

The SDP (Session Description Protocol) Content Attribute
draft-hautakorpi-mmusic-sdp-media-content-01.txt

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Abstract

This document defines a new Session Description Protocol (SDP) media-level attribute, 'content'. The 'content' attribute defines the content of the media stream in more detailed level than the media description line. The sender of an SDP session description can attach the 'content' attribute to one or more media streams. The receiving application can then treat each media stream differently (e.g., show it on a big screen or small screen) based on their content.

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1. Introduction

SDP [[1](#)] is a protocol that is intended for describing multimedia sessions for the purposes of session announcement, session invitation, and other forms of multimedia session initiation. One of the most typical use cases of SDP is the one where it is used with SIP [[3](#)].

There are situations where one application receives several similar media stream which are described in an SDP session description. The media streams can be similar in a sense that their content cannot be distinguished from each other just by examining the media description lines (e.g., two video streams). The 'content' attribute is needed, so that the receiving application can treat each media stream appropriately based on its content.

This specification defines the SDP 'content' media-level attribute, which provides more information about the media stream than the 'm' line in an SDP session description.

2. Motivation for the New Content Attribute

Currently, SDP does not provide any means to describe what is the content of a media stream (e.g., speaker's image, slides, sign language) in a form that the application can understand. Of course the end user can see the content of the media stream, and read its title, but the application cannot understand what the media stream contains.

The application that is receiving multiple similar (e.g., same type and format) media stream needs, in some cases, to know what is the content of those streams. This kind of situation occurs for example in cases where presentation slides, speakers image and sign language are transported as separate media streams. It would be desirable that the receiving application could distinguish them in a way that it could handle them automatically in appropriate manner.

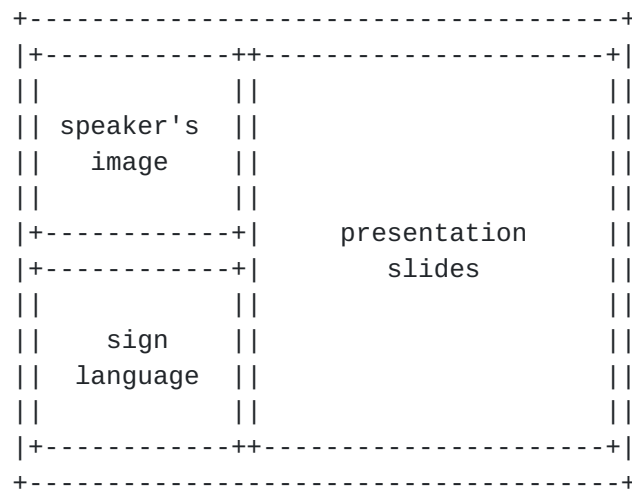


Figure 1: Application's screen

The Figure 1 presents a screen of a typical communication application. The 'content' attribute enables the application to make the decision on where to show each media stream. From end user's perspective, it is desirable that the user does not need to arrange media stream every time the media session starts.

The 'content' attribute could also be used in more complex situations. This kind of complex situation could be e.g., an application that is controlling the equipments in the auditorium. Auditorium can have many different output channels for the video (main screen and two smaller screens) and the audio (main speakers, headsets for the participants). In this kind of environment, a lot of interaction from the end user who is operating the application would be required. So, the possibility for the application to handle the media stream without end users input is greatly emphasized.

3. The Content Attribute

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

```

content-attribute = "a=content:" mediacnt
mediacnt          = "slides" / "speaker" / "sl" / "main-video"
                  / "alt-video" / "main-audio" / "alt-audio"
                  / mediacnt-ext
mediacnt-ext      = token

```

The 'content' attribute contains a token, which is attached to a media stream by a sending application. It describes the content of

the trasmitted media stream to the receiving application.

There are six different pre-defined values for the 'content' attribute. Also other values can be defined in the future. The pre-defined values are:

slides: This is a media stream that includes presentation slides.

