

Technical Specification Group Services and System Aspects **TSGS#19(03)0091**
Meeting #19, Birmingham, UK, 17 - 20 March 2003

Source: TSG-SA WG4

Title: CRs to TS 26.234 - Corrections (Release 5)

Document for: Approval

Agenda Item: 7.4.3

The following CRs, agreed at the TSG-SA WG4 meeting #25bis, are presented to TSG SA #19 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.234	052	1	Rel-5	SDP bandwidth modifier for RTCP bandwidth	F	5.3.0	S4	TSG-SA WG4#25bis	S4-030227
26.234	053		Rel-5	Specification of stream control URLs in SDP files	F	5.3.0	S4	TSG-SA WG4#25bis	S4-030125
26.234	054		Rel-5	Clarification of multiple modifiers for timed text	F	5.3.0	S4	TSG-SA WG4#25bis	S4-030134
26.234	056	4	Rel-5	Correction of wrong references	F	5.3.0	S4	TSG-SA WG4#25bis	S4-030258
26.234	057	2	Rel-5	Correction of signalling frame size for H.263 in SDP	F	5.3.0	S4	TSG-SA WG4#25bis	S4-030229

**3GPP TSG-SA4 Meeting #25bis
Berlin, Germany, 24-28 February 2003**

Tdoc S4-030227

CR-Form-v5
<h2 style="margin: 0;">CHANGE REQUEST</h2>
⌘ TS 26.234 CR 52 ⌘ rev 1 ⌘ Current version: 5.3.0 ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ SDP bandwidth modifier for RTCP bandwidth			
Source:	⌘ TSG SA WG4			
Work item code:	⌘ PSS-E	Date:	⌘ 18 March 2003	
Category:	⌘ F	Release:	⌘ REL-5	
	<i>Use one of the following categories:</i>		<i>Use one of the following releases:</i>	
	F (correction)	A (corresponds to a correction in an earlier release)	2 (GSM Phase 2)	R96 (Release 1996)
	B (addition of feature),	C (functional modification of feature)	R97 (Release 1997)	R98 (Release 1998)
	D (editorial modification)	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	R99 (Release 1999)	REL-4 (Release 4)
			REL-5 (Release 5)	

Reason for change:	⌘ The bandwidth allocated for RTCP traffic needs to be accurately estimated for rightsizing the bearer setup.
Summary of change:	⌘ The bandwidth allocated for RTCP is specified by appropriate "RS" and "RR" SDP modifiers.
Consequences if not approved:	⌘ Media PDP contexts are allocated using wrong assumptions about RTCP bandwidth (2.5% of session bandwidth), even if a different bandwidth for RTCP is used, or even if RTCP is not used at all.

Clauses affected:	⌘ 2, 5.3.3.1, Annex A.1 and A.2.1, Annex A.3.2.3		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 22.233: "Transparent End-to-End Packet-switched Streaming Service; Service aspects; Stage 1 "
- [2] 3GPP TS 26.233: " Transparent end-to-end packet switched streaming service (PSS); General description".
- [3] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [4] IETF RFC 1738: "Uniform Resource Locators (URL)", Berners-Lee, Masinter & McCahill, December 1994.
- [5] IETF RFC 2326: "Real Time Streaming Protocol (RTSP)", Schulzrinne H., Rao A. and Lanphier R., April 1998.
- [6] IETF RFC 2327: "SDP: Session Description Protocol", Handley M. and Jacobson V., April 1998.
- [7] IETF STD 0006: "User Datagram Protocol", Postel J., August 1980.
- [8] IETF STD 0007: "Transmission Control Protocol", Postel J., September 1981.
- [9] IETF RFC 1889: "RTP: A Transport Protocol for Real-Time Applications", Schulzrinne H. et al., January 1996.
- [10] IETF RFC 1890: "RTP Profile for Audio and Video Conferences with Minimal Control", Schulzrinne H. et al., January 1996.
- [11] IETF RFC 3267: " RTP payload format and file storage format for the Adaptive Multi-Rate (AMR) Adaptive Multi-Rate Wideband (AMR-WB) audio codecs ", March 2002.
- [12] (void)
- [13] IETF RFC 3016: "RTP Payload Format for MPEG-4 Audio/Visual Streams", Kikuchi Y. et al., November 2000.
- [14] IETF RFC 2429: "RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)", Bormann C. et al., October 1998.
- [15] IETF RFC 2046: "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", N. Freed, N. Borenstein, November 1996.
- [16] IETF RFC 3236: " The 'application/xhtml+xml' Media Type ", Baker M. and Stark P., January 2002.
- [17] IETF RFC 2616: "Hypertext Transfer Protocol - HTTP/1.1", Fielding R. et al., June 1999.
- [18] 3GPP TS 26.071: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; General description".

