Technical Specification Group Services and System Aspects **TSGS#27(05)0093**
Meeting #27, Tokyo, Japan
14-17 March 2005

Source: TSG-SA WG4

Title: CRs TS 26.234 on Corrections to Extended PSS Protocols and codecs (Releases 5 and 6)

Document for: Approval

Agenda Item: 7.4.3

The following CRs, agreed at the TSG-SA WG4 meeting #34, are presented to TSG SA #27 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Vers	WG	Meeting	S4 doc
26.234	081		Rel-6	Correction to NADU "NUN" field regarding MPEG-4 Video	F	6.2.0	S4	TSG-SA WG4#34	S4-050022
26.234	082		Rel-5	Correction of RDF schema for UAProf	F	5.6.0	S4	TSG-SA WG4#34	S4-050081
26.234	083		Rel-6	Correction of RDF schema for UAProf	A	6.2.0	S4	TSG-SA WG4#34	S4-050082
26.234	084		Rel-6	Correction of syntax and references	F	6.2.0	S4	TSG-SA WG4#34	S4-050083

3GPP TSG-SA4 Meeting #34
Lisbon, Portugal, 21-25 Feb 2005

S4-050022

CR-Form-v7

CHANGE REQUEST

⌘ **26.234** **CR** **081** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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 to 26.234 NADU "NUN" field regarding MPEG4 Video
Source:	⌘	TSG SA WG4
Work item code:	⌘	PSSrel6-Stage3
Date:	⌘	15/03/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one 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 one 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:	⌘	Section 6.2.3.2 requires NUN to be zero for Mpeg4 Visual SP which breaks backwards compatibility with Rel 5 servers that supports grouping of VOPs
Summary of change:	⌘	This CR relaxes "NUN" restrictions to allow non-zero NUN for MPEG4 VSP RTP tracks
Consequences if not approved:	⌘	26.234 will break backwards compatibility between Release 5 PSS servers and Release 6 PSS clients.

Clauses affected:	⌘	6.2.3.2		
Other specs affected:	⌘	**Y** / **N**	Other core specifications Test specifications 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/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.

6.2.3.2 RTCP App packet for client buffer feedback (NADU APP packet)

NUN (5 bits): The unit number (within the RTP packet) of the next ADU to be decoded. The first unit in a packet has a unit number equal to zero. The unit number is incremented by one for each ADU in an RTP packet. In the case of an audio codec, an ADU is defined as an audio frame. In the case of H.264 (AVC), an ADU is defined as a NAL unit. In the case of H.263 and MPEG4 Visual Simple Profile, an ADU is defined as a whole or a part of an H.263 video picture or MPEG4 VOP that is included in a RTP packet. In the specific case of H.263, each packet carries a single ADU and the NUN field shall be thus set to zero. Future additions of media encoding or transports capable of having more than one ADU in each RTP payload shall define what shall be counted as an ADU for this format.

3GPP TSG-SA WG4 Meeting #34
Lisbon, Portugal, 21-25 February 2005

Tdoc ⌘S4-050081

CR-Form-v7

CHANGE REQUEST

⌘ **26.234** **CR** **082** ⌘ **rev** **-** ⌘ Current version: **5.6.0** ⌘

*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 RDF schema for UAProf
Source:	⌘	TSG SA WG4
Work item code:	⌘	PSS-E
Date:	⌘	15/03/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one 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 one 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 RDF schema for Release 5 contains mistakes in syntax. The namespace definition lacks fragment identifier. References are outdated (invalid).
Summary of change:	⌘	• Corrected the RDF schema. • Renamed namespace so that it includes a separator (#) • Updated references to CC/PP and RDF
Consequences if not approved:	⌘	The User Agent capabilities of PSS will be inconsistent and the RDF schema invalid. The namespace definition will lead to interoperability problems.

Clauses affected:	⌘	2, A.4.3, A.4.7, F

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	CR 083 contains corresponding changes for Release 6.

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; 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 3550: "RTP: A Transport Protocol for Real-Time Applications", Schulzrinne H. et al., July 2003.

[10] IETF RFC 3551: "RTP Profile for Audio and Video Conferences with Minimal Control", Schulzrinne H. and Casner S., July 2003.

[11] IETF RFC 3267: "Real-Time Transport Protocol (RTP) Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs", Sjoberg J. et al., June 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", Freed N. and 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 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 Version 1.0", 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.~~W3C Recommendation: "Composite Capability/Preference Profiles (CC/PP): Structure and Vocabularies 1.0", http://www.w3.org/TR/2004/REC-CCPP-struct-vocab-20040115/, January 2004.

[40] WAP UAProf Specification, http://www1.wapforum.org/tech/terms.asp?doc=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.~~W3C Recommendation: "RDF Vocabulary Description Language 1.0: RDF Schema", http://www.w3.org/TR/2004/REC-rdf-schema-20040210/, February 2004.

[42] W3C Recommendation: "Scalable Vector Graphics (SVG) 1.1 Specification", http://www.w3.org/TR/2003/REC-SVG11-20030114/, January 2003.

[43] W3C Recommendation: "Mobile SVG Profiles: SVG Tiny and SVG Basic", http://www.w3.org/TR/2003/REC-SVGMobile-20030114/, January 2003.

[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 14496-12:2003 | 15444-12:2003: "Information technology – Coding of audio-visual objects – Part 12: 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: "Information technology – Coding of audio-visual objects – Part 14: MP4 file format".

[52] IETF RFC 3556: "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) bandwidth", Casner S., July 2003.

… <cut text>…

A.4.3 The device capability profile structure

A device capability profile is a description of the capabilities of the device and possibly also the preferences of the user of that device. It can be used to guide the adaptation of content presented to the device. A device capability profile for PSS is a RDF [41] document that follows the structure of the CC/PP framework [39] and the CC/PP application UAProf [40]. The terminology of CC/PP is used in this text and therefore briefly described here.

Attributes are used for specifying the device capabilities and user preferences. A set of attribute names, permissible values and semantics constitute a CC/PP vocabulary. A RDF schema defines a vocabulary. The syntax of the attributes

is defined in the schema but also, to some extent, the semantics. A profile is an instance of a schema and contains one or more attributes from the vocabulary. Attributes in a schema are divided into components distinguished by attribute characteristics. In the CC/PP specification it is anticipated that different applications will use different vocabularies. According to the CC/PP framework a hypothetical profile might look like Figure A.2. A further illustration of how a profile might look like is given in the example in clause A.4.7.

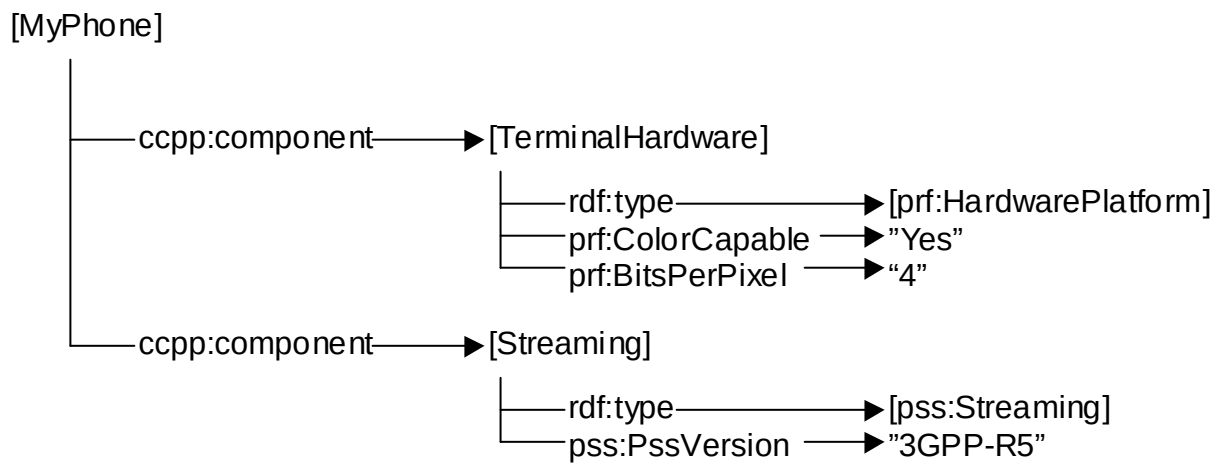

Figure A.2: Illustration of the profile structure

A CC/PP schema is extended through the introduction of new attribute vocabularies and a device capability profile can use attributes drawn from an arbitrary number of different vocabularies. Each vocabulary is associated with a unique XML namespace. This mechanism makes it possible to reuse attributes from other vocabularies. It should be mentioned that the prefix **ccpp** identifies elements of the CCPP namespace (URI http://www.w3.org/~~1999/02/22-rdf-syntax-ns~~2002/11/08-ccpp-ns#), **prf** identifies elements of the UAProf namespace (URI http://www.wapforum.org/profiles/UAPROF/ccppschema-20010330#)~~-~~, **rdf** identifies elements of the RDF namespace (URI http://www.w3.org/1999/02/22-rdf-syntax-ns#~~-~~) and **pss** identifies elements of the Streaming namespace. (URI http://www.3gpp.org/profiles/PSS/ccppschema-PSS5#).

Attributes of a component can be included directly or may be specified by a reference to a CC/PP default profile. Resolving a profile that includes a reference to a default profile is time-consuming. When the PSS server receives the profile from a device profile server the final attribute values can not be determined until the default profile has been requested and received. Support for defaults is required by the CC/PP specification [39]. Due to these problems, there is a recommendation made in clause 5.2.6 to not use the CC/PP defaults element in PSS device capability profile documents.

… <cut text>…

A.4.7 Example of a PSS device capability description

The following is an example of a device capability profile as it could be available from a device profile server. The XML document includes the description of the imaginary "Phone007" phone.

