3GPP TSG-CT Meeting #28 **Tdoc ⌘ CP-050245**

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CHANGE REQUEST

⌘ **29.208** **CR** **098** ⌘**rev** **4** ⌘ Current version: **6.3.0** ⌘

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

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☒

Title:	⌘	Various Corrections
Source:	⌘	Siemens
Work item code:	⌘	QoS1
Date:	⌘	02/06/2005
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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	1. According to TS 29.209, Clause 5.3.1, source IP addreses may be derived from 64k destination adress prefix, but Table 7.1.0.1 recommends wildcarding. 2. Unclear if AF or Go session is referenced in Table 7.1.1.1 for Maximum Authorized QoS Class derivation. 3. In Table 7.2.1, “bandwidth” is assigned as value, but the contents of the SDP “b=” modifier are referred to as “bandwidth-value”.
Summary of change:	⌘	1. Mapping of Source IP Address in Table 7.1.0.1 is corrected by reference to TS 29.209. 2. AF session is referenced. This is in line with the Rel-5 algorithm. 3. In Table 7.2.1, “bandwidth-value” is assigned as value
Consequences if not approved:	⌘	1. Contradiction between TS 29.208 and 29.209 for source address handling 2. Unpredictable Max QoS Class derivation results not in line with UE behavior. A correct QoS class requested by UE may not be authorised. 3. Unpredictable bandwidth derivation results at UE.

Clauses affected:	⌘	7.1.1, 7.2.1

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

Other comments:	⌘	

7.1.0 SDP parameters to service information mapping in AF

The mapping described in this clause is mandatory for the P-CSCF and should also be applied by other AFs if the SDI is SDP.

When a session is initiated or modified the P-CSCF shall use the mapping rules in table 7.1.0.1 for each SDP media component to derive a Media-Component-Description AVP from the SDP Parameters. Furthermore, the P-CSCF shall map information about the grouping of media lines into resource reservation flows into the Flow-Grouping AVP as specified in table 7.1.0.3.

Table 7.1.0.1: Rules for derivation of service information within Media-Component-Description AVP from SDP media component

service information per Media-Component-Description AVP (NOTE 1; Note 7)	Derivation from SDP Parameters (see NOTE 2)
Media-Component-Number	ordinal number of the position of the "m=" line in the SDP
AF-Application-Identifier	The AF-Application-Identifier AVP may be supplied or omitted, depending on the application. For IMS, if the AF-Application-Identifier AVP is supplied, its value should not demand application specific bandwidth or QoS class handling. However, if an IMS application is capable of handling a QoS downgrading, the AF-Application-Identifier AVP may be used to demand application specific bandwidth or QoS class handling.
Media-Type	The Media Type AVP shall be included with the same value as supplied for the media type in the "m=" line.

Flow-Status	IF port in m-line = 0 THEN
	Flow-Status:= REMOVED;
	ELSE
	IF a=recvonly THEN
	IF <SDP direction> = mobile originated THEN
	Flow-Status := ENABLED_DOWNLINK; (NOTE 4)
	ELSE /* mobile terminated */
	Flow-Status := ENABLED UPLINK; (NOTE 4)
	ENDIF;
	ELSE
	IF a=sendonly THEN
	IF <SDP direction> = mobile originated THEN
	Flow-Status := ENABLED_UPLINK; (NOTE 4)
	ELSE /* mobile terminated */
	Flow-Status := ENABLED DOWNLINK; (NOTE 4)
	ENDIF;
	ELSE
	IF a=inactive THEN
	Flow-Status :=DISABLED;
	ELSE /* a=sendrecv or no direction attribute */
	Flow-Status := ENABLED (NOTE 4)
	ENDIF;
	ENDIF;
	ENDIF;
	ENDIF;
	(NOTE 5)

Max-Requested-Bandwidth-UL	IF <SDP direction> = mobile terminated THEN
	IF b=AS:<bandwidth> is present THEN
	Max-Requested-Bandwidth-UL:= <bandwidth> * 1000; /* Unit is bit/s
	ELSE
	Max-Requested-Bandwidth-UL:= <Operator specific setting>,
	or AVP not supplied;
	ENDIF;
	ELSE
	Consider SDP in opposite direction
	ENDIF

Max-Requested-Bandwidth-DL	IF <SDP direction> = mobile originated THEN
	IF b=AS:<bandwidth> is present THEN
	Max-Requested-Bandwidth-DL:= <bandwidth> * 1000; /* Unit is bit/s
	ELSE
	Max-Requested-Bandwidth-DL:= <Operator specific setting>,
	or AVP not supplied;
	ENDIF;
	ELSE
	Consider SDP in opposite direction
	ENDIF