- [19] 3GPP TS 26.101: "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Frame Structure".
- [20] 3GPP TS 26.171: "AMR speech codec, wideband; General description".
- [21] ISO/IEC 14496-3:2001, "Information technology -- Coding of audio-visual objects -- Part 3: Audio".
- [22] ITU-T Recommendation H.263: "Video coding for low bit rate communication".
- [23] ITU-T Recommendation H.263: "Annex X, Profiles and levels definition".
- [24] ISO/IEC 14496-2:2001, "Information technology -- Coding of audio-visual objects -- Part 2: Visual".
- [25] ISO/IEC 14496-2:2001/Amd 2:2002, "Streaming video profile".
- [26] ITU-T Recommendation T.81 (1991) | ISO/IEC 10918-1 (1992): "Information technology - Digital compression and coding of continuous-tone still images - Requirements and guidelines.
- [27] "JPEG File Interchange Format", Version 1.02, September 1, 1992.
- [28] W3C Recommendation: "XHTML Basic", <http://www.w3.org/TR/2000/REC-xhtml-basic-20001219>, December 2000
- [29] ISO/IEC 10646-1 (2000): "Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane".
- [30] The Unicode Consortium: "The Unicode Standard", Version 3.0 Reading, MA, Addison-Wesley Developers Press, 2000, ISBN 0-201-61633-5.
- [31] W3C Recommendation: "Synchronized Multimedia Integration Language (SMIL 2.0)", <http://www.w3.org/TR/2001/REC-smil20-20010807/>, August 2001.
- [32] CompuServe Incorporated: "GIF Graphics Interchange Format: A Standard defining a mechanism for the storage and transmission of raster-based graphics information", Columbus, OH, USA, 1987.
- [33] CompuServe Incorporated: "Graphics Interchange Format: Version 89a", Columbus, OH, USA, 1990.
- [34] (void)
- [35] 3GPP TS 26.140: "Multimedia Messaging Service (MMS); Media formats and codecs".
- [36] (void)
- [37] 3GPP TS 26.201: "AMR Wideband Speech Codec; Frame Structure"
- [38] IETF RFC 2083: "PNG (Portable Networks Graphics) Specification version 1.0 ", T. Boutell, et. al., March 1997.
- [39] W3C Working Draft Recommendation: "CC/PP structure and vocabularies", <http://www.w3.org/Mobile/CCPP/Group/Drafts/WD-CCPP-struct-vocab-20010620/>, June 2001.
- [40] WAP UAProf Specification, <http://www1.wapforum.org/tech/documents/WAP-248-UAProf-20011020-a.pdf> , October 2001.
- [41] W3C Candidate Recommendation: "Resource Description Framework (RDF) Schema Specification 1.0", <http://www.w3.org/TR/2000/CR-rdf-schema-20000327>, March 2000.
- [42] W3C Working Draft Recommendation: "Scalable Vector Graphics (SVG) 1.1 Specification", <http://www.w3.org/TR/SVG11> , February 2002.
- [43] W3C Working Draft Recommendation: "SVG Mobile Specification", <http://www.w3.org/TR/SVGMobile/>, February 2002

- [44] Scalable Polyphony MIDI Specification Version 1.0, RP-34, MIDI Manufacturers Association, Los Angeles, CA, February 2002.
- [45] Scalable Polyphony MIDI Device 5-to-24 Note Profile for 3GPP Version 1.0, RP-35, MIDI Manufacturers Association, Los Angeles, CA, February 2002.
- [46] "Standard MIDI Files 1.0", RP-001, in "The Complete MIDI 1.0 Detailed Specification, Document Version 96.1 " The MIDI Manufacturers Association, Los Angeles, CA, USA, February 1996.
- [47] WAP Forum Specification: "XHTML Mobile Profile", <http://www1.wapforum.org/tech/terms.asp?doc=WAP-277-XHTMLMP-20011029-a.pdf>, October 2001.
- [48] "Unicode Standard Annex #13: Unicode Newline Guidelines", by Mark Davis. An integral part of The Unicode Standard, Version 3.1.
- [49] IETF RFC 3266: "Support For IPv6 in Session Description Protocol (SDP)", Olson S., Camarillo G. and Roach A. B., June 2002.
- [50] ISO/IEC 14496-1:2001/Amd 5, "Information technology - Coding of audio-visual objects - Part 1: Systems - Amendment 5: ISO base media file format".
- [51] ISO/IEC 14496-1:2001/Amd 6, "Information technology - Coding of audio-visual objects - Part 1: Systems - Amendment 6: MP4, the MPEG-4 file format".
- [\[52\]](#) [IETF RFC 3578: "SDP bandwidth modifier for RTCP bandwidth"](#).

END of section 2.

5.3.3.1 General

RTSP requires a presentation description. SDP shall be used as the format of the presentation description for both PSS clients and servers. PSS servers shall provide and clients interpret the SDP syntax according to the SDP specification [6] and appendix C of [5]. The SDP delivered to the PSS client shall declare the media types to be used in the session using a codec specific MIME media type for each media. MIME media types to be used in the SDP file are described in clause 5.4 of the present document.

The SDP [6] specification requires certain fields to always be included in an SDP file. Apart from this a PSS server shall always include the following fields in the SDP:

- "a=control:" according to clauses C.1.1, C.2 and C.3 in [5];
- "a=range:" according to clause C.1.5 in [5];
- "a=rtpmap:" according to clause 6 in [6];
- "a=fmtp:" according to clause 6 in [6].

The bandwidth field in SDP is needed by the client in order to properly set up QoS parameters. Therefore, a PSS server shall include the "b=AS:" field at the media level for each media stream in SDP, and a PSS client shall interpret this field. When a PSS client receives SDP, it should ignore the session level "b=AS:" parameter (if present), and instead calculate session bandwidth from the media level bandwidth values of the relevant streams. A PSS client shall also handle the case where the bandwidth parameter is not present, since this may occur when connecting to a Release-4 server.

Note that for RTP based applications, "b=AS:" gives the RTP "session bandwidth" (including UDP/IP overhead) as defined in section 6.2 of [9].

[The bandwidth for RTCP traffic shall be described using the "RS" and "RR" SDP bandwidth modifiers, as specified by \[52\]. The "RS" SDP bandwidth modifier indicates the RTCP bandwidth allocated to the sender \(i.e. PSS server\) and "RR" indicates the RTCP bandwidth allocated to the receiver \(i.e. PSS client\). A PSS server shall include the "b=RS:"](#)

and "b=RR:" fields at the media level for each media stream in SDP, and a PSS client shall interpret them. A PSS client shall also handle the case where the bandwidth modifier is not present according to section 3 of [52], since this may occur when connecting to a Release-4 server.

There shall be a limit on the allowed RTCP bandwidth for senders and receivers in a session. This limit is defined as follows:

- 4000 bps for the RS field (at media level);
- 5000 bps for the RR field (at media level).

The default value for each of the "RS" and "RR" SDP bandwidth modifiers is 2.5% of the session bandwidth given by the "b=AS" parameter.

In Annex A.2.1 an example SDP in which the limit for the total RTCP bandwidth is 5% of the session bandwidth is presented.

IPv6 addresses in SDP descriptions shall be supported according to RFC 3266[49].

NOTE: The SDP parsers and/or interpreters shall be able to accept NULL values in the 'c=' field (e.g. 0.0.0.0 in IPv4 case). This may happen when the media content does not have a fixed destination address. For more details, see Section C.1.7 of [5] and Section 6 of [6].

END of section 5.3.3.1.

Annex A (informative): Protocols

A.1 SDP

This clause gives some background information on SDP for PSS clients.

Table A.1 provides an overview of the different SDP fields that can be identified in a SDP file. The order of SDP fields is mandated as specified in RFC 2327 [6].