Instead of a single XML document the description could also be spread over several files. The PSS server would need to retrieve these profiles separately in this case and would need to merge them. For instance, this would be useful when device capabilities of this phone that are related to streaming would differ among different versions of the phone. In this case the part of the profile for streaming would be separated from the rest into its own profile document. This separation allows describing the difference in streaming capabilities by providing multiple versions of the profile document for the streaming capabilities.

```
<?xml version="1.0"?>

<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:ccpp="http://www.w3.org/2000/07/04-ccpp2002/11/08-ccpp-ns#"
         xmlns:prf="http://www.wapforum.org/profiles/UAPROF/ccppschema-20010330#"
         xmlns:pss5="http://www.3gpp.org/profiles/PSS/ccppschema-PSS5#">

  <rdf:Description rdf:about="http://www.bar.com/Phones/Phone007">

    <ccpp:component>
      <rdf:Description rdf:ID="HardwarePlatform">
      <rdf:type rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#HardwarePlatform" />
        <prf:BitsPerPixel>4</prf:BitsPerPixel>
        <prf:ColorCapable>Yes</prf:ColorCapable>
        <prf:PixelAspectRatio>1x2</prf:PixelAspectRatio>
        <prf:PointingResolution>Pixel</prf:PointingResolution>

        <prf:Model>Phone007</prf:Model>
        <prf:Vendor>Ericsson</prf:Vendor>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="SoftwarePlatform">
      <rdf:type rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#SoftwarePlatform" />
        <prf:CcppAccept-Charset>
          <rdf:Bag>
            <rdf:li>UTF-8</rdf:li>
            <rdf:li>ISO-10646-UCS-2</rdf:li>
          </rdf:Bag>
        </prf:CcppAccept-Charset>
        <prf:CcppAccept-Encoding>
          <rdf:Bag>
            <rdf:li>base64</rdf:li>
            <rdf:li>quoted-printable</rdf:li>
          </rdf:Bag>
        </prf:CcppAccept-Encoding>
        <prf:CcppAccept-Language>
          <rdf:Seq>
            <rdf:li>en</rdf:li>
            <rdf:li>se</rdf:li>
          </rdf:Seq>
        </prf:CcppAccept-Language>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="Streaming">
      <rdf:type rdf:resource="http://www.3gpp.org/profiles/PSS/ccppschema-PSS5#Streaming" />
        <pss5:AudioChannels>Stereo</pss5:AudioChannels>
        <pss5:VideoPreDecoderBufferSize>30720</pss5:VideoPreDecoderBufferSize>
        <pss5:VideoInitialPostDecoderBufferingPeriod>0</pss5:VideoInitialPostDecoderBufferingPeriod>
        <pss5:VideoDecodingByteRate>16000</pss5:VideoDecodingByteRate>
        <pss5:RenderingScreenSize>73x50</pss5:RenderingScreenSize>
        <pss5:PssAccept>
          <rdf:Bag>
            <rdf:li>audio/AMR-WB;octet-alignment=1</rdf:li>
            <rdf:li>video/MP4V-ES</rdf:li>
          </rdf:Bag>
        </pss5:PssAccept>
        <pss5:PssAccept-Subset>
          <rdf:Bag>
            <rdf:li>JPEG-PSS</rdf:li>
          </rdf:Bag>
        </pss5:PssAccept-Subset>
        <pss5:PssVersion>3GPP-R5</pss5:PssVersion>
        <pss5:RenderingScreenSize>70x40</pss5:RenderingScreenSize>
        <pss5:SmilBaseSet>SMIL-3GPP-R4</pss5:SmilBaseSet>
```

```
        <pss5:SmilModules>
          <rdf:Bag>
            <rdf:li>BasicTransitions</rdf:li>
            <rdf:li>MulitArcTiming</rdf:li>
          </rdf:Bag>
        </pss5:SmilModules>
      </rdf:Description>
    </ccpp:component>

  </rdf:Description>
</rdf:RDF>
```

… <cut text>…

Annex F (normative): RDF schema for the PSS base vocabulary

```
<?xml version="1.0"?>

<!--
      This document is the RDF Schema for streaming-specific vocabulary
      as defined in 3GPP TS 26.234 Rel.5 (in the following "the
      specification").

      The URI for unique identification of this RDF Schema is
        http://www.3gpp.org/profiles/PSS/ccppschema-PSS5

      This RDF Schema includes the same information as the respective
      chapter of the specification. Greates care has been taken to keep
      the two documents consistence. However, in case of any divergence
      the specification takes presidence.

      All reference in this RDF Schmea are to be interpreted relative to
      the specification. This means all references using the form
      [ref] are defined in chapter 2 "References of the
      specification. All other references refer to parts within that
      document.

      Note: This Schemas has been aligned in structure and base
      vocabulary to the RDF Schema used by UAProf [40].

-->

<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns"
         xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema" >


  <!-- ********************************************************************* -->
<!-- ***** Properties shared among the components***** -->

  <rdf:Description ID="defaults">
    <rdfs:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
    <rdfs:domain rdf:resource="Streaming"/>
    <rdfs:comment>
      An attribute used to identify the default capabilities.
    </rdfs:comment>
  </rdf:Description>
```

```
<!-- ************************************************************************ -->
<!-- ***** Component Definitions ***** -->

  <rdf:Description ID="Streaming">
    <rdf:type resource="http://www.w3.org/2000/01/rdf-schema#Class"/>
    <rdfs:subClassOf rdf:resource="http://www.wapforum.org/UAPROF/ccppschema-20010330#Component"/>
    <rdfs:label>Component: Streaming</rdfs:label>
    <rdfs:comment>
      The Streaming component specifies the base vocabulary for
      PSS. PSS servers supporting capability exchange should
      understand the attributes in this component as explained in
      detail in 3GPP TS 26.234 rel. 5.
    </rdfs:comment>
  </rdf:Description>

<!-- **
     ** In the following property definitions, the defined types
     ** are as follows:
     **
     ** Number: A positive integer
     ** [0-9]+
     ** Boolean: A yes or no value
     ** Yes|No
     ** Literal: An alphanumeric string
     ** [A-Za-z0-9/.\-_]+
     ** Dimension: A pair of numbers
     ** [0-9]+x[0-9]+
     **
-->


<!-- ************************************************************************ -->
<!-- ***** Component: Streaming ***** -->

<rdf:Description ID="AudioChannels">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
  <rdfs:domain rdf:resource="#Streaming"/>
  <rdfs:comment>
    Description: This attribute describes the stereophonic capability of the natural audio device.
The only legal values are "Mono" and "Stereo".

    Type: Literal
    Resolution: Locked
    Examples: "Mono", "Stereo"
  </rdfs:comment>
</rdf:Description>


<rdf:Description ID="VideoPreDecoderBufferSize">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
  <rdfs:domain rdf:resource="#Streaming"/>
  <rdfs:comment>
    Description: This attribute signals if the optional video
    buffering requirements defined in Annex G are supported. It also
    defines the size of the hypothetical pre-decoder buffer defined in
    Annex G. A value equal to zero means that Annex G is not
    supported. A value equal to one means that Annex G is
    supported. In this case the size of the buffer is the default size
    defined in Annex G.  A value equal to or greater than the default
    buffer size defined in Annex G means that Annex G is supported and
    sets the buffer size to the given number of octets. Legal values are all
    integer values equal to or greater than zero. Values greater than
    one but less than the default buffer size defined in Annex G are
    not allowed.

    Type: Number
    Resolution: Locked
    Examples: "0", "4096"
  </rdfs:comment>
</rdf:Description>


<rdf:Description ID="VideoInitialPostDecoderBufferingPeriod">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
  <rdfs:domain rdf:resource="#Streaming"/>
  <rdfs:comment>
    Description: If Annex G is not supported, the attribute has no
    meaning. If Annex G is supported, this attribute defines the
```

maximum initial post-decoder buffering period of video. Values are interpreted as clock ticks of a 90-kHz clock. In other words, the value is incremented by one for each 1/90 000 seconds. For example, the value 9000 corresponds to 1/10 of a second initial post-decodder buffering. Legal valaues are all integer value equal to or greater than zero.

Type: Number
Resolution: Locked
Examples: <VideoInitialPostDecoderBufferingPeriod>
9000
</VideoInitialPostDecoderBufferingPeriod>
</rdfs:comment>
</rdf:Description>

<rdf:Description ID=" VideoDecodingByteRate ">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: If Annex G is not supported, the attribute has no meaning. If Annex G is supported, this attribute defines the peak decoding byte rate the PSS client is able to support. In other words, the PSS client fulfils the requirements given in Annex G with the signalled peak decoding byte rate. The values are given in bytes per second and shall be greater than or equal to 8000. According to Annex G, 8000 is the default peak decoding byte rate for the mandatory video codec profile and level (H.263 Profile 0 Level 10).Legal values are integer value greater than or equal to 8000.

Type: Number
Resolution: Locked
Examples: <VideoDecodingByteRate>16000</VideoDecodingByteRate>
</rdfs:comment>
</rdf:Description>

<rdf:Description ID=" MaxPolyphony">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: Attribute definition: The MaxPolyphony attribute refers to the maximal polyphony that the synthetic audio device supports as defined in [44]. Legal values are integer between 5 to 24.
NOTE: MaxPolyphony attribute can be used to signal the maximum polyphony capabilities supported by the PSS client. This is a complementary mechanism for the delivery of compatible SP-MIDI content and thus the PSS client is required to support Scalable Polyphony MIDI i.e. Channel Masking defined in [44].

Type: Number
Resolution: Locked
Examples: <MaxPolyphony>8</MaxPolyphony>
</rdfs:comment>
</rdf:Description>

<rdf:Description ID="PssAccept">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Bag"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: List of content types (MIME types) the PSS application supports. Both CcppAccept (SoftwarePlatform, UAProf) and PssAccept can be used but if PssAccept is defined it has precedence over CcppAccept and a PSS application shall then use PssAccept.