RR-Bandwidth	IF b=RR:<bandwidth> is present THEN
	RR-Bandwidth:= <bandwidth>;
	ELSE
	AVP not supplied
	ENDIF;
	(NOTE 3; NOTE 6)

RS-Bandwidth	IF b=RS:<bandwidth> is present THEN
	RS-Bandwidth:= <bandwidth>;
	ELSE
	AVP not supplied
	ENDIF;
	(NOTE 3: NOTE 6)

Media-Sub-Component	Supply one AVP for each Flow Identifier within the media component. The

	Flow identifiers are derived according to Annex D of 3GPP TS 29.207 [7]. The encoding of the AVP is described in Table 7.1.0.2

NOTE 1: The encoding of the service information is defined in TS 29.209 [12].
NOTE 2: The SDP parameters are described in RFC 2327 [9].
NOTE 3: The 'b=RS:' and 'b=RR:' SDP bandwidth modifiers are defined in RFC 3556 [10].
NOTE 4: As an operator policy to disable forward and/or backward early media, the Flow-Status may be downgraded before a SIP dialogue is established, i.e. until a 200 OK(INVITE) is received. The Value "DISABLED" may be used instead of the Values "ENABLED_UPLINK" or "ENABLED_DOWNLINK". The Values "DISABLED", "ENABLED_UPLINK" or "ENABLED_DOWNLINK" may be used instead of the Value "ENABLED".
NOTE 5: The direction attributes and port number from the SDP answer shall be used to derive the flow status. However, to enable interoperability with SIP clients that do not understand the inactive SDP attribute, if a=inactive was supplied in the SDP offer, this shall be used to derive the flow status.
NOTE 6: Information from the SDP answer is applicable
NOTE 7: The AVPs may be omitted if they have been supplied in previous service information and have not changed, as detailed in TS 29.209 [12].

Table 7.1.0.2: Rules for derivation of Media-Sub-Component AVP from SDP media component

Gq service information per Media-Sub-Component AVP (NOTE 1, NOTE 5)	Derivation from SDP Parameters (see NOTE 2)
Flow-Number	derived according to Annex C of 3GPP TS 29.207 [7]
Flow-Status	AVP not supplied
Max-Requested-Bandwidth-UL	AVP not supplied
Max-Requested-Bandwidth-DL	AVP not supplied

Flow-Description	For uplink and dowlink direction, a Flow-Description AVP shall be provided unless no IP Flows in this direction are described within the media component.
	The SDP direction attribute (NOTE 4) indicates the direction of the media IP flows within the media component as follows:
	IF a=recvonly THEN (NOTE 3)
	IF <SDP direction> = mobile originated THEN
	Provide only downlink Flow-Description AVP
	ELSE /* mobile terminated */
	Provide only uplink Flow-Description AVP
	ENDIF;
	ELSE
	IF a=sendonly THEN (NOTE 3)
	IF <SDP direction> = mobile originated THEN
	Provide only uplink Flow-Description AVP
	ELSE /* mobile terminated */
	Provide only downlink Flow-Description AVP
	ENDIF;
	ELSE /* a=sendrecv or a=inactive or no direction attribute */
	Provide uplink and downlink Flow-Description AVPs
	ENDIF;
	ENDIF;
	For RTCP IP flows uplink and downlink Flow-Description AVPs shall be provided irrespective of the SDP direction attribute.
	
	The uplink destination address shall be copied from the "c=" line of downlink SDP.
	The uplink destination port shall be derived from the "m=" line of downlink SDP.
	The downlink destination address shall be copied from the "c=" line of uplink SDP.
	The downlink destination port shall be derived from the "m=" line of uplink SDP.
	Uplink and downlink source adresses shall either be derived from the prefix of the destination address or ~~should~~ be wildcarded by setting to "any"~~.~~, as specified in TS 29.209 [12]. ~~and source~~ Source ports ~~should~~ shall not be supplied.
	Proto shall be derived from the transport of the "m=" line. For "RTP/AVP" proto is 17(UDP).

Flow-Usage	The Flow-Usage AVP shall be supplied with value "RTCP" if the IP flow(s) described in the Media-Sub-Component AVP are used to transport RTCP. Otherwise the Flow-Usage AVP shall not be supplied. RFC 2327 [9] specifies how RTCP flows are described within SDP.

NOTE 1: The encoding of the service information is defined in TS 29.209 [12].
NOTE 2: The SDP parameters are described in RFC 2327 [9].
NOTE 3: If the SDP direction attribute for the media component negotiated in a previous offer-answer exchange was sendrecv, or if no direction attribute was provided, and the new SDP direction attribute sendonly or recvonly is negotiated in a subsequent SDP offer-answer exchange, uplink and downlink Flow-Description AVPs shall be supplied.
NOTE 4: The direction attributes from the SDP answer shall be used to derive the flow description. However, to enable interoperability with SIP clients that do not understand the inactive SDP attribute, if a=inactive was supplied in the SDP offer, this shall be used.
NOTE 5: The AVPs may be omitted if they have been supplied in previous service information and have not changed, as detailed in TS 29.209 [12].