Table A.1: Overview of fields in SDP for PSS clients

Type	Description		Requirement according to [6]	Requirement according to the present document
Session Description				
V	Protocol version		R	R
O	Owner/creator and session identifier		R	R
S	Session Name		R	R
I	Session information		O	O
U	URI of description		O	O
E	Email address		O	O
P	Phone number		O	O
C	Connection Information		R	R
B	Bandwidth information	AS	O	O
		RS	ND	O
		RR	ND	O
One or more Time Descriptions (See below)				
Z	Time zone adjustments		O	O
K	Encryption key		O	O
A	Session attributes	control	O	R
		range	O	R
One or more Media Descriptions (See below)				
Time Description				
T	Time the session is active		R	R
R	Repeat times		O	O
Media Description				
M	Media name and transport address		R	R
I	Media title		O	O
C	Connection information		R	R
B	Bandwidth information	AS	O	R
		RS	ND	R
		RR	ND	R
K	Encryption Key		O	O
A	Attribute Lines	control	O	R
		range	O	R
		fntp	O	R
		rtpmap	O	R
		X-predecbufsize	ND	O
		X-initpredecbufperiod	ND	O
		X-initpostdecbufperiod	ND	O
X-decbyterate	ND	O		
<p>Note 1: R = Required, O = Optional, ND = Not Defined</p> <p>Note 2: The "c" type is only required on the session level if not present on the media level.</p> <p>Note 3: The "c" type is only required on the media level if not present on the session level.</p> <p>Note 4: According to RFC 2327, either an 'e' or 'p' field must be present in the SDP description. On the other hand, both fields will be made optional in the future release of SDP. So, for the sake of robustness and maximum interoperability, either an 'e' or 'p' field shall be present during the server's SDP file creation, but the client should also be ready to receive SDP content containing neither 'e' nor 'p' fields.</p>				

The example below shows an SDP file that could be sent to a PSS client to initiate unicast streaming of a H.263 video sequence.

EXAMPLE: v=0
o=ghost 2890844526 2890842807 IN IP4 192.168.10.10
s=3GPP Unicast SDP Example
i=Example of Unicast SDP file
u=http://www.infoserver.com/ae600
e=ghost@mailserver.com
c=IN IP4 0.0.0.0

t=0 0
a=range:npt=0-45.678
m=video 1024 RTP/AVP 96
b=AS:128
a=rtpmap:96 H263-2000/90000
a=fmtp:96 profile=3;level=10
a=control:rtsp://mediaserver.com/movie
a=recvonly

A.2 RTSP

A.2.1 General

Clause 5.3.2 of the present document defines the required RTSP support in PSS clients and servers by making references to Appendix D of [5]. The current clause gives an overview of the methods (see Table A.2) and headers (see Table A.3) that are specified in the referenced Appendix D. An example of an RTSP session is also given.

Table A.2: Overview of the required RTSP method support

Method	Requirement for a minimal on-demand playback client according to [5].	Requirement for a PSS client according to the present document.	Requirement for a minimal on-demand playback server according to [5].	Requirement for a PSS server according to the present document.
OPTIONS	O	O	Respond	Respond
REDIRECT	Respond	Respond	O	O
DESCRIBE	O	Generate	O	Respond
SETUP	Generate	Generate	Respond	Respond
PLAY	Generate	Generate	Respond	Respond
PAUSE	Generate	Generate	Respond	Respond
TEARDOWN	Generate	Generate	Respond	Respond
NOTE 1: O = Support is optional				
NOTE 2: 'Generate' means that the client/server is required to generate the request where applicable.				
NOTE 3: 'Respond' means that the client/server is required to properly respond to the request.				

Table A.3: Overview of the required RTSP header support

Header	Requirement for a minimal on-demand playback client according to [5].	Requirement for a PSS client according to the present document.	Requirement for a minimal on-demand playback server according to [5].	Requirement for a PSS server according to the present document.
Connection	include/understand	include/understand	include/understand	include/understand
Content-Encoding	understand	understand	include	include
Content-Language	understand	understand	include	include
Content-Length	understand	understand	include	include
Content-Type	understand	understand	include	include
CSeq	include/understand	include/understand	include/understand	include/understand
Location	understand	understand	O	O
Public	O	O	include	include
Range	O	include/understand	understand	include/understand
Require	O	O	understand	understand
RTP-Info	understand	understand	include	include
Session	include	include	understand	understand
Timestamp	O	O	include/understand	include/understand
Transport	include/understand	include/understand	include/understand	include/understand
User-Agent ⁴	O	O	O	O
NOTE 1: O = Support is optional NOTE 2: 'include' means that the client/server is required to include the header in a request or response where applicable. NOTE 3: 'understand' means that the client/server is required to be able to respond properly if the header is received in a request or response. NOTE 4: According to [5] the "User-Agent" header is not strictly required for a minimal RTSP client implementation, although it is highly recommended that it is included with requests. The same applies to a PSS client according to the present document.				

The example below is intended to give some more understanding of how RTSP and SDP are used within the 3GPP PSS. The example assumes that the streaming client has the RTSP URL to a presentation consisting of an H.263 video sequence and AMR speech. RTSP messages sent from the client to the server are in **bold** and messages from the server to the client in *italic*. In the example the server provides aggregate control of the two streams.

EXAMPLE:

DESCRIBE rtsp://mediaserver.com/movie.test RTSP/1.0

CSeq: 1

User-Agent: TheStreamClient/1.1b2

RTSP/1.0 200 OK

CSeq: 1

Content-Type: application/sdp

Content-Length: 435

v=0

o=- 950814089 950814089 IN IP4 144.132.134.67

s=Example of aggregate control of AMR speech and H.263 video

e=foo@bar.com

c=IN IP4 0.0.0.0

b=AS:77

t=0 0

a=range:npt=0-59.3478

*a=control:**

m=audio 0 RTP/AVP 97

b=AS:13

[b=RR:350](#)

[b=RS:300](#)
a=rtpmap:97 AMR/8000
a=fmtp:97
a=maxptime:200
a=control:streamID=0
m=video 0 RTP/AVP 98
b=AS:64
[b=RR:2000](#)
[b=RS:1200](#)
a=rtpmap:98 H263-2000/90000
a=fmtp:98 profile=3;level=10
a=control: streamID=1

