

Source: TSG CN WG3
Title: CRs to Rel-5 on Work Item E2EQoS
Agenda item: 8.5
Document for: APPROVAL

Introduction:

This document contains 5 CRs to Rel-5 on Work Item "E2EQoS", that have been agreed by TSG CN WG3, and are forwarded to TSG CN Plenary for approval.

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver
N3-040116	29.207	113	2	F	Session modification when a biderctional media is done unidirectional	Rel-5	5.6.0
N3-040131	29.207	121	1	F	Mandatory traffic handling priority	Rel-5	5.6.0
N3-040117	29.208	056	2	F	Session modification when a biderctional media is done unidirectional	Rel-5	5.6.0
N3-040067	29.208	059		F	Mapping tables for streaming services	Rel-5	5.6.0
N3-040132	29.208	060	1	F	Traffic handling priority in the mapping tables	Rel-5	5.6.0

CR-Form-v7

CHANGE REQUEST

№ **29.208 CR 059** № rev **-** № Current version: **5.6.0** №

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Proposed change affects: UICC apps № ME Radio Access Network Core Network

Title:	№ Mapping tables for streaming services		
Source:	№ TSG_CN WG3		
Work item code:	№ E2EQoS	Date:	№ 09/02/2004
Category:	№ F	Release:	№ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	№ The UE and the PDF need to decide on the type of service, i.e. streaming or conversational service, for media components of type “audio” and “video”. Due to the lack of concrete service information a rule has been developed that allows for such decision on the basis of the direction attributes. The original rule checked if the relevant media components are unidirectional and have the same direction. At the moment the rule specifies only a check of the direction. As the direction attribute for all relevant media components could be “sendrecv” the outcome of the rule is currently not clear.
Summary of change:	№ The rule for the decision about the type of service is extended by a check if all media IP flows of type “audio” and “video” are unidirectional. Furthermore, the notes are updated by replacing maximum authorized QoS/traffic class with the term introduced with the rule for the type of service decision, i.e. MaxClassDerivation/MaxService.
Consequences if not approved:	№ The UE and the PDF cannot decide on the correct type of service for media components with direction attribute “sendrecv”.

Clauses affected:	№ 7.1.1, 7.2.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="text-align: center; padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="text-align: center; padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="text-align: center; padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> </table>	Y	N	X		X		X		Other core specifications	№
	Y	N									
	X										
	X										
X											
		Test specifications									
		O&M Specifications									
Other comments:	№										

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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.