Type: Literal (bag)
Resolution: Append
Examples: "audio/AMR-WB;octet-alignment,application/smil"
</rdfs:comment>
</rdf:Description>

<rdf:Description ID="PssAccept-Subset">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Bag"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: List of content types for which the PSS application supports a subset. MIME-types can in most cases effectively be used to express variations in support for different media types. Many MIME-types, e.g. AMR-NB has several parameters that

can be used for this purpose. There may exist content types for which the PSS application only supports a subset and this subset can not be expressed with MIME-type parameters. In these cases the attribute PssAccept-Subset is used to describe support for a subset of a specific content type. If a subset of a specific content type is declared in PssAccept-Subset, this means that PssAccept-Subset has precedence over both PssAccept and CcppAccept. PssAccept and/or CcppAccept shall always include the corresponding content types for which PSSAccept-Subset specifies subsets of. This is to ensure compatibility with those content servers that do not understand the PssAccept-Subset attribute but do understand e.g. CcppAccept.

This is illustrated with an example. If PssAccept="audio/AMR", "image/jpeg" and PssAccept-Subset="JPEG-PSS" then "audio/AMR" and JPEG Base line is supported. "image/jpeg" in PssAccept is of no importance since it is related to "JPEG-PSS" in PssAccept-Subset. Subset identifiers and corresponding semantics shall only be defined by the TSG responsible for the present document. The following values are defined:

- "JPEG-PSS": Only the two JPEG modes described in clause 7.5 of the present document are supported.
- "SVG-Tiny"
- "SVG-Basic"

Legal values are subset identifiers defined by the specification.

Type: Literal (bag)
Resolution: Locked
Examples: "JPEG-PSS","SVG-Tiny","SVG-Basic"
</rdfs:comment>
</rdf:Description>

<rdf:Description ID="PssVersion">
e <rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: Latest PSS version supported by the client. Legal values are "3GPP-R4", "3GPP-R5" and so forth.

Type: Literal
Resolution: Locked
Examples: "3GPP-R4", "3GPP-R5"
</rdfs:comment>
</rdf:Description>

<rdf:Description ID="RenderingScreenSize">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: The rendering size of the device's screen in unit of pixels. The horizontal size is given followed by the vertical size. Legal values are pairs of integer values equal or greater than zero. A value equal "0x0"means that there exist no display or just textual output is supported.

Type: Dimension
Resolution: Locked
Examples: "160x120"
</rdfs:comment>
</rdf:Description>

<rdf:Description ID="SmilBaseSet">
<rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
<rdfs:domain rdf:resource="#Streaming"/>
<rdfs:comment>
Description: Indicates a base set of SMIL 2.0 modules that the client supports. Leagal values are the following pre-defined identifiers: "SMIL-3GPP-R4" indicates all SMIL 2.0 modules required for scene description support according to clause 8 of Release 4 of TS 26.234. "SMIL-3GPP-R5" indicates all SMIL 2.0 modules required for scene description support according to clause 8 of the specification.

Type: Literal
Resolution: Locked
Examples: "SMIL-3GPP-R4", "SMIL-3GPP-R5"
</rdfs:comment>

```
</rdf:Description>


<rdf:Description ID="SmilModules">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdfschema#Property"/>
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Bag"/>
  <rdfs:domain rdf:resource="#Streaming"/>
  <rdfs:comment>
    Description: This attribute defines a list of SMIL 2.0 modules
    supported by the client. If the SmilBaseSet is used those modules
    do not need to be explicitly listed here. In that case only
    additional module support needs to be listed. Legal values are all
    SMIL 2.0 module names defined in the SMIL 2.0 recommendation [31],
    section 2.3.3, table 2.

    Type: Literal (bag)
    Resolution: Locked
    Examples: "BasicTransitions,MulitArcTiming"
  </rdfs:comment>
</rdf:Description>

</rdf:RDF>
<?xml version="1.0"?>

<!--
     This document is the RDF Schema for streaming-specific vocabulary
     as defined in 3GPP TS 26.234 Rel.5 (in the following "the
     specification").

     The URI for unique identification of this RDF Schema is
       http://www.3gpp.org/profiles/PSS/ccppschema-PSS5#

     This RDF Schema includes the same information as the respective
     chapter of the specification. Greates care has been taken to keep
     the two documents consistence. However, in case of any divergence
     the specification takes presidence.

     All reference in this RDF Schmea are to be interpreted relative to
     the specification. This means all references using the form
     [ref] are defined in chapter 2 "References of the specification.
     All other references refer to parts within that document.

     Note: This Schemas has been aligned in structure and base
     vocabulary to the RDF Schema used by UAProf [40].

-->

<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" >


<!-- ********************************************************************* -->
<!-- ***** Properties shared among the components***** -->

  <rdf:Description rdf:ID="defaults">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      An attribute used to identify the default capabilities.
    </rdfs:comment>
  </rdf:Description>

<!-- ********************************************************************* -->
<!-- ***** Component Definitions ***** -->

  <rdf:Description rdf:ID="Streaming">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class"/>
    <rdfs:subClassOf rdf:resource="http://www.wapforum.org/UAPROF/ccppschema-20010330#Component"/>
    <rdfs:label>Component: Streaming</rdfs:label>
    <rdfs:comment>
      The Streaming component specifies the base vocabulary for
      PSS. PSS servers supporting capability exchange should
      understand the attributes in this component as explained in
      detail in 3GPP TS 26.234 rel. 5.
    </rdfs:comment>
  </rdf:Description>

<!-- **
```

```
     ** In the following property definitions, the defined types
     ** are as follows:
     **
     ** Number: A positive integer
     ** [0-9]+
     ** Boolean: A yes or no value
     ** Yes|No
     ** Literal: An alphanumeric string
     ** [A-Za-z0-9/.\-_]+
     ** Dimension: A pair of numbers
     ** [0-9]+x[0-9]+
     **
-->

<!-- ********************************************************** -->
<!-- ***** Component: Streaming ***** -->

  <rdf:Description rdf:ID="AudioChannels">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute describes the stereophonic capability of the
      natural audio device. The only legal values are "Mono" and "Stereo".

      Type: Literal
      Resolution: Locked
      Examples: "Mono", "Stereo"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="MaxPolyphony">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: The MaxPolyphony attribute refers to the maximal polyphony
      that the synthetic audio device supports as defined in [44]. Legal values
      are integer between 5 to 24.
      NOTE: MaxPolyphony attribute can be used to signal the maximum polyphony
            capabilities supported by the PSS client. This is a complementary
            mechanism for the delivery of compatible SP-MIDI content and thus
            the PSS client is required to support Scalable Polyphony MIDI i.e.
            Channel Masking defined in [44].

      Type: Number
      Resolution: Locked
      Examples: 8
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="VideoPreDecoderBufferSize">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute signals if the optional video
      buffering requirements defined in Annex G are supported. It also
      defines the size of the hypothetical pre-decoder buffer defined in
      Annex G. A value equal to zero means that Annex G is not
      supported. A value equal to one means that Annex G is
      supported. In this case the size of the buffer is the default size
      defined in Annex G.  A value equal to or greater than the default
      buffer size defined in Annex G means that Annex G is supported and
      sets the buffer size to the given number of octets. Legal values are all
      integer values equal to or greater than zero. Values greater than
      one but less than the default buffer size defined in Annex G are
      not allowed.

      Type: Number
      Resolution: Locked
      Examples: "0", "4096"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="VideoInitialPostDecoderBufferingPeriod">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: If Annex G is not supported, the attribute has no
      meaning. If Annex G is supported, this attribute defines the
```

```
      maximum initial post-decoder buffering period of video. Values are
      interpreted as clock ticks of a 90-kHz clock. In other words, the
      value is incremented by one for each 1/90 000 seconds. For
      example, the value 9000 corresponds to 1/10 of a second initial
      post-decodder buffering. Legal valaues are all integer value equal
      to or greater than zero.

      Type: Number
      Resolution: Locked
      Examples: "9000"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="VideoDecodingByteRate">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: If Annex G is not supported, the attribute has no meaning.
      If Annex G is supported, this attribute defines the peak decoding byte
      rate the PSS client is able to support. In other words, the PSS client
      fulfils the requirements given in Annex G with the signalled peak decoding
      byte rate. The values are given in bytes per second and shall be greater
      than or equal to 8000. According to Annex G, 8000 is the default peak
      decoding byte rate for the mandatory video codec profile and level
      (H.263 Profile 0 Level 10).Legal values are integer value greater than
      or equal to 8000.

      Type: Number
      Resolution: Locked
      Examples: "16000"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="PssAccept">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: List of content types (MIME types) the PSS
      application supports. Both CcppAccept (SoftwarePlatform, UAProf)
      and PssAccept can be used but if PssAccept is defined it has
      precedence over CcppAccept and a PSS application shall then use
      PssAccept.

      Type: Literal (bag)
      Resolution: Append
      Examples: "audio/AMR-WB;octet-alignment=1,application/smil"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="PssAccept-Subset">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: List of content types for which the PSS application supports
      a subset. MIME-types can in most cases effectively be used to express
      variations in support for different media types. Many MIME-types, e.g.
      AMR-NB has several parameters that can be used for this purpose. There
      may exist content types for which the PSS application only supports a
      subset and this subset can not be expressed with MIME-type parameters.
      In these cases the attribute PssAccept-Subset is used to describe
      support for a subset of a specific content type. If a subset of a specific
      content type is declared in PssAccept-Subset, this means that
      PssAccept-Subset has precedence over both PssAccept and CcppAccept.
      PssAccept and/or CcppAccept shall always include the corresponding
      content types for which PSSAccept-Subset specifies subsets of.
      This is to ensure compatibility with those content servers that
      do not understand the PssAccept-Subset attribute but do understand e.g.
      CcppAccept.

      This is illustrated with an example. If PssAccept="audio/AMR",
      "image/jpeg" and PssAccept-Subset="JPEG-PSS" then "audio/AMR"
      and JPEG Base line is supported. "image/jpeg" in PssAccept is of no
      importance since it is related to "JPEG-PSS" in PssAccept-Subset.
      Subset identifiers and corresponding semantics shall only be defined by
      the TSG responsible for the present document. The following values are defined:
      - "JPEG-PSS": Only the two JPEG modes described in clause 7.5 of the present
```

```
        document are supported.
      - "SVG-Tiny"
      - "SVG-Basic"
      Legal values are subset identifiers defined by the specification.

      Type: Literal (bag)
      Resolution: Locked
      Examples: "JPEG-PSS","SVG-Tiny","SVG-Basic"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="PssVersion">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: Latest PSS version supported by the client. Legal
      values are "3GPP-R4", "3GPP-R5" and so forth.

      Type: Literal
      Resolution: Locked
      Examples: "3GPP-R4", "3GPP-R5"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="RenderingScreenSize">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: The rendering size of the device's screen in unit of
      pixels. The horizontal size is given followed by the vertical
      size. Legal values are pairs of integer values equal or greater
      than zero. A value equal "0x0"means that there exist no display or
      just textual output is supported.

      Type: Dimension
      Resolution: Locked
      Examples: "160x120"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="SmilBaseSet">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: Indicates a base set of SMIL 2.0 modules that the
      client supports. Leagal values are the following pre-defined
      identifiers: "SMIL-3GPP-R4" indicates all SMIL 2.0
      modules required for scene description support according to clause
      8 of Release 4 of TS 26.234. "SMIL-3GPP-R5" indicates all SMIL 2.0
      modules required for scene description support according to clause
      8 of the specification.

      Type: Literal
      Resolution: Locked
      Examples: "SMIL-3GPP-R4", "SMIL-3GPP-R5"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="SmilModules">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute defines a list of SMIL 2.0 modules
      supported by the client. If the SmilBaseSet is used those modules
      do not need to be explicitly listed here. In that case only
      additional module support needs to be listed. Legal values are all
      SMIL 2.0 module names defined in the SMIL 2.0 recommendation [31],
      section 2.3.3, table 2.

      Type: Literal (bag)
      Resolution: Locked
      Examples: "BasicTransitions,MulitArcTiming"
    </rdfs:comment>
  </rdf:Description>

</rdf:RDF>
```

