stream, none of them is appropriate to be used in
   the context of external documents that may be created before the
   session description itself and need to be handled by automata.

   The 'i' SDP attribute, defined in RFC 2327 [4], can be used to label
   media streams. Nevertheless, values of the 'i' attribute are
   intended for human users and not for automata.

   The 'mid' SDP attribute, defined in RFC 3388 [6], can be used to
   identify media streams as well. Nevertheless, the scope of 'mid' is
   too limited to be used by applications dealing with multiple SDP
   sessions. This is due to the fact that values of the 'mid' attribute
   are meaningful in the context of a single SDP session, not in the
   context of a broader application (e.g., a multiparty application).

Another way of referring to a media stream is by using the order of
the 'm' line in the SDP session document (e.g., the 5th media stream
in the session description). This is the mechanism used in the
offer/answer model [3].

The problem with this mechanism is that it can only be used to refer
to media streams in session descriptions that exist already. There
are scenarios where a static document needs to refer, using a
pointer, to a media stream that will be negotiated by SDP means and
created in the future. When the media stream is eventually created,
the application needs to label the media stream so that the pointer
in the static document points to the proper media stream in the
session description.

4. The Label Attribute

This specification defines a new media-level value attribute:
'label'. Its formatting in SDP is described by the following BNF
[2]:

```
    label-attribute    = "a=label:" pointer
    pointer            = token
```

The 'label' attribute contains a token which is defined by an
application and is used in its context. The new attribute can be
attached to 'm' lines in multiple SDP documents allowing the
application to logically group the media streams across SDP sessions
when necessary.

5. The Label Attribute in the Offer/Answer Model

This specification does not define a means to discover whether or not
the peer endpoint understands the 'label' attribute because 'label'
values are informative only at the offer/answer model level.

At the offer/answer level, it means that the fact that an offer does
not contain label attributes does not imply that the answer should
not have them. It also means that the fact that an offer contains
label attributes does not imply that the answer should have them too.

In addition to the basic offer/answer rule above, applications that
use 'label' as a pointer to media streams MUST specify its usage
constraints. For example, such applications MAY mandate support for
'label'. In this case, the application will define means for
negotiation of the 'label' attribute support as a part of its
specification.

[6](). Example

   The following is an example of an SDP session description that uses
   the 'label' attribute:

        v=0
        o=bob 280744730 28977631 IN IP4 host.example.com
        s=
        c=IN IP4 192.0.2.2
        t=0 0
        m=audio 6886 RTP/AVP 0
        a=label:1
        m=audio 22334 RTP/AVP 0
        a=label:2

[7](). Security Considerations

   An attacker may attempt to add, modify, or remove 'label' attributes
   from a session description. This could result in an application
   behaving in a non-desirable way. So, it is strongly RECOMMENDED that
   integrity protection be applied to the SDP session descriptions. For
   session descriptions carried in SIP [[5]()], S/MIME is the natural choice
   to provide such end-to-end integrity protection, as described in [RFC
   3261]() [[5]()]. Other applications MAY use a different form of integrity
   protection.

[8](). IANA Considerations

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   Attribute name: "label".

   Type of attribute   Media level.

   Subject to charset: Not.

   Purpose of attribute: The 'label' attribute associates a media
      stream with a label. This label allows the media stream to be
      referenced by external documents.

   Allowed attribute values: A token.

[9](). Acknowledgements

   Robert Sparks, Adam Roach, and Rohan Mahy provided useful comments on
   this document.

10. References

10.1 Normative References

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     Levels", BCP 14, RFC 2119, March 1997.

[2] Crocker, D. and P. Overell, "Augmented BNF for Syntax
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[4] Handley, M., Jacobson, V. and C. Perkins, "SDP: Session
     Description Protocol", draft-ietf-mmusic-sdp-new-21 (work in
     progress), October 2004.

10.2 Informative References

[5] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A.,
     Peterson, J., Sparks, R., Handley, M. and E. Schooler, "SIP:
     Session Initiation Protocol", RFC 3261, June 2002.

[6] Camarillo, G., Eriksson, G., Holler, J. and H. Schulzrinne,
     "Grouping of Media Lines in the Session Description Protocol
     (SDP)", RFC 3388, December 2002.

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