Start of 1 st modified section

7.1.1 SDP parameters 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 SDP Parameters. 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 SDP Parameters (see note 4)
<p>Maximum Authorized Data Rate DL (Max_DR_DL) and UL (Max_DR_UL) per flow identifier (see note 5)</p>	<pre> /* Direction of the IP flow(s) identified by the flow identifier */ IF a=recvonly THEN IF <SDP direction> = mobile originated THEN Direction:= downlink; ELSE /* mobile terminated */ Direction:= uplink; ENDIF; ELSE IF a=sendonly THEN IF <SDP direction> = mobile originated THEN Direction:= uplink; ELSE /* mobile terminated */ Direction:= downlink; ENDIF; ELSE /*sendrecv, inactive or no direction attribute*/ Direction:=both; ENDIF; ENDIF; /* Max_DR_UL and Max_DR_DL */ IF media IP flow(s) THEN IF b_{AS}=AS:<bandwidth> is present THEN IF Direction=downlink THEN Max_DR_UL:= 0; Max_DR_DL:= b_{AS}; ELSE IF Direction=uplink THEN Max_DR_UL:= b_{AS}; Max_DR_DL:= 0; ELSE /*Direction=both*/ Max_DR_UL:= b_{AS}; Max_DR_DL:= b_{AS}; ENDIF; ENDIF; ELSE bw:= as set by the operator; IF Direction=downlink THEN Max_DR_UL:= 0; Max_DR_DL:= bw; ELSE IF Direction=uplink THEN Max_DR_UL:= bw; Max_DR_DL:= 0; ELSE /*Direction=both*/ Max_DR_UL:= bw; Max_DR_DL:= bw; ENDIF; ENDIF; ENDIF; ELSE /* RTCP IP flow(s) */ IF b_{RS}=RS:<bandwidth> and b_{RR}=RR:<bandwidth> is present THEN Max_DR_UL:= (b_{RS} + b_{RR}) / 1000; Max_DR_DL:= (b_{RS} + b_{RR}) / 1000; ELSE IF b_{AS}=AS:<bandwidth> is present THEN IF b_{RS}=RS:<bandwidth> is present and b_{RR}=RR:<bandwidth> is not present THEN Max_DR_UL:= MAX[0.05 * b_{AS}, b_{RS} / 1000]; Max_DR_DL:= MAX[0.05 * b_{AS}, b_{RS} / 1000]; ENDIF; IF b_{RS}=RS:<bandwidth> is not present and b_{RR}=RR:<bandwidth> is present THEN Max_DR_UL:= MAX[0.05 * b_{AS}, b_{RR} / 1000]; Max_DR_DL:= MAX[0.05 * b_{AS}, b_{RR} / 1000]; ENDIF; IF b_{RS}=RS:<bandwidth> and b_{RR}=RR:<bandwidth> is not present THEN Max_DR_UL:= 0.05 * b_{AS}; Max_DR_DL:= 0.05 * b_{AS}; ENDIF; ENDIF; ENDIF; </pre>

	<pre> ELSE Max_DR_UL:= as set by the operator; Max_DR_DL:= as set by the operator; ENDIF; ENDIF; ENDIF; </pre>
<p>Maximum Authorized QoS Class [MaxClass] per flow identifier (see notes 1, 2 and 3)</p>	<pre> IF (all media IP flows of media type "audio" or "video" for the session are unidirectional and have the same direction) THEN MaxClassDerivation:=B; /*streaming*/ ELSE MaxClassDerivation:=A; /*conversational*/ ENDIF; CASE <media> 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; </pre>
<p>NOTE 1: The Maximum Authorized QoS Class for a RTCP IP flow is the same as for the corresponding RTP media IP flow.</p> <p>NOTE 2: When audio or video IP flow (s) are removed from a session, the parameter MaxClassDerivation maximum Authorized QoS class shall keep the originally assigned value.</p> <p>NOTE 3: When audio or video IP flow(s) are added to a session, the PDF shall derive the parameter MaxClassDerivation maximum Authorized QoS Class taking into account the already existing media IP flow(s) within the session.</p> <p>NOTE 4: The SDP parameters are described in RFC 2327 [9].</p> <p>NOTE 5: The 'b=RS:' and 'b=RR:' SDP bandwidth modifiers are defined in RFC 3556 [10].</p>	

The PDF shall per ongoing session store the Authorized IP QoS parameters per flow identifier.

When the GGSN requests the Authorized UMTS QoS parameters for an activated/modified PDP Context carrying IP flows of media component(s), the PDF shall use the rules in table 7.1.1.2 to calculate the Authorized IP QoS parameters per Client Handle.

Table 7.1.1.2: Rules for calculating the Maximum Authorized Data Rates and Maximum Authorized QoS Class per Client Handle in the PDF

Authorized IP QoS Parameter per Client Handle	Calculation Rule
<p>Maximum Authorized Data Rate DL and UL per Client Handle</p>	<p>Maximum Authorized Data Rate DL/UL per Client Handle is the sum of all Maximum Authorized Data Rate DL/UL for all the flow identifiers associated with that Client Handle.</p> <p>IF Maximum Authorized Data Rate DL/UL per Client Handle > 16000 kbps THEN Maximum Authorized Data Rate DL/UL per Client Handle = 16000 kbps /* See 3GPP TS 23.107 [8] */</p> <p>END;</p>
<p>Maximum Authorized QoS Class per Client Handle</p>	<p>Maximum Authorized QoS Class per Client Handle = MAX [Maximum Authorized QoS Class per flow identifier among all the flow identifiers associated with that Client Handle.</p> <p>(The MAX function ranks the possible Maximum Authorized QoS Class values as follows: "A" > "B" > "C" > "D" > "E" > "F") /* See 3GPP TS 29.207 [7] */</p>