3GPP TSG-SA WG4 Meeting #34
Lisbon, Portugal, 21-25 February 2005

Tdoc ⌘S4-050082

CR-Form-v7

CHANGE REQUEST

⌘ **26.234** **CR** **083** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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 RDF schema for UAProf
Source:	⌘	TSG SA WG4
Work item code:	⌘	PSS-E
Date:	⌘	15/03/2005
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one 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 one 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 RDF schema for Release 6 contains mistakes in syntax. The namespace definition lacks fragment identifier.
Summary of change:	⌘	• Corrected syntax (rdfs:range for for Bag) • Renamed namespace so that it includes a separator (#) • Minor editorial changes
Consequences if not approved:	⌘	The User Agent capabilities of PSS will be inconsistent and the RDF schema invalid. The namespace definition will lead to interoperability problems.

Clauses affected:	⌘	5.2.3.2.4, 5.2.4.1, A.4.3, A.4.7, F

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ CR 082 contains corresponding changes for Release 5.

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.

5.2.3.2.4 PssSmil component

Attribute name: **SmilAccept**

Attribute definition: List of content types (MIME types) that can be part of a SMIL presentation. The content types included in this attribute can be rendered in a SMIL presentation. If video/3gpp (or audio/3gpp) is included, downloaded 3GP files can be included in a SMIL presentation. Details on the 3GP file support can then be found in the ThreeGPFileFormat component. If the identifier "Streaming-Media" is included, streaming media can be included in the SMIL presentation. Details on the streaming support can then be found in the Streaming component. For each content type a set of supported parameters can be given. A content type that supports multiple parameter sets may occur several times in the list.

Component: PssSmil

Type: Literal (Bag)

Legal values: List of MIME types with related parameters and the "Streaming-Media" identifier.

Resolution rule: Append

EXAMPLE 1:
```
<SmilAccept>
  <rdf:Bag>
    <rdf:li>image/gif</rdf:li>
    <rdf:li>image/jpeg</rdf:li>
    <rdf:li>Streaming-Media</rdf:li>
  </rdf:Bag>
</SmilAccept>
```

~~Attribute name: **SmilAccept-Subset**~~

~~Attribute definition: List of content types for which the PSS application supports a subset. MIME types can in most cases effectively be used to express variations in support for different media types. Many MIME types have several parameters that can be used for this purpose. There may exist content types for which the PSS application only supports a subset and this subset cannot be expressed with MIME-type parameters. In these cases the attribute SmilAccept-Subset is used to describe support for a subset of a specific content type. If a subset of a specific content type is declared in SmilAccept-Subset, this means that SmilAccept-Subset has precedence over SmilAccept. SmilAccept shall always include the corresponding content types for which SmilAccept-Subset specifies subsets of.~~

Attribute name: **SmilAccept-Subset**

Attribute definition: List of content types for which the PSS application supports a subset. MIME types can in most cases effectively be used to express variations in support for different media types. Many MIME types have several parameters that can be used for this purpose. There may exist content types for which the PSS application only supports a subset and this subset cannot be expressed with MIME-type parameters. In these cases the attribute SmilAccept-Subset is used to describe support for a subset of a specific content type. If a subset of a specific content type is declared in SmilAccept-Subset, this means that SmilAccept-Subset has precedence over SmilAccept. SmilAccept shall always include the corresponding content types for which SmilAccept-Subset specifies subsets of.

The following values are defined:

- "JPEG-PSS": Only the two JPEG modes described in clause 7.5 of the present document are supported.
- "SVG-Tiny"

- "SVG-Basic"

Subset identifiers and corresponding semantics shall only be defined by the TSG responsible for the present document.

Component: PssSmil

Type: Literal (Bag)

Legal values: "JPEG-PSS", "SVG-Tiny", "SVG-Basic"

Resolution rule: Append

EXAMPLE 2:
```
<SmilAccept-Subset>
  <rdf:Bag>
    <rdf:li>JPEG-PSS</rdf:li>
    <rdf:li>SVG-Tiny</rdf:li>
  </rdf:Bag>
</SmilAccept-Subset>
```

… <cut text> …

5.2.4 Extensions to the PSS schema/vocabulary

5.2.4.1 Vocabulary definitions

The use of RDF enables an extensibility mechanism for CC/PP-based schemas that addresses the evolution of new types of devices and applications. The Release-6 PSS profile schema specification has been updated from Release 5 and has thus been assigned a unique RDF schema. The following URIs uniquely identify the RDF schemas for Release 5 and Release 6:

PSS Release 5 URI: http://www.3gpp.org/profiles/PSS/ccppschema-PSS5#

PSS Release 6 URI: http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#

In the future new usage scenarios might have need for expressing new attributes. If the base vocabulary is further updated, a new unique namespace will be assigned to the updated schema. The base vocabulary shall only be changed by the TSG responsible for the present document. All extensions to the profile schema shall be governed by the rules defined in [40] clause 7.7.

… <cut text> …

A.4.3 The device capability profile structure

A device capability profile is a description of the capabilities of the device and possibly also the preferences of the user of that device. It can be used to guide the adaptation of content presented to the device. A device capability profile for PSS is an RDF [41] document that follows the structure of the CC/PP framework [39] and the CC/PP application UAProf [40]. The terminology of CC/PP is used in this text and therefore briefly described here.

Attributes are used for specifying the device capabilities and user preferences. A set of attribute names, permissible values and semantics constitute a CC/PP vocabulary. An RDF schema defines a vocabulary. The syntax of the attributes is defined in the schema but also, to some extent, the semantics. A profile is an instance of a schema and contains one or more attributes from the vocabulary. Attributes in a schema are divided into components distinguished by attribute characteristics. In the CC/PP specification it is anticipated that different applications will use different vocabularies. According to the CC/PP framework a hypothetical profile might look like Figure A.2. A further illustration of how a profile might look like is given in the example in clause A.4.7.