SETUP rtsp://mediaserver.com/movie.test/streamID=0 RTSP/1.0
CSeq: 2
Transport: RTP/AVP/UDP;unicast;client_port=3456-3457
User-Agent: TheStreamClient/1.1b2

RTSP/1.0 200 OK
CSeq: 2
Transport: RTP/AVP/UDP;unicast;client_port=3456-3457; server_port=5678-5679
Session: dfhyrio90llk

SETUP rtsp://mediaserver.com/movie.test/streamID=1 RTSP/1.0
CSeq: 3
Transport: RTP/AVP/UDP;unicast;client_port=3458-3459
Session: dfhyrio90llk
User-Agent: TheStreamClient/1.1b2

RTSP/1.0 200 OK
CSeq: 3
Transport: RTP/AVP/UDP;unicast;client_port=3458-3459; server_port=5680-5681
Session: dfhyrio90llk

PLAY rtsp://mediaserver.com/movie.test RTSP/1.0
CSeq: 4
Session: dfhyrio90llk
User-Agent: TheStreamClient/1.1b2

RTSP/1.0 200 OK
CSeq: 4
Session: dfhyrio90llk
Range: npt=0-
RTP-Info: url= rtsp://mediaserver.com/movie.test/streamID=0; seq=9900;rtptime=4470048,
url= rtsp://mediaserver.com/movie.test/streamID=1; seq=1004;rtptime=1070549

NOTE: Headers can be folded onto multiple lines if the continuation line begins with a space or horizontal tab. For more information, see RFC2616 [17].

The user watches the movie for 20 seconds and then decides to fast forward to 10 seconds before the end...

PAUSE rtsp://mediaserver.com/movie.test RTSP/1.0
CSeq: 5
Session: dfhyrio90llk
User-Agent: TheStreamClient/1.1b2

PLAY rtsp://mediaserver.com/movie.test RTSP/1.0
CSeq: 6
Range: npt=50-59.3478
Session: dfhyrio90llk
User-Agent: TheStreamClient/1.1b2

RTSP/1.0 200 OK
CSeq: 5
Session: dfhyrio90llk

RTSP/1.0 200 OK
CSeq: 6
Session: dfhyrio90llk
Range: npt=50-59.3478
RTP-Info: url= rtsp://mediaserver.com/movie.test/streamID=0;
seq=39900;rtptime=44470648,
url= rtsp://mediaserver.com/movie.test/streamID=1;
seq=31004;rtptime=41090349

After the movie is over the client issues a TEARDOWN to end the session...

TEARDOWN rtsp://mediaserver.com/movie.test RTSP/1.0
CSeq: 7
Session: dfhyrio90llk
User-Agent: TheStreamClient/1.1b2

RTSP/1.0 200 OK
Cseq: 7
Session: dfhyrio90llk
Connection: close

END of Annex A.2.1.

A.3.2.3 RTCP transmission interval

In RTP [9], Section 6.2, rules for the calculation of the interval between the sending of two consecutive RTCP packets, i.e. the RTCP transmission interval, are defined. These rules consist of two steps:

- Step 1: an algorithm that calculates a transmission interval from parameters such as the [RTCP bandwidth defined in section 5.3.3.1](#) ~~session bit rate~~ and the average RTCP packet size. This algorithm is described in [9], annex A.7.
- Step 2: Taking the maximum of the transmission interval computed in step 1 and a mandatory fixed minimum RTCP transmission interval of 5 seconds.

Implementations conforming to this TS shall perform step 1 and may perform step 2. All other algorithms and rules of [9] stay valid and shall be followed.

Following these recommendations results in regular sending of RTCP messages, where the interval between those is depending on the ~~session~~ [RTCP](#) bandwidth and the [average](#) RTCP packet size.

END of Annex A.3.2.3.

CR-Form-v5

CHANGE REQUEST

⌘ **TS 26.234 CR 53** ⌘ rev **-** ⌘ Current version: **5.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Specification of stream control URLs in SDP files		
Source:	⌘ TSG SA WG4		
Work item code:	⌘ PSS-E	Date:	⌘ 18 March 2003
Category:	⌘ F	Release:	⌘ REL-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ RFC 2326 dictates how RTSP control URLs should be defined in SDP documents using the "a=control:" attribute. However, the specification does not mandate a standard for identifying streams in URLs. To ensure interoperability of presentation descriptions, PSS servers need to adopt a uniform approach for referencing media tracks contained in 3GP files using stream control URLs.
Summary of change:	⌘ This document defines the syntax for describing stream control URLs in SDP documents associated with 3GP content. In addition to this, examples in Annex A.1 have been updated.
Consequences if not approved:	⌘ The lack of a standard mechanism for specifying stream URLs in SDP files may introduce interoperability problems. It is conceivable that a PSS client may attempt to initiate a streaming session with a PSS server using an SDP file that is generated by a different application. Session initiation cannot be completed successfully if the SDP generator and streaming server fail to use the same syntax and semantics to reference streams in URLs.

Clauses affected:	⌘ 5.3.3.1 and A.1		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.3.3.1 General

RTSP requires a presentation description. SDP shall be used as the format of the presentation description for both PSS clients and servers. PSS servers shall provide and clients interpret the SDP syntax according to the SDP specification [6] and appendix C of [5]. The SDP delivered to the PSS client shall declare the media types to be used in the session using a codec specific MIME media type for each media. MIME media types to be used in the SDP file are described in clause 5.4 of the present document.

The SDP [6] specification requires certain fields to always be included in an SDP file. Apart from this a PSS server shall always include the following fields in the SDP:

- "a=control:" according to clauses C.1.1, C.2 and C.3 in [5];
- "a=range:" according to clause C.1.5 in [5];
- "a=rtpmap:" according to clause 6 in [6];
- "a=fmtp:" according to clause 6 in [6].

