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O. Levin  
Microsoft Corporation  
G. Camarillo  
Ericsson  
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**The SDP (Session Description Protocol) Label Attribute**  
**draft-levin-mmusic-sdp-media-label-00**

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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 an application layer media stream identifier 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 media streams. The application receiving the SDP document can then associate the particular media stream with its application semantics or role.

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## **1. Introduction**

SDP is being used by a variety of distributed over the network applications. These applications deal with multiple SDP sessions serving multiple users or services in the context of a single application instance. As such, applications of this kind have their means to identify a particular media stream across multiple SDP sessions.

XCON framework [6] 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 defines the means to uniquely identify a media stream in terms of its role in a conference regardless its media type, transport protocol, and media format. It is necessary to convey a pointer to this application layer identifier in SDP. As a result, the application can choose from the media streams offered in the SDP based not only on their media characteristics, but also according to their roles in the application.

This specification defines the SDP [2] "label" media-level attribute, which carries the pointer to the application layer media stream identifier in the SDP document across the network.

Note that the "i" SDP attribute, defined in RFC 2327 [2], can be used to label media streams as well. Nevertheless, the audiences for the "i" and the "label" attributes are different. While "i" values are presented to the users as is, "label" values are processed by automata.

Note that the "mid" SDP attribute, defined in RFC 3388 [4], can be used to identify media streams as well. Nevertheless, the scopes of the "mid" and the "label" attributes are different. While "mid" values are meaningful in the context of a single SDP session, "label" values are meaningful in the context of an application (e.g., a multiparty application).

## **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. The Label Attribute**

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

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

The semantics of the "label" attribute MUST be defined by applications that use SDP with "label". This value is the application layer identifier for a media stream regardless of its media type, transport protocol, or media format.

### **4. The Label Attribute in the Offer/Answer Model**

This specification does not define means to discover whether or not the remote endpoint understands the "label" attribute. We have chosen not to provide such a mechanism within this specification because "label" values are only informative at the Offer/Answer model level.

To the Offer/Answer mechanism, 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 define both the "label" application semantics and its usage constraints. For example, the specifications of such applications MAY mandate support for "label". In this case, the application MUST define means for negotiation of the "label" attribute support as a part of the application.

### **5. 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
```

## 6. IANA Considerations

Contact name: Orit Levin oritl@microsoft.com.

Attribute name: "label".

Type of attribute Media level.

Subject to charset: Not.

Purpose of attribute: "Label" attribute associates the media stream with specific application semantics. During the SDP Offer-Answer mechanism, it allows application to make smarter choices especially among m-lines of the same media type. In a context of a multiparty application, it allows the application to pick out an offered media stream based on its role in the application as the only available meaningful identifier beyond a single SDP session (i.e., across the application participants).

Allowed attribute values: Any octet string.

## 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. References

## **8.1 Normative References**

- [1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
  
- [2] Handley, M. and V. Jacobson, "SDP: Session Description Protocol", [RFC 2327](#), April 1998.
  
- [3] Rosenberg, J. and H. Schulzrinne, "An Offer/Answer Model with

Session Description Protocol (SDP)", [RFC 3264](#), June 2002.

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

## **8.2 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] Koskelainen, P. and H. Khartabil, "Requirements for Conference Policy Control Protocol", [draft-ietf-xcon-cpcp-reqs-03](#) (work in progress), April 2004.

### Authors' Addresses

Orit Levin  
Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052  
USA

EMail: [oritl@microsoft.com](mailto:oritl@microsoft.com)

Gonzalo Camarillo  
Ericsson  
Hirsalantie 11  
Jorvas 02420  
Finland

EMail: [Gonzalo.Camarillo@ericsson.com](mailto:Gonzalo.Camarillo@ericsson.com)

Levin & Camarillo

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