End of 1st modified section

Start of 2 nd modified section

7.2.2 SDP parameters to Authorized UMTS QoS parameters mapping in UE

If the PDP Context is activated or modified in an IMS context in which SBLP is applied, i.e. an authorization token has been received, then the UE should use the mapping rules in table 7.2.2.1 to derive the Maximum Authorized Bandwidth UL/DL per flow identifier.

Table 7.2.2.1 also has a mapping rule for derivation of Maximum Authorized Traffic Class per flow identifier which applies for session initiation and modification.

In future releases this mapping rule may change. For release 5 this mapping rule is optional for the Rein the case of forking, the various forked responses may have different QoS requirements for the same IP flows of a media component. When the Authorized UMTS QoS Parameters are used by the UE, they shall be set equal to the highest values requested for the IP flows of that media component by any of the active forked responses. The UE should use the mapping rule in table 7.2.2.1 for each forked response.

Table 7.2.2.1: Rules for derivation of the Maximum Authorized Bandwidth DL/UL and the Maximum Authorized Traffic Class per flow identifier in the UE

Authorized UMTS QoS Parameter per flow identifier	Derivation from SDP Parameters (see note 4)
<p>Maximum Authorized Bandwidth DL (Max_BW_DL) and UL (Max_BW_UL) per flow identifier (see note 5)</p>	<pre> IF SBLP is applied THEN /* The Direction of the IP flow(s) identified by the flow identifier */ IF a=recvonly THEN IF <SDP direction> = mobile originated THEN Direction:= downlink; ELSE /* mobile terminated */ Direction:= uplink; ENDIF; ELSE; IF a=sendonly THEN IF <SDP direction> = mobile originated THEN Direction:= uplink; ELSE /* mobile terminated */ Direction:= downlink; ENDIF; ELSE /*sendrecv, inactive or no direction attribute*/ Direction:=both; ENDIF; ENDIF; /* Max_BW_UL and Max_BW_DL */ IF media IP flow(s) THEN IF b_{AS}=AS:<bandwidth> is present THEN IF Direction=downlink THEN Max_BW_UL:= 0; Max_BW_DL:= b_{AS}; ELSE IF Direction=uplink THEN Max_BW_UL:= b_{AS}; Max_BW_DL:= 0; ELSE /*Direction=both*/ Max_BW_UL:= b_{AS}; Max_BW_DL:= b_{AS}; ENDIF; ENDIF; ELSE bw:= as set by the UE manufacturer; IF Direction=downlink THEN Max_BW_UL:= 0; Max_BW_DL:= bw; ELSE IF Direction=uplink THEN Max_BW_UL:= bw; Max_BW_DL:= 0; ELSE /*Direction=both*/ Max_BW_UL:= bw; Max_BW_DL:= bw; ENDIF; ENDIF; ENDIF; ELSE /* RTCP IP flow(s) */ IF b_{RS}=RS:<bandwidth> and b_{RR}=RR:<bandwidth> is present THEN Max_BW_UL:= (b_{RS} + b_{RR}) / 1000; Max_BW_DL:= (b_{RS} + b_{RR}) / 1000; ELSE IF b_{AS}=AS:<bandwidth> is present THEN IF b_{RS}=RS:<bandwidth> is present and b_{RR}=RR:<bandwidth> is not present THEN Max_BW_UL:= MAX[0.05 * b_{AS}, b_{RS} / 1000]; Max_BW_DL:= MAX[0.05 * b_{AS}, b_{RS} / 1000]; ENDIF; IF b_{RS}=RS:<bandwidth> is not present and b_{RR}=RR:<bandwidth> is present THEN Max_BW_UL:= MAX[0.05 * b_{AS}, b_{RR} / 1000]; Max_BW_DL:= MAX[0.05 * b_{AS}, b_{RR} / 1000]; ENDIF; IF b_{RS}=RS:<bandwidth> and b_{RR}=RR:<bandwidth> is not present THEN Max_BW_UL:= 0.05 * b_{AS}; ENDIF; ENDIF; ENDIF; </pre>