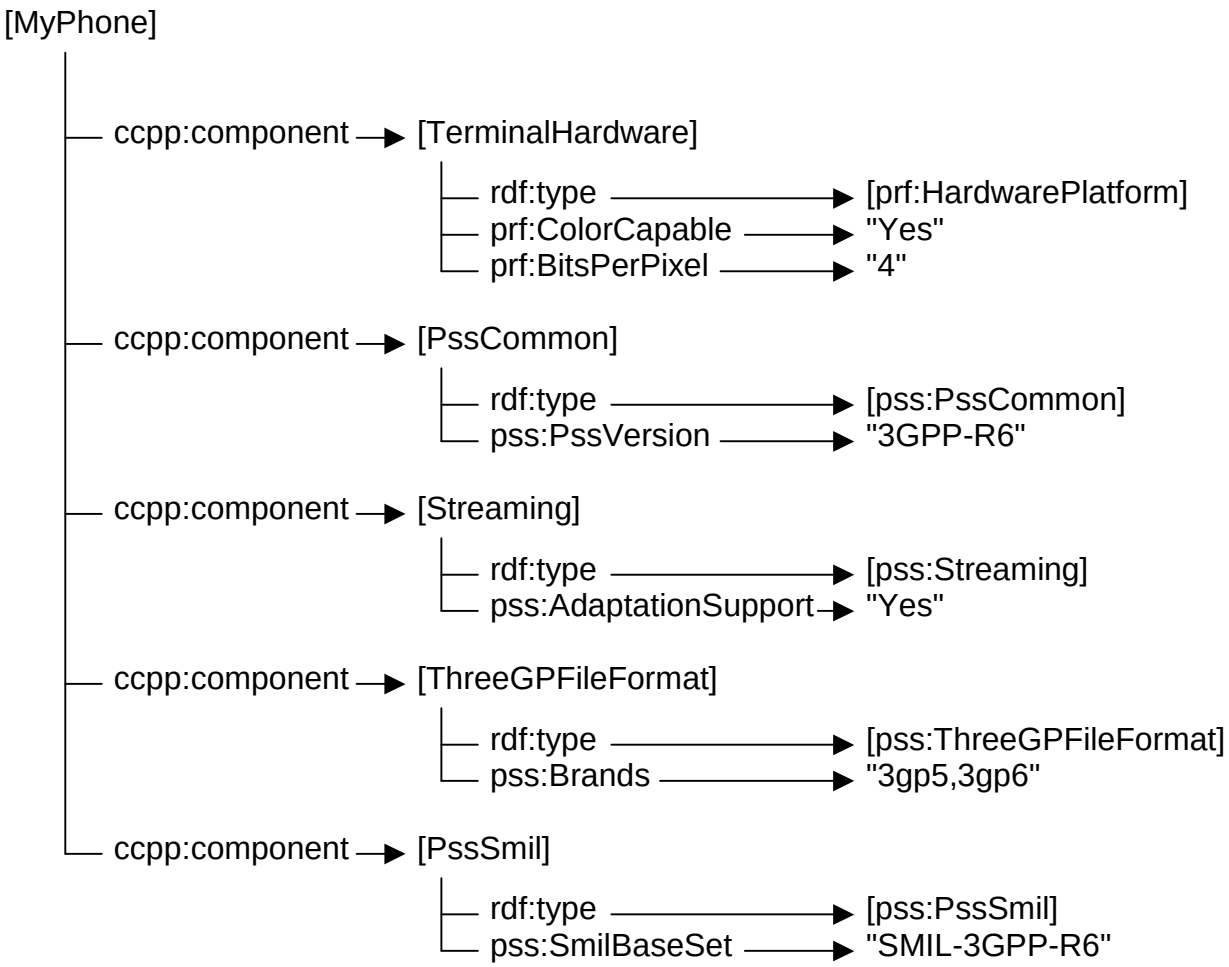

Figure A.2: Illustration of the profile structure

A CC/PP schema is extended through the introduction of new attribute vocabularies and a device capability profile can use attributes drawn from an arbitrary number of different vocabularies. Each vocabulary is associated with a unique XML namespace. This mechanism makes it possible to reuse attributes from other vocabularies. It should be mentioned that the prefix **ccpp** identifies elements of the CCPP namespace (URI http://www.w3.org/2002/11/08-ccpp-ns#), **prf** identifies elements of the UAProf namespace (URI http://www.wapforum.org/profiles/UAPROF/ccppschema-20010330#)-, **rdf** identifies elements of the RDF namespace (URI http://www.w3.org/1999/02/22-rdf-syntax-ns#-) and **pss** identifies elements of the PSS Release-6 namespace. (URI http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#).

Attributes of a component can be included directly or may be specified by a reference to a CC/PP default profile. Resolving a profile that includes a reference to a default profile is time-consuming. When the PSS server receives the profile from a device profile server the final attribute values can not be determined until the default profile has been requested and received. Support for defaults is required by the CC/PP specification [39]. Due to these problems, there is a recommendation made in clause 5.2.6 to not use the CC/PP defaults element in PSS device capability profile documents.

… <cut text> …

A.4.7 Example of a PSS device capability description

The following is an example of a device capability profile as it could be available from a device profile server. The XML document includes the description of the imaginary "Phone007" phone.

Instead of a single XML document the description could also be spread over several files. The PSS server would need to retrieve these profiles separately in this case and would need to merge them. For instance, this would be useful when device capabilities of this phone that are related to streaming would differ among different versions of the phone. In this case the part of the profile for streaming would be separated from the rest into its own profile document. This separation allows describing the difference in streaming capabilities by providing multiple versions of the profile document for the streaming capabilities.

```
<?xml version="1.0"?>

<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:ccpp="http://www.w3.org/2002/11/08-ccpp-ns#"
         xmlns:prf="http://www.wapforum.org/profiles/UAPROF/ccppschema-20010330#"
         xmlns:pss6="http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#">

  <rdf:Description rdf:about="http://www.bar.com/Phones/Phone007">

    <ccpp:component>
      <rdf:Description rdf:ID="HardwarePlatform">
      <rdf:type rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#HardwarePlatform" />
        <prf:BitsPerPixel>4</prf:BitsPerPixel>
        <prf:ColorCapable>Yes</prf:ColorCapable>
        <prf:PixelAspectRatio>1x2</prf:PixelAspectRatio>
        <prf:PointingResolution>Pixel</prf:PointingResolution>

        <prf:Model>Phone007</prf:Model>
        <prf:Vendor>Ericsson</prf:Vendor>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="SoftwarePlatform">
      <rdf:type rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#SoftwarePlatform" />
        <prf:CcppAccept-Charset>
          <rdf:Bag>
            <rdf:li>UTF-8</rdf:li>
            <rdf:li>ISO-10646-UCS-2</rdf:li>
          </rdf:Bag>
        </prf:CcppAccept-Charset>
        <prf:CcppAccept-Encoding>
          <rdf:Bag>
            <rdf:li>base64</rdf:li>
            <rdf:li>quoted-printable</rdf:li>
          </rdf:Bag>
```

```
        </prf:CcppAccept-Encoding>
        <prf:CcppAccept-Language>
          <rdf:Seq>
            <rdf:li>en</rdf:li>
            <rdf:li>se</rdf:li>
          </rdf:Seq>
        </prf:CcppAccept-Language>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="PssCommon">
      <rdf:type rdf:resource="http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#PssCommon" />
        <pss6:AudioChannels>Stereo</pss6:AudioChannels>
        <pss6:MaxPolyphony>24</pss6:MaxPolyphony>
        <pss6:PssVersion>3GPP-R6</pss6:PssVersion>
        <pss6:RenderingScreenSize>160x120</pss6:RenderingScreenSize>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="Streaming">
      <rdf:type rdf:resource="http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#Streaming" />
        <pss6:ThreeGPPLinkChar>Yes</pss6:ThreeGPPLinkChar>
        <pss6:AdaptationSupport>Yes</pss6:AdaptationSupport>
        <pss6:ExtendedRtcpReports>Yes</pss6:ExtendedRtcpReports>
        <pss6:MediaAlternatives>Yes</pss6:MediaAlternatives>
        <pss6:RtpProfiles>
          <rdf:Bag>
            <rdf:li>RTP/AVP</rdf:li>
            <rdf:li>RTP/AVPF</rdf:li>
          </rdf:Bag>
        </pss6:RtpProfiles>
        <pss6:VideoPreDecoderBufferSize>30720</pss6:VideoPreDecoderBufferSize>
        <pss6:VideoInitialPostDecoderBufferingPeriod>0</pss6:VideoInitialPostDecoderBufferingPeriod>
        <pss6:VideoDecodingByteRate>16000</pss6:VideoDecodingByteRate>
        <pss6:StreamingAccept>
          <rdf:Bag>
            <rdf:li>audio/AMR</rdf:li>
            <rdf:li>audio/AMR-WB;octet-alignment=1</rdf:li>
            <rdf:li>video/H263-2000;profile=0;level=45</rdf:li>
            <rdf:li>video/H263-2000;profile=3;level=45</rdf:li>
            <rdf:li>video/MP4V-ES</rdf:li>
          </rdf:Bag>
        </pss6:StreamingAccept>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="ThreeGPFileFormat">
      <rdf:type rdf:resource="http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#ThreeGPFileFormat"
/>
        <pss6:Brands>
          <rdf:Bag>
            <rdf:li>3gp4</rdf:li>
            <rdf:li>3gp5</rdf:li>
            <rdf:li>3gp6</rdf:li>
            <rdf:li>3gr6</rdf:li>
          </rdf:Bag>
        </pss6:Brands>
        <pss6:ThreeGPAccept>
          <rdf:Bag>
            <rdf:li>audio/AMR</rdf:li>
            <rdf:li>audio/AMR-WB;octet-alignment=1</rdf:li>
            <rdf:li>video/H263-2000;profile=0;level=45</rdf:li>
            <rdf:li>video/H263-2000;profile=3;level=45</rdf:li>
            <rdf:li>video/Timed-Text</rdf:li>
          </rdf:Bag>
        </pss6:ThreeGPAccept>
      </rdf:Description>
    </ccpp:component>

    <ccpp:component>
      <rdf:Description rdf:ID="PssSmil">
      <rdf:type rdf:resource="http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#PssSmil" />
        <pss6:SmilAccept>
          <rdf:Bag>
            <rdf:li>Streaming-Media</rdf:li>
```

```
            <rdf:li>video/3gpp</rdf:li>
            <rdf:li>audio/AMR</rdf:li>
            <rdf:li>audio/sp-midi</rdf:li>
          </rdf:Bag>
        </pss6:SmilAccept>
        <pss6:SmilAccept-Subset>
          <rdf:Bag>
            <rdf:li>JPEG-PSS</rdf:li>
          </rdf:Bag>
        </pss6:SmilAccept-Subset>
        <pss6:SmilBaseSet>SMIL-3GPP-R6</pss6:SmilBaseSet>
        <pss6:SmilModules>
          <rdf:Bag>
            <rdf:li>BasicTransitions</rdf:li>
            <rdf:li>MulitArcTiming</rdf:li>
          </rdf:Bag>
        </pss6:SmilModules>
      </rdf:Description>
    </ccpp:component>

  </rdf:Description>
</rdf:RDF>
```