Table 7.1.0.3: Rules for mapping SDP information about the grouping of media lines into resource reservation flows into the Flow Grouping AVP

Flow-Grouping AVP (NOTE1)	Derivation from SDP Parameters (see NOTE 2)

Flow Grouping	For each SDP "a=group:SRF" SDP line, a Flow Grouping AVP shall be generated. (NOTE 3)
Flows	For each identification tag within "a=group:SRF" SDP line, a Flows AVP containing a Media-Component-Number AVP identifying the corresponding m-line shall be generated. (NOTE 3) No Flow-Number AVP shall be supplied within the Flows AVP.
NOTE 1: The encoding of the service information is defined in TS 29.209 [12]. NOTE 2: The SDP parameters are described in RFC 2327 [9]. NOTE 3: The SDP "group" attribute is defined in RFC 3388 [13]. The "SRF" semantics attribute within this grouping framework is defined in RFC 3524 [14].	

7.1.1 Gq service information to Authorized IP QoS parameters mapping in PDF

The QoS authorization is to be based on the parameters Maximum Authorized QoS Class and Maximum Authorized Data Rate UL/DL.

When a session is initiated or modified the PDF shall use the mapping rules in table 7.1.1.1 to derive the Authorized IP QoS parameters Maximum Authorized Data Rate DL/UL and the Maximum Authorized QoS Class from the service information. In the case of forking, the various forked responses may have different QoS requirements for the IP flows of the same media component. Each Authorized IP QoS Parameter shall be set to the highest value requested for the IP flow(s) of that media component by any of the active forked responses. These values are derived by the rules in table 7.1.1.1

Table 7.1.1.1: Rules for derivation of the Maximum Authorized Data Rates and Maximum Authorized QoS Class per flow identifier in the PDF

Authorized IP QoS Parameter per flow identifier	Derivation from service information (see note 4)

Maximum Authorized Data Rate DL (Max_DR_DL) and UL (Max_DR_UL) per flow identifier	IF AF-Application-Identifier AVP demands application specific data rate handling THEN
	
	Max DR UL:= as defined by application specific algorithm;
	Max_DR_DL:= as defined by application specific algorithm;
	
	ELSE
	
	IF not RTCP flow(s) according to Flow-Usage AVP THEN
	IF Flow-Status = REMOVED THEN
	Max_DR_UL:= 0;
	Max_DR_DL:= 0;
	ELSE
	IF uplink Flow Desription AVP is supplied THEN
	IF Max-Requested-Bandwidth-UL is present THEN
	Max DR UL:= Max-Requested-Bandwidth-UL ;
	ELSE
	Max_DR_UL:= as set by the operator;
	ENDIF
	ELSE
	Max DR UL:= 0;
	ENDIF;
	IF downlink Flow Desription AVPs is supplied THEN
	IF Max-Requested-Bandwidth-DL is present THEN
	Max DR DL:= Max-Requested-Bandwidth-DL;
	ELSE
	Max DR DL:= as set by the operator;
	ENDIF
	ELSE
	Max_DR_DL:= 0;
	ENDIF;
	ENDIF;
	ENDIF;
	ELSE /* RTCP IP flow(s) */
	IF RS-Bandwidth is present and
	RR-Bandwidth is present THEN
	Max DR UL:= (RS-Bandwidth + RR-Bandwidth);
	Max DR DL:= (RS-Bandwidth + RR-Bandwidth);
	ELSE
	IF Max-Requested-Bandwidth-UL is present THEN
	IF RS-Bandwidth is present and
	RR-Bandwidth is not present THEN
	Max DR UL:= MAX[0.05 * Max-Requested-Bandwidth-UL,
	RS-Bandwidth];
	ENDIF;
	IF RS-Bandwidth is not present and
	RR-Bandwidth is present THEN
	Max DR UL:= MAX[0.05 * Max-Requested-Bandwidth UL,
	RR-Bandwidth];
	ENDIF;
	IF RS-Bandwidth and RR-Bandwidth is not present THEN
	Max_DR_UL:= 0.05 * Max-Requested-Bandwidth_UL ;
	ENDIF;
	ELSE
	Max DR UL:= as set by the operator;
	ENDIF;
	IF Max-Requested-Bandwidth-DL is present THEN
	IF RS-Bandwidth is present and
	RR-Bandwidth is not present THEN
	Max DR DL:= MAX[0.05 * Max-Requested-Bandwidth-DL,
	RS-Bandwidth];
	ENDIF;
	IF RS-Bandwidth is not present and
	RR-Bandwidth is present THEN
	Max DR DL:= MAX[0.05 * Max-Requested-Bandwidth-DL,
	RR-Bandwidth];
	ENDIF;
	IF RS-Bandwidth and RR-Bandwidth is not present THEN
	Max_DR_DL:= 0.05 * Max-Requested-Bandwidth-DL;
	ENDIF;