Authorized UMTS QoS Parameter per flow identifier	Derivation from SDP Parameters (see note 4)
	<pre> Max_BW_DL:= 0.05 * b_{AS}; ENDIF; ELSE Max_BW_UL:= as set by the UE manufacture; Max_BW_DL:= as set by the UE manufacture; ENDIF; ENDIF; ENDIF; ELSE No authorization is done ; ENDIF ; </pre>
<p>Maximum Authorized Traffic Class [MaxTrafficClass] per flow identifier (see NOTE 1, 2 and3)</p>	<pre> IF SBLP is applied THEN IF (all media IP flows of media type "audio" or "video" for the session <u>are unidirectional and</u> have the same direction) THEN MaxService:= streaming; ELSE MaxService:= conversational; ENDIF; CASE <media> OF "audio": MaxTrafficClass:= MaxService; "video": MaxTrafficClass:= MaxService; "application": MaxTrafficClass:=conversational; "data": MaxTrafficClass:=interactive with priority 3; "control": MaxTrafficClass:=interactive with priority 1; /*new media type*/ OTHERWISE: MaxTrafficClass:=background; END; ELSE No authorization is done ; ENDIF ; </pre>
<p>NOTE 1: The Maximum Authorized Traffic Class for a RTCP IP flow is the same as for the corresponding RTP media IP flow.</p> <p>NOTE 2: When audio or video IP flow(s) are removed from a session, the parameter MaxServicemaximum Authorized Traffic Class shall keep the originally assigned value.</p> <p>NOTE 3: When audio or video IP flow(s) are added to a session, the UE shall derive the parameter MaxServicemaximum Authorized Traffic Class taking into account the already existing media IP flows within the session</p> <p>NOTE 4: The SDP parameters are described in RFC 2327 [9].</p> <p>NOTE 5: The 'b=RS:' and 'b=RR:' SDP bandwidth modifiers are defined in RFC 3556 [10].</p>	

The UE should per ongoing session store the Authorized UMTS QoS parameters per flow identifier.

Before activate or modify a PDP context the UE should check that the requested Guaranteed Bitrate UL/DL (if the Traffic Class is Conversational or Streaming) or the requested Maximum Bitrate UL/DL (if the Traffic Class is Interactive or Background) does not exceed the Maximum Authorized Bandwidth UL/DL per PDP context (calculated according to the rule in table 7.2.2.2). Furthermore, if the rule in table 7.2.2.1 for calculating Traffic Class per flow identifier is implemented, the UE should check that the requested UMTS QoS parameter Traffic Class does not exceed the Maximum Authorized Traffic Class per PDP context (calculated according to the rule in table 7.2.2.2).

Table 7.2.2.2: Rules for calculating the Maximum Authorized Bandwidths and Maximum Authorized Traffic Class per PDP Context in the UE