When an SDP document is generated for media stored in a 3GP file, each control URL defined at the media-level "a=control:" field shall include a stream identifier in the last segment of the path component of the URL. The value of the stream id shall be defined by the track-ID field in the track header (tkhd) atom associated with the media track. When a PSS server receives a set-up request for a stream, it shall use the stream identifier specified in the URL to map the request to a media track with a matching track-ID field in the 3GP file. Stream identifiers shall be expressed using the following syntax:

<u>streamIdentifier</u>	<u>=</u>	<u><stream id token></u>	<u>"="</u>	<u><stream id></u>
<u>stream id token</u>		<u>=</u>		<u>1*alpha</u>
<u>stream id</u>		<u>=</u>		<u>1*digit</u>

The bandwidth field in SDP is needed by the client in order to properly set up QoS parameters. Therefore, a PSS server shall include the "b=AS:" field at the media level for each media stream in SDP, and a PSS client shall interpret this field. When a PSS client receives SDP, it should ignore the session level "b=AS:" parameter (if present), and instead calculate session bandwidth from the media level bandwidth values of the relevant streams. A PSS client shall also handle the case where the bandwidth parameter is not present, since this may occur when connecting to a Release-4 server.

Note that for RTP based applications, 'b=AS:' gives the RTP "session bandwidth" (including UDP/IP overhead) as defined in section 6.2 of [9].

IPv6 addresses in SDP descriptions shall be supported according to RFC 3266[49].

NOTE: The SDP parsers and/or interpreters shall be able to accept NULL values in the 'c=' field (e.g. 0.0.0.0 in IPv4 case). This may happen when the media content does not have a fixed destination address. For more details, see Section C.1.7 of [5] and Section 6 of [6].

Annex A (informative): Protocols

A.1 SDP

This clause gives some background information on SDP for PSS clients.

Table A.1 provides an overview of the different SDP fields that can be identified in a SDP file. The order of SDP fields is mandated as specified in RFC 2327 [6].

Table A.1: Overview of fields in SDP for PSS clients

Type	Description		Requirement according to [6]	Requirement according to the present document
Session Description				
V	Protocol version		R	R
O	Owner/creator and session identifier		R	R
S	Session Name		R	R
I	Session information		O	O
U	URI of description		O	O
E	Email address		O	O
P	Phone number		O	O
C	Connection Information		R	R
B	Bandwidth information	AS	O	O
One or more Time Descriptions (See below)				
Z	Time zone adjustments		O	O
K	Encryption key		O	O
A	Session attributes	control	O	R
		range	O	R
One or more Media Descriptions (See below)				
Time Description				
T	Time the session is active		R	R
R	Repeat times		O	O
Media Description				
M	Media name and transport address		R	R
I	Media title		O	O
C	Connection information		R	R
B	Bandwidth information	AS	O	R
K	Encryption Key		O	O
A	Attribute Lines	control	O	R
		range	O	R
		fntp	O	R
		rtptime	O	R
		X-predecbufsize	ND	O
		X-initpredecbufperiod	ND	O
		X-initpostdecbufperiod	ND	O
X-decbyterate	ND	O		
<p>Note 1: R = Required, O = Optional, ND = Not Defined</p> <p>Note 2: The "c" type is only required on the session level if not present on the media level.</p> <p>Note 3: The "c" type is only required on the media level if not present on the session level.</p> <p>Note 4: According to RFC 2327, either an 'e' or 'p' field must be present in the SDP description. On the other hand, both fields will be made optional in the future release of SDP. So, for the sake of robustness and maximum interoperability, either an 'e' or 'p' field shall be present during the server's SDP file creation, but the client should also be ready to receive SDP content containing neither 'e' nor 'p' fields.</p>				

The example below shows an SDP file that could be sent to a PSS client to initiate unicast streaming of a H.263 video sequence.

EXAMPLE: v=0
o=ghost 2890844526 2890842807 IN IP4 192.168.10.10
s=3GPP Unicast SDP Example
i=Example of Unicast SDP file
u=http://www.infoserver.com/ae600
e=ghost@mailserver.com
c=IN IP4 0.0.0.0

t=0 0
a=range:npt=0-45.678
m=video 1024 RTP/AVP 96
b=AS:128
a=rtpmap:96 H263-2000/90000
a=fmtp:96 profile=3;level=10
~~a=control:rtsp://mediaserver.com/movie~~
[a=control:rtsp://mediaserver.com/movie.3gp/trackID=1](http://control:rtsp://mediaserver.com/movie.3gp/trackID=1)
a=recvonly

CHANGE REQUEST

⌘ **26.234 CR 054** ⌘ rev **-** ⌘ Current version: **5.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Clarification of multiple modifiers for timed text		
Source:	⌘ TSG SA WG4		
Work item code:	⌘ PSS-E	Date:	⌘ 18/03/2003
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ A statement in the Timed Text specification could be interpreted to mean that two modifier boxes of the same type may not be applied to the same sample, regardless of type. The real intent is to put this restriction only on three specific modifier types.
Summary of change:	⌘ The language is clarified to resolve the ambiguity.
Consequences if not approved:	⌘ Some implementers might make an incorrect assumption when designing a reader/player for Timed Text files, which could lead to interoperability problems.

Clauses affected:	⌘ D.8a.18										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
	X										
	X										
	X										
Other comments:	⌘										

...

D.8a.18 Combinations of features

Two modifier boxes of the same type shall not be applied to the same character (e.g. it is not permitted to have two href links from the same text). As the 'hclr', 'dlay' and 'tbox' are globally applied to the whole text in a sample, ~~two modifier boxes of the same type shall not be present within a sample.~~ each sample shall contain at most one 'hclr', at most one 'dlay', and at most one 'tbox' modifier.

Table D.8 details the effects of multiple options:

Table D.8: Combinations of features

		Sample description style record	First sample modifier box				
			styl	hlit	krok	href	blnk
Second sample modifier box	styl	1	3				
	hlit			3			
	krok			4	3		
	href	2	2		5	3	
	blnk		6	6	6	6	6

1. The sample description provides the default style; the style records over-ride this for the selected characters.
2. The terminal over-rides the chosen style for HREF links.
3. Two records of the same type cannot be applied to the same character.
4. Dynamic and static highlighting must not be applied to the same text.
5. Dynamic highlighting and linking must not be applied to the same text.
6. Blinking text is optional, particularly when requested in combination with other features.

...