The media type can be e.g., a video stream or a set of instant message with pictures. Typical use case for this is e.g., online seminars and courses.

speaker: This is a image from the speaker. The media can be e.g., a video stream or a still image. Typical use case for this is e.g., online seminars and courses.

sl: This means that the media stream contains sign language. The media type is a videa stream. Typical use case for this is the one where the audio stream is translated into sign language.

main-video: This means that the video stream is taken from the main camera. Typical use case for this is e.g., a concert, where the camera is shooting the performer. This is similar to 'presentation' role in H.239 [6].

alt-video: This means that the video stream is taken from the alternative camera. Typical use case for this is e.g., a concert, where the camera is shooting the crowd. This is similar to 'live' role in H.239.

main-audio: This is the main audio stream. Typically this can be used in situations, where there is a separate ambient sound and the main sound. The main sound could be e.g., a sound of a rare bird.

alt-audio: This is the alternative audio stream. Typically this can be used in situations, where there is a separate ambient sound and the main sound. The alternative sound could be e.g., a sound of a jungle.

The media used with the first two pre-defined values 'slides' and 'speaker' can be in many different kinds of formats. The following three pre-defined values 'sl', 'main-video' and 'alt-video' can be used only on the context of video streams. The last two pre-defined values 'main-audio' and 'alt-audio' can be used only with audio stream.

Open issue: Can multiple 'content' attributes, or attribute values, be defines for a single media stream?

4. The Content Attribute in the Offer/Answer Model

This specification does not define a means to discover whether or not the peer endpoint understands the 'content' attribute, because 'content' values are informative only at the offer/answer model [4]

level. The fact that the peer endpoint does not understand the 'content' attribute, does not keep the media session from being established. The only consequence is that interaction from the receiving end user may be required.

5. Example

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

```
v=0
o=Alice 292742730 29277831 IN IP4 131.163.72.4
s=Second lecture from information technology
c=IN IP4 131.164.74.2
t=0 0
m=video 52886 RTP/AVP 31
a=rtpmap:31 H261/9000
a=content:slides
m=video 53334 RTP/AVP 31
a=rtpmap:31 H261/9000
a=content:speaker
m=video 54132 RTP/AVP 31
a=rtpmap:31 H261/9000
a=content:sl
```

6. Operation with SMIL

The values of 'content' attribute, defined in [Section 3](#), can also be used with SMIL [5]. SMIL contains a 'param' element, which is used for describing the content of a media. However, this 'param' element provides only application specific description of media content. By using the values of 'content' attribute, this 'param' element can also be used to describe the media content in globally interpretable way.

Details on how to use the values of 'content' attribute with SMIL's 'param' element are excluded from this document.

7. Security Considerations

TBD.

8. IANA Considerations

This document defines a new 'content' attribute for SDP. It also defines seven possible values for it.

Contact name: Jani Hautakorpi Jani.Hautakorpi@ericsson.com.

Attribute name: 'content'.

Type of attribute Media level.

Subject to charset: Not.

Purpose of attribute: The 'content' attribute gives information from the content of the media stream to the receiving application.

Allowed attribute values: "slides", "speaker", "sl", "main-video", "alt-video", "main-audio", "alt-audio", and a token.

Entries to the registry:

Value of 'content' attribute	Reference	Description
-----	-----	-----
slides	RFC xxxx	Presentation slides
speaker	RFC xxxx	Image from the speaker
sl	RFC xxxx	Sign language
main-video	RFC xxxx	Main media stream
alt-video	RFC xxxx	Alternative media stream
main-audio	RFC xxxx	Main audio stream
alt-audio	RFC xxxx	Alternative audio stream

Open issue: Which policy are we going to use for defining new extension tokens?

9. Acknowledges

Arnoud van Wijk and Roni Even provided valuable ideas for this document.

10. References

10.1 Normative References

- [1] Handley, M., "SDP: Session Description Protocol", [draft-ietf-mmusic-sdp-new-24](#) (work in progress), February 2005.
- [2] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 2234](#), November 1997.

10.2 Informational References

- [3] 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.
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- [6] ITU-T, "Infrastructure of audiovisual services - Systems aspects; Role management and additional media channels for H.300-series terminals", Series H H.239, July 2003.

Authors' Addresses

Jani Hautakorpi
Ericsson
Hirsalantie 11
Jorvas 02420
Finland

Email: Jani.Hautakorpi@ericsson.com

Gonzalo Camarillo
Ericsson
Hirsalantie 11
Jorvas 02420
Finland

Email: Gonzalo.Camarillo@ericsson.com

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