… <cut text> …

Annex F (normative): RDF schema for the PSS base vocabulary

```
<?xml version="1.0"?>

<!--
     This document is the RDF Schema for Packet-switched Streaming
     Service (PSS)-specific vocabulary as defined in 3GPP TS 26.234
     Release 6 (in the following "the specification").

     The URI for unique identification of this RDF Schema is
       http://www.3gpp.org/profiles/PSS/ccppschema-PSS6#

     This RDF Schema includes the same information as the respective
     chapter of the specification. Greatest care has been taken to keep
     the two documents consistence. However, in case of any divergence
     the specification takes presidence.

     All reference in this RDF Schmea are to be interpreted relative to
     the specification. This means all references using the form
     [ref] are defined in chapter 2 "References" of the specification.
     All other references refer to parts within that document.

     Note: This Schemas has been aligned in structure and base
     vocabulary to the RDF Schema used by UAProf [40].

-->

<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" >

<!-- ************************************************************* -->
<!-- ***** Properties shared among the components***** -->
```

```
  <rdf:Description rdf:ID="defaults">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:domain rdf:resource="#ThreeGPFileFormat"/>
    <rdfs:domain rdf:resource="#PssSmil"/>
    <rdfs:comment>
      An attribute used to identify the default capabilities.
    </rdfs:comment>
  </rdf:Description>

<!-- ************************************************************** -->
<!-- ***** Component Definitions ***** -->

  <rdf:Description rdf:ID="PssCommon">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class"/>
    <rdfs:subClassOf rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#Component"/>
    <rdfs:label>Component: PssCommon</rdfs:label>
    <rdfs:comment>
      The PssCommon component specifies the base vocabulary common for all
      PSS applications, in contrast to application-specific parts of the PSS
      base vocabulary which are described by the Streaming, ThreeGPFileFormat and
      PssSmil components defined below.

      PSS servers supporting capability exchange should understand the attributes
      in this component as explained in detail in 3GPP TS 26.234 Release 6..
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="Streaming">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class"/>
    <rdfs:subClassOf rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#Component"/>
    <rdfs:label>Component: Streaming</rdfs:label>
    <rdfs:comment>
      The Streaming component specifies the base vocabulary for pure RTSP/RTP-
      based streaming in PSS.

      PSS servers supporting capability exchange should understand the attributes
      in this component as explained in detail in 3GPP TS 26.234 Release 6.
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="ThreeGPFileFormat">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class"/>
    <rdfs:subClassOf rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#Component"/>
    <rdfs:label>Component: ThreeGPFileFormat</rdfs:label>
    <rdfs:comment>
      The ThreeGPFileFormat component specifies the base vocabulary for 3GP file
      download or progressive download in PSS.

      PSS servers supporting capability exchange should understand the attributes
      in this component as explained in detail in 3GPP TS 26.234 Release 6.
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="PssSmil">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class"/>
    <rdfs:subClassOf rdf:resource="http://www.wapforum.org/profiles/UAPROF/ccppschema-
20010330#Component"/>
    <rdfs:label>Component: PssSmil</rdfs:label>
    <rdfs:comment>
      The PssSmil component specifies the base vocabulary for SMIL presentations
      in PSS. Note that capabibilites regarding streaming and 3GP files that are
      part of a SMIL presentation are expressed by the vocabularies specified by
      the Streaming and ThreeGPFileFormat components, respectively.

      PSS servers supporting capability exchange should understand the attributes
      in this component as explained in detail in 3GPP TS 26.234 Release 6.
    </rdfs:comment>
  </rdf:Description>

<!-- **
     ** In the following property definitions, the defined types
     ** are as follows:
     **
```

```
     ** Number: A positive integer
     ** [0-9]+
     ** Boolean: A yes or no value
     ** Yes|No
     ** Literal: An alphanumeric string
     ** [A-Za-z0-9/.\-_]+
     ** Dimension: A pair of numbers
     ** [0-9]+x[0-9]+
     **
-->

<!-- ********************************************************************* -->
<!-- ***** Component: PssCommon ***** -->

  <rdf:Description rdf:ID="AudioChannels">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:comment>
      Description: This attribute describes the stereophonic capability of the
      natural audio device. The only legal values are "Mono" and "Stereo".

      Type: Literal
      Resolution: Locked
      Examples: "Mono", "Stereo"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="MaxPolyphony">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:comment>
      Description: The MaxPolyphony attribute refers to the maximal polyphony
      that the synthetic audio device supports as defined in [44]. Legal values
      are integer between 5 to 24.
      NOTE: MaxPolyphony attribute can be used to signal the maximum polyphony
            capabilities supported by the PSS client. This is a complementary
            mechanism for the delivery of compatible SP-MIDI content and thus
            the PSS client is required to support Scalable Polyphony MIDI i.e.
            Channel Masking defined in [44].

      Type: Number
      Resolution: Locked
      Examples: 8
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="NumOfGM1Voices">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:comment>
      Description: The NumOfGM1Voices attribute refers to the maximum number
      of simultaneous GM1   voices that the synthetic audio engine supports.
      Legal values are integers greater or equal than 5.

      Type: Number
      Resolution: Locked
      Examples: 24
    </rdfs:comment>
  </rdf:Description>

<rdf:Description rdf:ID="NumOfMobileDLSVoicesWithoutOptionalBlocks">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:comment>
      Description: The NumOfMobileDLSVoicesWithoutOptionalBlocks attribute
      refers to the maximum number of simultaneous voices without optional
      group of processing blocks that the synthetic audio engine supports.
      Legal values are integers greater or equal than 5.

      Type: Number
      Resolution: Locked
      Examples: 24
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="NumOfMobileDLSVoicesWithOptionalBlocks">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
```

```
    <rdfs:comment>
      Description: The NumOfMobileDLSVoicesWithOptionalBlocks attribute refers
      to the maximum number of simultaneous voices with optional group of
      processing blocks that the synthetic audio engine supports. This attribute
      is set to zero for devices that do not support the optional group of
      processing blocks. Legal values are integers greater or equal than 0.

      Type: Number
      Resolution: Locked
      Examples: 24
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="PssVersion">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:comment>
      Description: Latest PSS version supported by the client. Legal
      values are "3GPP-R4", "3GPP-R5", "3GPP-R6" and so forth.

      Type: Literal
      Resolution: Locked
      Examples: "3GPP-R5", "3GPP-R6"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="RenderingScreenSize">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssCommon"/>
    <rdfs:comment>
      Description: The rendering size of the device's screen in unit of
      pixels available for PSS media presentation. The horizontal size is
      given followed by the vertical size. Legal values are pairs of integer
      values equal or greater than zero. A value equal "0x0"means that there
      exists no display or just textual output is supported.

      Type: Dimension
      Resolution: Locked
      Examples: "160x120"
    </rdfs:comment>
  </rdf:Description>

<!-- ************************************************************** -->
<!-- ***** Component: Streaming ***** -->

  <rdf:Description rdf:ID="StreamingAccept">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: List of content types (MIME types) relevant for streaming
      over RTP supported by the PSS application. Content types listed shall be
      possible to stream over RTP. For each content type a set of MIME parameters
      can be specified to signal receiver capabilities. A content type that
      supports multiple parameter sets may occur several times in the list.
      Legal values are lists of MIME types with related parameters.

      Type: Literal (bag)
      Resolution: Append
      Examples: "audio/AMR-WB;octet-alignment=1,application/smil"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="StreamingAccept-Subset">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: List of content types for which the PSS application supports
      a subset. MIME types can in most cases effectively be used to express
      variations in support for different media types. Many MIME types, e.g.
      AMR-WB has several parameters that can be used for this purpose. There
      may exist content types for which the PSS application only supports a
      subset and this subset cannot be expressed with MIME-type parameters.
      In these cases the attribute StreamingAccept-Subset is used to describe
      support for a subset of a specific content type. If a subset of a specific
      content type is declared in StreamingAccept-Subset, this means that
      StreamingAccept-Subset has precedence over StreamingAccept.
```

```
      StreamingAccept shall always include the corresponding content types for
      which StreamingAccept-Subset specifies subsets of.
      No legal values are currently defined.

      Type: Literal (bag)
      Resolution: Locked
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="LinkChar">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute indicates whether the device supports the
      3GPP-Link-Char header according to clause 10.2.1.1 of the specification.
      Legal values are "Yes" and "No".

      Type: Literal
      Resolution: Override
      Examples: "Yes"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="AdaptationSupport">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute indicates whether the device supports
      client buffer feedback signaling according to clause 10.2.3 of the
      specification. Legal values are "Yes" and "No".

      Type: Literal
      Resolution: Locked
      Examples: "Yes"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="ExtendedRtcpReports">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute indicates whether the device supports
      extended RTCP reports according to clause 6.2.3.1 of the specification.
      Legal values are "Yes" and "No".

      Type: Literal
      Resolution: Locked
      Examples: "Yes"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="RtpRetransmission">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute indicates whether the device supports RTP
      retransmission according to clause 6.2.3.3 of the specification.
      Legal values are "Yes" and "No".

      Type: Literal
      Resolution: Locked
      Examples: "Yes"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="MediaAlternatives">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute indicates whether the device interprets the
      SDP attributes "alt", "alt-default-id", and "alt-group", defined in
      clauses 5.3.3.3 and 5.3.3.4 of the specification.
      Legal values are "Yes" and "No".

      Type: Literal
      Resolution: Override
      Examples: "Yes"
    </rdfs:comment>
```

```
  </rdf:Description>

  <rdf:Description rdf:ID="RtpProfiles">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute lists the supported RTP profiles. Legal
      values are profile names registered through the Internet Assigned Numbers
      Authority (IANA), www.iana.org.

      Type: Literal (bag)
      Resolution: Append
      Examples: "RTP/AVP,RTP/AVPF"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="StreamingOmaDrm">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: Indicates whether the device supports streamed OMA DRM
      protected content, as defined by OMA and Annex K. Legal values are OMA
      Version numbers supported as a floating number. 0.0 indicates no support.

      Type: Literal (bag)
      Resolution: Locked
      Examples: "2.0"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="PSSIntegrity">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: Indicates whether the device supports integrity protection
      for streamed content as defined by Annex K.2. Legal values are "Yes" and
      "No".

      Type: Literal
      Resolution: Locked
      Examples: "Yes"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="VideoDecodingByteRate_">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: If Annex G is not supported, the attribute has no meaning.
      If Annex G is supported, this attribute defines the peak decoding byte
      rate the PSS client is able to support. In other words, the PSS client
      fulfils the requirements given in Annex G with the signalled peak decoding
      byte rate. The values are given in bytes per second and shall be greater
      than or equal to 16000. According to Annex G, 16000 is the default peak
      decoding byte rate for the mandatory video codec profile and level
      (H.263 Profile 0 Level 45). Legal values are integer values greater than
      or equal to 16000.

      Type: Number
      Resolution: Locked
      Examples: "16000"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="VideoInitialPostDecoderBufferingPeriod">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: If Annex G is not supported, the attribute has no
      meaning. If Annex G is supported, this attribute defines the
      maximum initial post-decoder buffering period of video. Values are
      interpreted as clock ticks of a 90-kHz clock. In other words, the
      value is incremented by one for each 1/90 000 seconds. For
      example, the value 9000 corresponds to 1/10 of a second initial
      post-decodder buffering. Legal values are all integer values equal
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      to or greater than zero.

      Type: Number
      Resolution: Locked
      Examples: "9000"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="VideoPreDecoderBufferSize">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#Streaming"/>
    <rdfs:comment>
      Description: This attribute signals if the optional video
      buffering requirements defined in Annex G are supported. It also
      defines the size of the hypothetical pre-decoder buffer defined in
      Annex G. A value equal to zero means that Annex G is not
      supported. A value equal to one means that Annex G is
      supported. In this case the size of the buffer is the default size
      defined in Annex G.  A value equal to or greater than the default
      buffer size defined in Annex G means that Annex G is supported and
      sets the buffer size to the given number of octets. Legal values are all
      integer values equal to or greater than zero. Values greater than
      one but less than the default buffer size defined in Annex G are
      not allowed.

      Type: Number
      Resolution: Locked
      Examples: "0", "4096"
    </rdfs:comment>
  </rdf:Description>

<!-- ********************************************************************* -->
<!-- ***** Component: ThreeGPFileFormat ***** -->

  <rdf:Description rdf:ID="Brands">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#ThreeGPFileFormat"/>
    <rdfs:comment>
      Description: This attribute lists the supported 3GP profiles identified
      by brand. Legal values are brand identifiers according to 5.3.4 and 5.4
      in [50].

      Type: Literal (bag)
      Resolution: Append
      Examples: "3gp4,3gp5,3gp6,3gr6"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="ThreeGPAccept">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#ThreeGPFileFormat"/>
    <rdfs:comment>
      Description: List of content types (MIME types) that can be included
      in a 3GP file and handled by the PSS application. For each content
      type a set of supported parameters can be given. A content type that
      supports multiple parameter sets may occur several times in the list.

      Type: Literal (bag)
      Resolution: Append
      Examples: "video/H263-2000;profile=0;level=45,audio/AMR"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="ThreeGPAccept-Subset">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#ThreeGPFileFormat"/>
    <rdfs:comment>
      Description: List of content types for which the PSS application
      supports a subset. MIME types can in most cases effectively be used
      to express variations in support for different media types. Many MIME
      types have several parameters that can be used for this purpose. There
      may exist content types for which the PSS application only supports a
      subset and this subset cannot be expressed with MIME type parameters.
      In these cases the attribute ThreeGPAccept-Subset is used to describe
      support for a subset of a specific content type. If a subset of a
```

