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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 (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 IANA Considerations

This document defines two media level SDP attributes: "source" and "sink". They should be registered in SDP parameters registry.

<http://www.iana.org/assignments/sdp-parameters>

7 Security Considerations

An attacker adding, removing or modifying source or sink a= lines could change the expected behavior from a media manipulation service. It is thus STRONGLY RECOMMENDED that integrity protection be applied to the SDP session descriptions. For session descriptions carried in SIP [3], S/MIME is the natural choice to provide such end-to-end integrity protection, as described in [RFC 3261](#). Other applications MAY use a different form of integrity protection.

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10 Normative References

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- [2] M. Handley and V. Jacobson, "SDP: session description protocol," [RFC 2327](#), Internet Engineering Task Force, Apr. 1998.
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11 Informative References

- [5] N. Charlton, M. Gasson, G. Gybels, M. Spanner, and A. van Wijk, "User requirements for the session initiation protocol (SIP) in support of deaf, hard of hearing and speech-impaired individuals," [RFC 3351](#), Internet Engineering Task Force, Aug. 2002.

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