3GPP TSG-SA4 Meeting #25bis
Berlin, Germany, 24-28 February 2003

Tdoc #030258

CR-Form-v7
CHANGE REQUEST
⌘ 26.234 CR 56 ⌘ rev 4 ⌘ Current version: 5.3.0 ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Correction of wrong references		
Source:	⌘ TSG SA WG4		
Work item code:	⌘ PSS-E	Date:	⌘ 18/03/2003
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ The reference list contains incorrect and outdatd references. One reference in Annex D is missing.
Summary of change:	⌘ Updated references to current status.
Consequences if not approved:	⌘ As some references will be incorrect or outdated, implementers are likely to use different versions of standards resulting in interoperability problems.

Clauses affected:	⌘ 2 (References), D.3, D.4										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
Other comments:	⌘										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 22.233: "Transparent End-to-End Packet-switched Streaming Service; ~~Service aspects;~~ Stage 1-".
- [2] 3GPP TS 26.233: "-Transparent end-to-end packet switched streaming service (PSS); General description".
- [3] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [4] IETF RFC 1738: "Uniform Resource Locators (URL)", Berners-Lee [T.](#), Masinter [L.](#) and [McCahill M.](#), December 1994.
- [5] IETF RFC 2326: "Real Time Streaming Protocol (RTSP)", Schulzrinne H., Rao A. and Lanphier R., April 1998.
- [6] IETF RFC 2327: "SDP: Session Description Protocol", Handley M. and Jacobson V., April 1998.
- [7] IETF STD 0006: "User Datagram Protocol", Postel J., August 1980.
- [8] IETF STD 0007: "Transmission Control Protocol", Postel J., September 1981.
- [9] IETF RFC 1889: "RTP: A Transport Protocol for Real-Time Applications", Schulzrinne H. et al., January 1996.
- [10] IETF RFC 1890: "RTP Profile for Audio and Video Conferences with Minimal Control", Schulzrinne H. et al., January 1996.
- [11] IETF RFC 3267: "[Real-Time Transport Protocol \(RTP\)](#) ~~p~~Payload ~~f~~Format and ~~f~~File ~~s~~Storage ~~f~~Format for the Adaptive Multi-Rate (AMR) Adaptive Multi-Rate Wideband (AMR-WB) ~~a~~Audio ~~e~~Codecs-", [Sjoberg J. et al., June](#) ~~March~~ 2002.
- [12] (void)
- [13] IETF RFC 3016: "RTP Payload Format for MPEG-4 Audio/Visual Streams", Kikuchi Y. et al., November 2000.
- [14] IETF RFC 2429: "RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)", Bormann C. et al., October 1998.
- [15] IETF RFC 2046: "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", ~~N-~~ Freed [N.](#) and ~~N-~~ Borenstein [N.](#), November 1996.
- [16] IETF RFC 3236: "-The 'application/xhtml+xml' Media Type-", Baker M. and Stark P., January 2002.
- [17] IETF RFC 2616: "Hypertext Transfer Protocol ~~=~~ HTTP/1.1", Fielding R. et al., June 1999.

- [18] 3GPP TS 26.071: "Mandatory Speech ~~CODEC~~ speech processing functions; AMR Speech ~~CODEC~~; General description".
- [19] 3GPP TS 26.101: "Mandatory Speech Codec speech processing functions; [Adaptive Multi-Rate \(AMR\) Speech Codec; Frame Structure](#)".
- [20] 3GPP TS 26.171: "AMR [Wideband Speech Codec](#); General ~~d~~Description".
- [21] ISO/IEC 14496-3:2001; "Information technology — Coding of audio-visual objects — Part 3: Audio".
- [22] ITU-T Recommendation H.263 (1998): "Video coding for low bit rate communication".
- [23] ITU-T Recommendation H.263 – Annex X (2001): "Annex X; Profiles and levels definition".
- [24] ISO/IEC 14496-2:2001; "Information technology — Coding of audio-visual objects — Part 2: Visual".
- [25] ISO/IEC 14496-2:2001/Amd 2:2002; "Streaming video profile".
- [26] ITU-T Recommendation T.81 (1992) | ISO/IEC 10918-1; (1993): "Information technology — Digital compression and coding of continuous-tone still images — Requirements and guidelines".
- [27] [C-Cube Microsystems](#): "JPEG File Interchange Format", Version 1.02, September 1, 1992.
- [28] W3C Recommendation: "XHTML Basic", <http://www.w3.org/TR/2000/REC-xhtml-basic-20001219>, December 2000.
- [29] ISO/IEC 10646-1; (2000): "Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane".
- [30] The Unicode Consortium: "The Unicode Standard", Version 3.0 Reading, MA, Addison-Wesley Developers Press, 2000, ISBN 0-201-61633-5.
- [31] W3C Recommendation: "Synchronized Multimedia Integration Language (SMIL 2.0)", <http://www.w3.org/TR/2001/REC-smil20-20010807/>, August 2001.
- [32] CompuServe Incorporated: "GIF Graphics Interchange Format: A Standard defining a mechanism for the storage and transmission of raster-based graphics information", Columbus, OH, USA, 1987.
- [33] CompuServe Incorporated: "Graphics Interchange Format: Version 89a", Columbus, OH, USA, 1990.
- [34] (void)
- [35] 3GPP TS 26.140: "Multimedia Messaging Service (MMS); Media formats and codecs".
- [36] (void)
- [37] 3GPP TS 26.201: "[Speech Codec speech processing functions](#); AMR Wideband Speech Codec; Frame Structure".
- [38] IETF RFC 2083: "PNG (Portable Networks Graphics) Specification ~~v~~Version 1.0", ~~T.~~Boutell ~~T.~~, et. al., March 1997.
- [39] W3C Working Draft Recommendation: "CC/PP structure and vocabularies", <http://www.w3.org/Mobile/CCPP/Group/Drafts/WD-CCPP-struct-vocab-20010620/>, June 2001.
- [40] WAP UAProf Specification, <http://www1.wapforum.org/tech/terms.asp?documents=WAP-248-UAProf-20011020-a.pdf>, October 2001.
- [41] W3C Candidate Recommendation: "Resource Description Framework (RDF) Schema Specification 1.0", <http://www.w3.org/TR/2000/CR-rdf-schema-20000327>, March 2000.
- [42] W3C ~~Working Draft~~ Recommendation: "Scalable Vector Graphics (SVG) 1.1 Specification", <http://www.w3.org/TR/2003/REC-SVG11-20030114/>, ~~February 2002~~ [January 2003](#).

