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

Status of this Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with Section 6 of BCP 79.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at http://www.ietf.org/ietf/1id-abstracts.txt.

The list of Internet-Draft Shadow Directories can be accessed at http://www.ietf.org/shadow.html.

This Internet-Draft will expire on January 21, 2006.

Copyright Notice

Copyright (C) The Internet Society (2005).

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.
Table of Contents

1. Introduction ............................................. 3
2. Motivation for the New Content Attribute ................. 3
3. The Content Attribute ..................................... 4
4. The Content Attribute in the Offer/Answer Model .......... 5
5. Example .................................................. 6
6. Operation with SMIL ....................................... 6
7. Security Considerations ................................... 6
8. IANA Considerations ....................................... 6
9. Acknowledges .............................................. 7
10. References ............................................... 7
10.1 Normative References .................................... 7
10.2 Informational References ................................. 8
Authors’ Addresses ........................................... 8
Intellectual Property and Copyright Statements ................ 9
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.
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 transmitted 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 an 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 video 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 understands 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.


Entries to the registry:

<table>
<thead>
<tr>
<th>Value of 'content' attribute</th>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>slides</td>
<td>RFC xxxx</td>
<td>Presentation slides</td>
</tr>
<tr>
<td>speaker</td>
<td>RFC xxxx</td>
<td>Image from the speaker</td>
</tr>
<tr>
<td>sl</td>
<td>RFC xxxx</td>
<td>Sign language</td>
</tr>
<tr>
<td>main-video</td>
<td>RFC xxxx</td>
<td>Main media stream</td>
</tr>
<tr>
<td>alt-video</td>
<td>RFC xxxx</td>
<td>Alternative media stream</td>
</tr>
<tr>
<td>main-audio</td>
<td>RFC xxxx</td>
<td>Main audio stream</td>
</tr>
<tr>
<td>alt-audio</td>
<td>RFC xxxx</td>
<td>Alternative audio stream</td>
</tr>
</tbody>
</table>

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


10.2 Informational References


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
Intellectual Property Statement

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in BCP 78 and BCP 79.

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at http://www.ietf.org/ipr.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at ietf-ipr@ietf.org.

Disclaimer of Validity

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Copyright Statement

Copyright (C) The Internet Society (2005). This document is subject to the rights, licenses and restrictions contained in BCP 78, and except as set forth therein, the authors retain all their rights.

Acknowledgment

Funding for the RFC Editor function is currently provided by the Internet Society.