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      specific content type is declared in ThreeGPAccept-Subset, this means that
      ThreeGPAccept-Subset has precedence over ThreeGPAccept. ThreeGPAccept shall always
      include the corresponding content types for which ThreeGPAccept-Subset
      specifies subsets of. No legal values are currently defined.

      Type: Literal (bag)
      Resolution: Locked
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="ThreeGPOmaDrm">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#ThreeGPFileFormat"/>
    <rdfs:comment>
      Description: List of the OMA DRM versions that is supported to be used
      for DRM protection of content present in the 3GP file format. Legal values
      are OMA DRM version numbers as floating values. 0.0 indicates no support.

      Type: Literal (bag)
      Resolution: Locked
      Examples: "2.0"
    </rdfs:comment>
  </rdf:Description>

<!-- ************************************************************** -->
<!-- ***** Component: PssSmil ***** -->

  <rdf:Description rdf:ID="SmilAccept">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#PssSmil"/>
    <rdfs:comment>
      Description: List of content types (MIME types) that can be part of a
      SMIL presentation. The content types included in this attribute can be
      rendered in a SMIL presentation. If video/3gpp (or audio/3gpp) is
      included, downloaded 3GP files can be included in a SMIL presentation.
      Details on the 3GP file support can then be found in the ThreeGPFileFormat
      component. If the identifier "Streaming-Media" is included, streaming
      media can be included in the SMIL presentation. Details on the
      streaming support can then be found in the Streaming component.
      For each content type a set of supported parameters can be given.
      A content type that supports multiple parameter sets may occur several
      times in the list. Legal values are lists of MIME types with related
      parameters and the "Streaming-Media" identifier.

      Type: Literal (bag)
      Resolution: Append
      Examples: "image/gif,image/jpeg,Streaming-Media"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="SmilAccept-Subset">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#PssSmil"/>
    <rdfs:comment>
      Description: List of content types for which the PSS application
      supports a subset. MIME types can in most cases effectively be used to
      express variations in support for different media types. Many MIME types
      have several parameters that can be used for this purpose. There may
      exist content types for which the PSS application only supports a subset
      and this subset cannot be expressed with MIME-type parameters. In these
      cases the attribute SmilAccept-Subset is used to describe support for a
      subset of a specific content type. If a subset of a specific content type
      is declared in SmilAccept-Subset, this means that SmilAccept-Subset has
      precedence over SmilAccept. SmilAccept shall always include the
      corresponding content types for which SmilAccept-Subset specifies subsets
      of.

      The following values are defined:
        - "JPEG-PSS": Only the two JPEG modes described in clause 7.5 of the
                      specifictaion are supported.
        - "SVG-Tiny"
        - "SVG-Basic"

      Subset identifiers and corresponding semantics shall only be defined by
      the TSG responsible for the present document.
```

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      Type: Literal (bag)
      Resolution: Append
      Examples: "JPEG-PSS,SVG-Tiny"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="SmilBaseSet">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="#PssSmil"/>
    <rdfs:comment>
      Description: Indicates a base set of SMIL 2.0 modules that the client
      supports. Leagal values are the following pre-defined identifiers:
      "SMIL-3GPP-R4" and "SMIL-3GPP-R5" indicate all SMIL 2.0 modules required
      for scene-description support according to clause 8 of Release 4 and
      Release 5, respectively, of TS 26.234. "SMIL-3GPP-R6" indicates all
      SMIL 2.0 modules required for scene description support according to
      clause 8 of the specification and to Release 6 of TS 26.246 [52].

      Type: Literal
      Resolution: Locked
      Examples: "SMIL-3GPP-R4", "SMIL-3GPP-R5"
    </rdfs:comment>
  </rdf:Description>

  <rdf:Description rdf:ID="SmilModules">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdf:typerdfs:range rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Bag"/>
    <rdfs:domain rdf:resource="#PssSmil"/>
    <rdfs:comment>
      Description: This attribute defines a list of SMIL 2.0 modules
      supported by the client. If the SmilBaseSet is used those modules
      do not need to be explicitly listed here. In that case only
      additional module support needs to be listed. Legal values are all
      SMIL 2.0 module names defined in the SMIL 2.0 recommendation [31],
      section 2.3.3, table 2.

      Type: Literal (bag)
      Resolution: Locked
      Examples: "BasicTransitions,MulitArcTiming"
    </rdfs:comment>
  </rdf:Description>

</rdf:RDF>
```

3GPP TSG-SA WG4 Meeting #34
Lisbon, Portugal, 21-25 February 2005

Tdoc ⌘S4-050083

CR-Form-v7

CHANGE REQUEST

⌘ **26.234** **CR** **084** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*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 syntax and references
Source:	⌘	TSG SA WG4
Work item code:	⌘	PSSrel6-Stage3
Date:	⌘	15/03/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one 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 one 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:	⌘	Several references are obsolete, syntax of ABNF definitions, URL and MIME type incorrect
Summary of change:	⌘	• References for SMIL updated to SMIL (2.0 Edited Version) • References updated for payload formats for Timed text, AMR-WB+ Audio and H.264 Video • Syntax corrected for several ABNF definitions, URL and MIME type • Minor editorial update
Consequences if not approved:	⌘	PSS will include to obsolete (invalid) references and invalid ABNF syntax.

Clauses affected:	⌘	2, 3.2, 5.1, 5.3.2.3.1, 5.3.3.1, 5.3.3.5, 5.3.3.6, K.1.4.2

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	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/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

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[31] W3C Recommendation: "Synchronized Multimedia Integration Language (SMIL 2.0)~~",~~ ~~http://www.w3.org/TR/2001/REC-smil20-20010807/, August 2001.~~ [Second Edition]", http://www.w3.org/TR/2005/REC-SMIL2-20050107/, January 2005.

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[80] IETF Internet Draft: "RTP Payload Format for 3GPP Timed Text", Rey J. and Matsui Y.,~~ ~~http://www.ietf.org/internet-drafts/draft-ietf-avt-rtp-3gpp-timed-text-07.txt, October 2004.~~ http://www.ietf.org/internet-drafts/draft-ietf-avt-rtp-3gpp-timed-text-11.txt, January 2005.

