The source and sink attributes for the Session Description Protocol

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Abstract

This document defines two media level SDP attributes, namely source and sink. They are intended to be used to invoke services that involve media manipulation, such as transcoding services.
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1 Introduction

Servers performing media manipulations, such as transcoding or mixing, take the contents of one or several media streams as input and send their output over another media stream. A client requesting this type of service from a server needs to identify which media streams are to be used as input and which ones will be used to send the output of the media manipulation process. This document defines two SDP media level attributes, namely source and sink, that can be used to explicitly convey this information in an SDP session description.

1.1 Terminology

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

2 Applicability

A server that provides simple media manipulation services between a single unidirectional input (recvonly) stream and a single unidirectional output (sendonly) stream, such as a text-to-speech server, does not need to specify source and sink attributes in the SDP. However, a server that needs to correlate more than the simple media manipulation service needs a mechanism to specify which media descriptions refer to which directionality of the input streams.

Thus, servers that use SDP [2] to provide more complex services that involve more media streams (like some of the ones described by [5]) SHOULD make use of the source and sink attributes.

The source and sink attributes MUST NOT be used to perform media alignment between SIP [3] user agents. The nth matching rules defined by the offer/answer model [4] must be used regardless of the presence or absence of the sink and source attributes.

3 Syntax of source and sink

We define the following media level SDP attributes:

```
source-attribute = "a=source:" identification-tag
sink-attribute   = "a=sink:" identification-tag
identification-tag = token
```
An SDP session description that contains a media stream with a particular identification tag in a source attribute MUST have the same identification tag in, at least, one sink attribute. An SDP session description that contains a media stream with a particular identification tag in a sink attribute MUST have the same identification tag in, at least, one source attribute.

If an entity receives a session description that breaks the rules stated above, it MUST act as if it had received a malformed session description.

4 SDP example

The SDP session description below sent to a server indicates that incoming audio from the first stream has to be sent over the second audio stream and over the text stream. Incoming text has to be sent over the first audio stream (but not over the second one). The exact media manipulations to be applied are typically identified by the URI that identifies the service [6] (e.g., sip:texttospeech@domain.com).

```
   m=audio 40000 RTP/AVP 0
   c=IN IP4 B.domain.com
   a=source:1
   a=sink:2
   m=audio 20000 RTP/AVP 0
   c=IN IP4 A.domain.com
   a=recvonly
   a=sink:1
   m=text 20002 RTP/AVP t140
   c=IN IP4 A.domain.com
   a=source:2
   a=sink:1
```

5 Use of Source and Sink with SIP

A user agent that wishes to use the source and sink attributes adds them to an offer. The answerer SHOULD copy the same source and sink attributes in its answer for all the streams that were accepted (i.e., their port number is different than zero).

An answerer that understand the source and sink attributes MUST NOT add or remove any of them from a stream that was accepted. The offerer knows whether the answerer understands these attributes because the answer will contain source and sink attributes. If the
answerer does not understand them, the answer will not contain source and sink attributes.

6 Open Issue

Right now, an offerer discovers whether or not the answerer supports source and sink by checking if there are source and sink attributes in the answer. If the answerer did not support source and sink, the offerer can send a BYE right away.

If such a behavior is not acceptable, we could define a SIP option tag to be used in the Require header field associated with source and sink.

7 IANA considerations

This document defines two media level SDP attributes: "source" and "sink".

8 Acknowledgements

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9 Authors’ Addresses

Gonzalo Camarillo  
Ericsson  
Advanced Signalling Research Lab.  
FIN-02420 Jorvas  
Finland  
electronic mail: Gonzalo.Camarillo@ericsson.com

Henning Schulzrinne  
Dept. of Computer Science  
Columbia University  
1214 Amsterdam Avenue  
New York, NY 10027  
USA  
electronic mail: schulzrinne@cs.columbia.edu

Eric W. Burger  
SnowShore Networks, Inc.  
Chelmsford, MA  
USA  
electronic mail: eburger@snowshore.com

10 Normative References


11 Informative References


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