	ELSE
	Max DR DL:= as set by the operator;
	ENDIF;
	ENDIF;
	ENDIF;
	
	ENDIF

Maximum Authorized QoS Class [MaxClass] per flow identifier (see notes 1, 2 and 3)	IF AF-Application-Identifier AVP demands application specific QoS Class handling THEN
	MaxClass:= as defined by application specific algorithm;
	ELSE
	IF Media-Type is present THEN
	IF (only uplink Flow Desription AVPs are supplied for all IP flows of the AF session, which have media type "audio" or "video" and no flow usage "RTCP", or
	only downlink Flow Desription AVPs are supplied for all IP flows of the AF session, which have media type "audio" or "video" and no flow usage "RTCP") THEN
	MaxClassDerivation:=B; /*streaming*/
	ELSE
	MaxClassDerivation:=A; /*conversational*/
	ENDIF;
	
	CASE Media-Type OF
	"audio": MaxClass:= MaxClassDerivation
	"video": MaxClass:= MaxClassDerivation
	"application": MaxClass:=A; /*conversational*/
	"data": MaxClass:=E; /*interactive with priority 3*/
	"control": MaxClass:=C; /*interactive with priority 1*/
	/*new media type*/
	OTHERWISE: MaxClass:=F; /*background*/
	END;
	ELSE
	MaxClass:= as defined by by operator;
	ENDIF;
	ENDIF;

NOTE 1: The Maximum Authorized QoS Class for a RTCP IP flow is the same as for the corresponding RTP media IP flow. NOTE 2: When audio or video IP flow (s) are removed from a session, the parameter MaxClassDerivation shall keep the originally assigned value. NOTE 3: When audio or video IP flow(s) are added to a session, the PDF shall derive the parameter MaxClassDerivation taking into account the already existing media IP flow(s) within the session. NOTE 4: The encoding of the service information is defined in TS 29.209 [12]. If AVPs are omitted within a Media-Component-Description AVP or Media-Sub-Component AVP of the service information, the corresponding information from previous service information shall be used, as specified in TS 29.209 [12].	

Next modified Clause

7.2.1 SDP to UMTS QoS parameter mapping in UE

If SDP Parameters are available, then before activating or modifying a PDP Context the UE should check if the SDP Parameters give guidance for setting the requested UMTS QoS Parameters. The UE should use the mapping rule in table 7.2.1 to derive the Maximum and Guaranteed Bitrate DL/UL from the SDP Parameters.

Table 7.2.1: Recommended rules for derivation of the requested Maximum and Guaranteed Bitrate DL/UL per media component in the UE

UMTS QoS Parameter per media component	Derivation from SDP Parameters

Maximum Bitrate DL/UL and Guaranteed Bitrate DL/UL per media component	/* Check if the media use codec(s) */
	IF [(<media> = ("audio" or "video")) and (<transport> = "RTP/AVP")] THEN
	
	/* Check if Streaming */
	IF a= ("sendonly" or "recvonly") THEN
	Maximum Bitrate DL/UL and Guaranteed Bitrate DL/UL per media component as specified in reference [5] ;
	/* Conversational as default !*/
	ELSE
	Maximum Bitrate DL/UL and Guaranteed Bitrate DL/UL per media component as specified in reference [6] ;
	ENDIF ;
	
	/* Check for presence of bandwidth attribute for each media component */
	ELSEIF b=AS:<bandwidth-value> is present THEN
	IF media stream only downlink THEN
	Maximum Bitrate DL = Guaranteed Bitrate DL =<bandwidth-value >;
	ELSEIF mediastream only uplink THEN
	Maximum Bitrate UL = Guaranteed Bitrate UL =<bandwidth-value >;
	ELSEIF mediastreams both downlink and uplink THEN
	Maximum Bitrate DL = Guaranteed Bitrate DL =<bandwidth-value >;
	Maximum Bitrate UL = Guaranteed Bitrate UL =<bandwidth-value >;
	ENDIF;
	ELSE
	
	/* SDP does not give any guidance ! */
	Maximum Bitrate DL/UL and Guaranteed Bitrate DL/UL per media component as specified by the UE manufacturer;
	ENDIF ;