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[85] IETF Internet Draft: "~~Real-Time Transport Protocol (~~RTP~~)~~ Payload Format for Extended AMR Wideband (AMR-WB+) Audio Codec", Sjoberg J. et al~~, Westerlund M. and Lakaniemi A.,draft-ietf-avt-rtp-amrwbplus-01.txt http://www.ietf.org/internet-drafts/draft-ietf-avt-rtp-amrwbplus-02.txt, September 2004.~~, http://www.ietf.org/internet-drafts/draft-ietf-avt-rtp-amrwbplus-06.txt, February 2005.

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[92] ~~IETF Internet Draft: "RTP payload Format for H.264 Video", Wenger S. et al, http://www.ietf.org/internet-drafts/draft-ietf-avt-rtp-h264-11.txt, August 2004.~~IETF RFC 3984: "RTP Payload Format for H.264 Video", Wenger S. et al, February 2005.

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3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [3] and the following apply.

3GP	3GPP file format
AAC	Advanced Audio Coding
ADU	Application Data Unit
AVC	Advanced Video Coding
CC/PP	Composite Capability / Preference Profiles
DCT	Discrete Cosine Transform
DLS	Downloadable Sounds
DRM	Digital Rights Management
Enhanced aacPlus	MPEG-4 High Efficiency AAC plus MPEG-4 Parametric Stereo
GIF	Graphics Interchange Format
HTML	Hyper Text Markup Language
ITU-T	International Telecommunications Union – Telecommunications
JFIF	JPEG File Interchange Format
MIDI	Musical Instrument Digital Interface
MIME	Multipurpose Internet Mail Extensions
MMS	Multimedia Messaging Service
NADU	Next Application Data Unit
PNG	Portable Networks Graphics
PSS	Packet-switched Streaming Service
QCIF	Quarter Common Intermediate Format
RDF	Resource Description Framework
RTCP	RTP Control Protocol
RTP	Real-time Transport Protocol
RTSP	Real-Time Streaming Protocol
SBR	Spectral Band Replication
SDP	Session Description Protocol
SMIL	Synchronised Multimedia Integration Language
SP-MIDI	Scalable Polyphony MIDI
SRTP	The Secure Real-time Transport Protocol
SVG	Scalable Vector Graphics
UAProf	User Agent Profile
UCS-2	Universal Character Set (the two octet form)
UTF-8	Unicode Transformation Format (the 8-bit form)
W3C	WWW Consortium
WML	Wireless Markup Language
XHTML	eXtensible Hyper Text Markup Language
XMF	eXtensible Music Format
XML	eXtensible Markup Language

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5.1 Session establishment

Session establishment refers to the method by which a PSS client obtains the initial session description. The initial session description can e.g. be a presentation description, a scene description or just an URL to the content.

A PSS client shall support initial session descriptions specified in one of the following formats: SMIL, SDP, or plain RTSP URL.

In addition to rtsp:// the PSS client shall support URLs [4] to valid initial session descriptions starting with file:// (for locally stored files) and http:// (for presentation descriptions or scene descriptions delivered via HTTP).

Examples for valid inputs to a PSS client are: file://temp/morning_news.smil, http://example.com/morning_news.sdp, and rtsp://example.com/morning_news.

URLs can be made available to a PSS client in many different ways. It is out of the scope of this specification to mandate any specific mechanism. However, an application using the 3GPP PSS shall at least support URLs of the above type, specified or selected by the user.

The preferred way would be to embed URLs to initial session descriptions within HTML or WML pages. Browser applications that support the HTTP protocol could then download the initial session description and pass the content to the PSS client for further processing. How exactly this is done is an implementation specific issue and out of the scope of this specification.

As an alternative to conventional streaming, a PSS client should also support progressive download of 3GP files [50] delivered via HTTP. A progressive-download session is established with one or more HTTP GET requests. In order to improve playback performance for 3GP files that are not authored for progressive download, a PSS client may issue (multiple pipelined) HTTP GET requests with byte ranges [17]. Example of a valid URL is ~~http:// example.com /morning_news.3gp.~~http://example.com/morning_news.3gp.

… < cut text > …

5.3.2.3.1 Protocol initiation and termination

A new RTSP header is defined to enable the PSS client and server to negotiate which Quality of Experience (QoE) metrics the PSS client should send, how often they should be sent and how to turn the metrics transmission off. This header can be present in requests and responses of RTSP methods SETUP, SET_PARAMETER, OPTIONS (with Session ID) and PLAY. The header is defined in ABNF [53] as follows (see [53] for specifiers not defined here):

QoE-Header = "3GPP-QoE-Metrics" ":" ("Off" / Measure-Spec *("," Measure-Spec)) CRLF

Measure-Spec = Stream-URL";" ((Metrics ";" Sending-rate [";" Measure-Range] *([";" Parameter-Ext])) / “Off”)

Stream-URL = "url" "=" <”>Rtsp-URL<”>

Metrics = "metrics" "=" "{"Metrics-Name *("," Metrics-Name) " }"

Metrics-Name = 1*((0x21..0x2b) / (0x2d..0x3a) / (0x3c..0x7a) / 0x7c / 0x7e) ;VCHAR except “;”, “,”, “{“ or ”}”

Sending-Rate = “rate" "=" 1*DIGIT / "End"

Measure-Range = "range" "=" Ranges-Specifier

Parameter-Ext = “On”/”Off”/ (1*DIGIT [“.” 1*DIGIT]) / (1*((0x21..0x2b) / (0x2d..0x3a) / (0x3c..0x7a) / 0x7c / 0x7e))

Ranges-Specifier = as defined in RFC 2326 [5]

Rtsp-URL = as defined in RFC 2326 [5]

There are two ways to use this header:

- Using only the "Off" parameter is an indication that either server or client wants to cancel the metrics reporting.
- Using other parameters indicates a request to start the metrics transmission.

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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) box 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:

streamIdentifier = <stream_id_token>"="<stream_id>

stream_id_token = 1*alpha

stream_id = 1*digit

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:” and "b=TIAS:" and "a=maxprate" [93] fields at the media level for each media stream in SDP, and should include "b=TIAS" and "a=maxprate" at session level, and a PSS client shall interpret these fields. If both bandwidth modifiers are present, "b=TIAS" should be used, however it may be missing in content produced according to earlier releases. 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. If "b=TIAS" and "a=maxprate" is present at session level, it should be used in preference over the media level values, as session level can provide a more accurate description of the needed session bandwidth when aggregating several media streams together. A PSS client shall also handle the case where the bandwidth parameters are not present, since this may occur when connecting to a Release-4 server.

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5.3.3.5 The bit-rate adaptation support attribute, “3GPP-Adaptation-Support”

To signal the support of bit-rate adaptation, a media level only SDP attribute is defined in ABNF [53]:

sdp-Adaptation-line = "a" "=" "3GPP-Adaptation-Support" ":" report-frequency CRLF

report-frequency = NonZeroDIGIT [~~1*2~~DIGIT]

NonZeroDIGIT = %x31-39 ;1-9

A server implementing rate adaptation shall signal the "3GPP-Adaptation-Support" attribute in its SDP.

A client receiving an SDP description where the SDP attribute "3GPP-Adaptation-Support" is present knows that the server provides rate adaptation. The client, if it supports bit-rate adaptation, shall then in its subsequent RTSP signalling use the “3GPP-Adaptation” header as defined in clause 5.3.2.2, as well as the RTCP Next Application Data Unit (NADU) APP packet for reporting the next unit to be decoded, as defined in clause 6.2.3.2.

The SDP attribute shall only be present at the media level. The report frequency value, which shall be larger than zero, indicates to the client that it shall include an NADU APP packet in at least every "report-frequency" compound RTCP packet. For example, if this value is 3, the client shall send the NADU APP packet in at least every 3rd RTCP packet.

5.3.3.6 The Quality of Experience support attribute, "3GPP-QoE-Metrics"

SDP can be used to initiate the QoE negotiation. The reason why SDP is needed is to support the use cases where SDP is distributed through other methods than RTSP DESCRIBE, e.g. WAP, HTTP or email. A new SDP attribute, which can be used either at session or media level, is defined below in ABNF [53] based on RFC 2327 [6]:

QoE-Metrics-line = "a" "=" "3GPP-QoE-Metrics:" att-measure-spec *("," att-measure-spec)) CRLF

att-measure-spec = Metrics ";" Sending-rate [";" Measure-Range] *([";" Parameter-Ext])

Metrics = as defined in clause 5.3.2.3.1.

Sending-Rate = as defined in clause 5.3.2.3.1.

Measure-Range = as defined in clause 5.3.2.3.1.

Parameter-Ext = as defined in clause 5.3.2.3.1.

A server uses this attribute to indicate that QoE metrics are supported and shall be used if also supported by the client. When present at session level, it shall only contain metrics that apply to the complete session. When present at media level, it shall only contain metrics that are applicable to individual media. The URI that is used in the specification of the RTSP header "3GPP-QoE-Metrics:" is implicit by the RTSP control URI (a=control).

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K.1.4.2 Mapping of MIME to SDP

The MIME media types for the encrypted RTP payload format and its parameter strings are mapped to fields in the Session Description Protocol (SDP) [6] as follows:

- The media name in the "m=" line of SDP shall be set to the used media type, i.e. audio, video, text, application, or image.

- The encoding name in the "a=rtpmap" line of SDP shall be ~~rtp-enc-aescm128~~ rtp-enc-aescm128 (the MIME subtype).
- The clock rate in the "a=rtpmap" line shall be equal to the rate parameter.
- The remaining parameters when present, shall be included in the "a=fmtp" line of SDP. These parameters are expressed as a MIME media type string, in the form of a semicolon separated list of parameter=value pairs.

Note that the payload format (encoding) names are commonly shown in upper case. MIME subtypes are commonly shown in lower case. These names are case-insensitive in both places. Similarly, parameter names are case-insensitive both in MIME types and in the default mapping to the SDP a=fmtp attribute.

This MIME type is only intended for declarative usage, like in RTSP. The usage and behaviour in the SDP Offer/Answer model is undefined.