- [43] W3C ~~Working Draft~~ Recommendation: "~~SVG-Mobile Specification~~[SVG Profiles: SVG Tiny and SVG Basic](http://www.w3.org/TR/2003/REC-SVGMobile-20030114/)", <http://www.w3.org/TR/2003/REC-SVGMobile-20030114/>, ~~February 2002~~[January 2003](http://www.w3.org/TR/2003/REC-SVGMobile-20030114/).
- [44] Scalable Polyphony MIDI Specification Version 1.0, RP-34, MIDI Manufacturers Association, Los Angeles, CA, February 2002.
- [45] Scalable Polyphony MIDI Device 5-to-24 Note Profile for 3GPP Version 1.0, RP-35, MIDI Manufacturers Association, Los Angeles, CA, February 2002.
- [46] "Standard MIDI Files 1.0", RP-001, in "The Complete MIDI 1.0 Detailed Specification, Document Version 96.1-", The MIDI Manufacturers Association, Los Angeles, CA, USA, February 1996.
- [47] WAP Forum Specification: "~~XHTML Mobile Profile~~", <http://www1.wapforum.org/tech/terms.asp?doc=WAP-277-XHTMLMP-20011029-a.pdf>, October 2001.
- [48] "Unicode Standard Annex #13: Unicode Newline Guidelines", by Mark Davis. An integral part of The Unicode Standard, Version 3.1.
- [49] IETF RFC 3266: "Support ~~f~~For IPv6 in Session Description Protocol (SDP)", Olson S., Camarillo G. and Roach A. B., June 2002.
- [50] ISO/IEC 14496-12:2003~~1/Amd 5~~ | 15444-12:2003~~;~~; "Information technology ~~–~~ Coding of audio-visual objects ~~–~~ Part 12: ~~Systems – Amendment 5~~:-ISO base media file format" | "[Information technology – JPEG 2000 image coding system – Part 12: ISO base media file format](#)".
- [51] ISO/IEC 14496-14:2003~~1/Amd 6~~; "Information technology ~~–~~ Coding of audio-visual objects ~~–~~ Part 14: ~~Systems – Amendment 6~~: MP4, ~~the MPEG-4~~ file format".

--- cut text ---

D.3 MP4VisualSampleEntry box

The MP4VisualSampleEntry Box is defined as follows:

MP4VisualSampleEntry ::= BoxHeader

Reserved_6

Data-reference-index

Reserved_16

Width

Height

Reserved_4

Reserved_4

Reserved_4

Reserved_2

Reserved_32

Reserved_2

Reserved_2

ESDBox**Table D.2: MP4VisualSampleEntry fields**

Field	Type	Details	Value
BoxHeader .Size	Unsigned int(32)		
BoxHeader .Type	Unsigned int(32)		'mp4v'
Reserved_6	Unsigned int(8) [6]		0
Data-reference-index	Unsigned int(16)	Index to a data reference that to use to retrieve the sample data. Data references are stored in data reference boxes.	
Reserved_16	Const unsigned int(32) [4]		0
Width	Unsigned int(16)	Maximum width, in pixels of the stream	
Height	Unsigned int(16)	Maximum height, in pixels of the stream	
Reserved_4	Const unsigned int(32)		0x00480000
Reserved_4	Const unsigned int(32)		0x00480000
Reserved_4	Const unsigned int(32)		0
Reserved_2	Const unsigned int(16)		1
Reserved_32	Const unsigned int(8) [32]		0
Reserved_2	Const unsigned int(16)		24
Reserved_2	Const int(16)		-1
ESDBox		Box containing an elementary stream descriptor for this stream.	

The stream type specific information is in the ESDBox structure, [as defined in \[51\]](#), ~~which will be explained later.~~

This version of the MP4VisualSampleEntry, with explicit width and height, shall be used for MPEG-4 video streams conformant to this specification.

NOTE: width and height parameters together may be used to allocate the necessary memory in the playback device without need to analyse the video stream.

D.4 MP4AudioSampleEntry box

MP4AudioSampleEntryBox is defined as follows:

MP4AudioSampleEntry ::= BoxHeader

Reserved_6

Data-reference-index

Reserved_8

Reserved_2
 Reserved_2
 Reserved_4
 TimeScale
 Reserved_2
ESDBox

Table D.3: MP4AudioSampleEntry fields

Field	Type	Details	Value
BoxHeader .Size	Unsigned int(32)		
BoxHeader .Type	Unsigned int(32)		'mp4a'
Reserved_6	Unsigned int(8) [6]		0
Data-reference-index	Unsigned int(16)	Index to a data reference that to use to retrieve the sample data. Data references are stored in data reference boxes.	
Reserved_8	Const unsigned int(32) [2]		0
Reserved_2	Const unsigned int(16)		2
Reserved_2	Const unsigned int(16)		16
Reserved_4	Const unsigned int(32)		0
TimeScale	Unsigned int(16)	Copied from track	
Reserved_2	Const unsigned int(16)		0
ESDBox		Box containing an elementary stream descriptor for this stream.	

The stream type specific information is in the ESDBox structure, [as defined in \[51\]](#), ~~which will be explained later.~~

CHANGE REQUEST

⌘ **26.234 CR 057** ⌘ rev **2** ⌘ Current version: **5.3.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Correction of signalling frame size for H.263 in SDP		
Source:	⌘ TSG SA WG4		
Work item code:	⌘ PSS-E	Date:	⌘ 18/03/2003
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ Release-5 PSS clients need information about H.263 frame size in order to properly allocate frame buffer memory at the start of a session. Inclusion of this information for H.263 is currently missing.
Summary of change:	⌘ State that for H.263, PSS servers shall provide a media-level "a=framesize" field in SDP, and that clients should derive frame size information using this information, if present.
Consequences if not approved:	⌘ Clients do not have enough information about H.263 frame size to properly allocate frame buffer memory in PSS systems.

Clauses affected:	⌘ 5.3.3, A.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications ⌘ Test specifications ⌘ O&M Specifications ⌘	Y	N	⌘	X	⌘	X	⌘	X		
Y	N										
⌘	X										
⌘	X										
⌘	X										
Other comments:	⌘										

• • •

5.3.3 SDP

5.3.3.1 General

RTSP requires a presentation description. SDP shall be used as the format of the presentation description for both PSS clients and servers. PSS servers shall provide and clients interpret the SDP syntax according to the SDP specification [6] and appendix C of [5]. The SDP delivered to the PSS client shall declare the media types to be used in the session using a codec specific MIME media type for each media. MIME media types to be used in the SDP file are described in clause 5.4 of the present document.

The SDP [6] specification requires certain fields to always be included in an SDP file. Apart from this a PSS server shall always include the following fields in the SDP:

- "a=control:" according to clauses C.1.1, C.2 and C.3 in [5];
- "a=range:" according to clause C.1.5 in [5];
- "a=rtpmap:" according to clause 6 in [6];
- "a=fmtp:" according to clause 6 in [6].

The bandwidth field in SDP is needed by the client in order to properly set up QoS parameters. Therefore, a PSS server shall include the "b=AS:" field at the media level for each media stream in SDP, and a PSS client shall interpret this field. When a client receives SDP, it should ignore the session level "b=AS:" parameter (if present), and instead calculate session bandwidth from the media level bandwidth values of the relevant streams. Note that for RTP based applications, 'b=AS:' gives the RTP "session bandwidth" (including UDP/IP overhead) as defined in section 6.2 of [9].

NOTE: The SDP parsers and/or interpreters shall be able to accept NULL values in the 'c=' field (e.g. 0.0.0.0 in IPv4 case). This may happen when the media content does not have a fixed destination address. For more details, see Section C.1.7 of [5] and Section 6 of [6].

5.3.3.2 Additional SDP fields

The following Annex G-related media level SDP fields are defined for PSS:

- "a=X-predecbufsize:<size of the hypothetical pre-decoder buffer>"
This gives the suggested size of the Annex G hypothetical pre-decoder buffer in bytes.
- "a=X-initpredecbufperiod:<initial pre-decoder buffering period>"
This gives the required initial pre-decoder buffering period specified according to Annex G. Values are interpreted as clock ticks of a 90-kHz clock. That is, the value is incremented by one for each 1/90 000 seconds. For example, value 180 000 corresponds to a two second initial pre-decoder buffering.
- "a=X-initpostdecbufperiod:<initial post-decoder buffering period>"
This gives the required initial post-decoder buffering period specified according to Annex G. Values are interpreted as clock ticks of a 90-kHz clock.
- "a=X-decbyterate:<peak decoding byte rate>"
This gives the peak decoding byte rate that was used to verify the compatibility of the stream with Annex G. Values are given in bytes per second.

If none of the attributes "a=X-predecbufsize:", "a=X-initpredecbufperiod:", "a=X-initpostdecbufperiod:", and "a=x-decbyterate:" is present, clients should not expect a packet stream according to Annex G. If at least one of the listed attributes is present, the transmitted video packet stream shall conform to Annex G. If at least one of the listed attributes is present, but some of the listed attributes are missing in an SDP description, clients should expect a default value for the missing attributes according to Annex G.

The following media level SDP field is defined for PSS:

- "a=framesize:<payload type number> <width>-<height>"
This gives the largest video frame size of H.263 streams.

The frame size field in SDP is needed by the client in order to properly allocate frame buffer memory. For MPEG-4 visual streams, the frame size shall be extracted from the “config” information in the SDP. For H.263 streams, a PSS server shall include the “a=framesize” field at the media level for each stream in SDP, and a PSS client should interpret this field, if present. Clients should be ready to receive SDP descriptions without this attribute.

If this attribute is present, the frame size parameters shall exactly match the largest frame size defined in the video stream. The width and height values shall be expressed in pixels.

• • •

A.1 SDP

This clause gives some background information on SDP for PSS clients.

Table A.1 provides an overview of the different SDP fields that can be identified in a SDP file. The order of SDP fields is mandated as specified in RFC 2327 [6].

Table A.1: Overview of fields in SDP for PSS clients

Type	Description		Requirement according to [6]	Requirement according to the present document
Session Description				
V	Protocol version		R	R
O	Owner/creator and session identifier		R	R
S	Session Name		R	R
I	Session information		O	O
U	URI of description		O	O
E	Email address		O	O
P	Phone number		O	O
C	Connection Information		R	R
B	Bandwidth information	AS	O	O
One or more Time Descriptions (See below)				
Z	Time zone adjustments		O	O
K	Encryption key		O	O
A	Session attributes	control	O	R
		range	O	R
One or more Media Descriptions (See below)				
Time Description				
T	Time the session is active		R	R
R	Repeat times		O	O
Media Description				
M	Media name and transport address		R	R
I	Media title		O	O
C	Connection information		R	R
B	Bandwidth information	AS	O	R
K	Encryption Key		O	O
A	Attribute Lines	control	O	R
		range	O	R
		fntp	O	R
		rtpmap	O	R
		X-predecbufsize	ND	O
		X-initpredecbufperiod	ND	O
		X-initpostdecbufperiod	ND	O
		X-decbyterate	ND	O
	framesize	ND	R (see note 5)	
<p>Note 1: R = Required, O = Optional, ND = Not Defined</p> <p>Note 2: The "c" type is only required on the session level if not present on the media level.</p> <p>Note 3: The "c" type is only required on the media level if not present on the session level.</p> <p>Note 4: According to RFC 2327, either an 'e' or 'p' field must be present in the SDP description. On the other hand, both fields will be made optional in the future release of SDP. So, for the sake of robustness and maximum interoperability, either an 'e' or 'p' field shall be present during the server's SDP file creation, but the client should also be ready to receive SDP content containing neither 'e' nor 'p' fields.</p> <p>Note 5: The "framesize" attribute is only required for H.263 streams.</p>				

The example below shows an SDP file that could be sent to a PSS client to initiate unicast streaming of a H.263 video sequence.

EXAMPLE: v=0
o=ghost 2890844526 2890842807 IN IP4 192.168.10.10
s=3GPP Unicast SDP Example
i=Example of Unicast SDP file
u=http://www.infoserver.com/ae600
e=ghost@mailserver.com
c=IN IP4 0.0.0.0

t=0 0
a=range:npt=0-45.678
m=video 1024 RTP/AVP 96
b=AS:128
a=rtpmap:96 H263-2000/90000
a=fmtp:96 profile=3;level=10
a=control:rtsp://mediaserver.com/movie
[a=framesize:96 176-144](#)
a=recvonly

• • •