Authorized UMTS QoS Parameter per PDP Context	Calculation Rule
Maximum Authorized Bandwidth DL and UL per PDP Context	<pre> IF SBLP is applied THEN Maximum Authorized Bandwidth DL/UL per PDP Context is the sum of all Maximum Authorized Bandwidth DL/UL for all the flow identifiers associated with that PDP Context ; IF Maximum Authorized Bandwidth DL/UL per PDP Context > 16000 kbps THEN Maximum Authorized Bandwidth DL/UL per PDP Context = 16000 kbps /* See ref [8] */ END; ELSE No authorization is done ; ENDIF ; </pre>
Maximum Authorized Traffic Class per PDP Context	<pre> IF SBLP is applied THEN Maximum Authorised Traffic Class per PDP Context = MAX [Maximum Authorised Traffic Class per flow identifier among all the flow identifiers associated with that PDP Context] ; ELSE No authorization is done ; ENDIF ; (The MAX function ranks the possible Maximum Authorised Traffic Class values as follows: Conversational > Streaming > Interactive > Background) </pre>

End of 2nd modified section

CHANGE REQUEST

⌘ **29.207 CR 113** ⌘ rev **2** ⌘ 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:	⌘ Session modification when a biderctional media is done unidirectional		
Source:	⌘ TSG_CN WG3		
Work item code:	⌘ E2EQoS	Date:	⌘ 20/02/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ In our last meeting CN3#30, possible contradictions were found in TS 29.207 with respect to bi-directional media components that are modified to become unidirectional.
Summary of change:	⌘ This modification tries to put in place the solution 3 outlined in the discussion paper (N3-040029). This solution consists in when bidirectional media is changed to unidirectional regardless of the intention of this change (i.e. permanent modification of the media, or putting media on hold), only close de gate for that direction, and not generate a unsolicited authorization decision towards the GGSN, accordingly with the suggestion by CN1 (N1-040185/N3-040011)
Consequences if not approved:	⌘ Inconsistent specificationd with regard to the behavior of the network when a bidirectional media becomes unidirectional, that can lead to different implementations.

Clauses affected:	⌘ 5.2.1.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	⌘ 29.208
	Y	N									
	X										
		X									
	X										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

How to create CRs using this form:

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***** FIRST MODIFIED SECTION *****

5.2.1.2 Session modification initiated decision

A session modification may occur that modifies the media components without adding or removing media lines, for example, a change in the bandwidth for the media line, or a change to the port number.

When there are updates to the SDP parameters for media lines which are currently authorised, the authorisation information (QoS, packet classifiers) may change. The updated information (QoS, packet classifiers) shall be pushed down to the GGSN using an unsolicited authorisation decision.

However, if the update to the SDP parameters for media lines which are currently authorised happens in the way of only changing a bidirectional media (a=sendrecv) to unidirectional (a=sendonly or a=recvonly), then the updated QoS information shall not be pushed down to the GGSN. In this case “Removal of QoS commit” for the deactivated direction of the media shall be sent to the GGSN to close the gate in that direction.

***** END OF MODIFIED SECTIONS *****

CHANGE REQUEST

⌘ **29.208 CR 056** ⌘ rev **2** ⌘ Current version: **5.6.0** ⌘

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

Title:	⌘ Session modification when a biderctional media is done unidirectional		
Source:	⌘ TSG_CN WG3		
Work item code:	⌘ E2EQoS	Date:	⌘ 20/02/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ In our last meeting CN3#30, possible contradictions were found in TS 29.207 with respect to bi-directional media components that are modified to become unidirectional.
Summary of change:	⌘ This modification tries to put in place the solution 3 outlined in the discussion paper (N3-040029). This solution consist in when bidirectional media is changed to unidirectional regardless of the intention of this change (i.e. permanent modification of the media, or putting media on hold), only close de gate for that direction, and not generate a unsolicited authorization decision towards the GGSN, accordingly with the suggestion by CN1 (N1-040185/N3-040011)
Consequences if not approved:	⌘ Inconsistent specificationd with regard to the behavior of the network when a bidirectional media becomes unidirectional, that can lead to different implementations.

Clauses affected:	⌘ 6.2.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	⌘ 29.207
	Y	N									
	X										
		X									
	X										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

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- 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.

***** FIRST MODIFIED SECTION *****

6.2 Removal of QoS commit

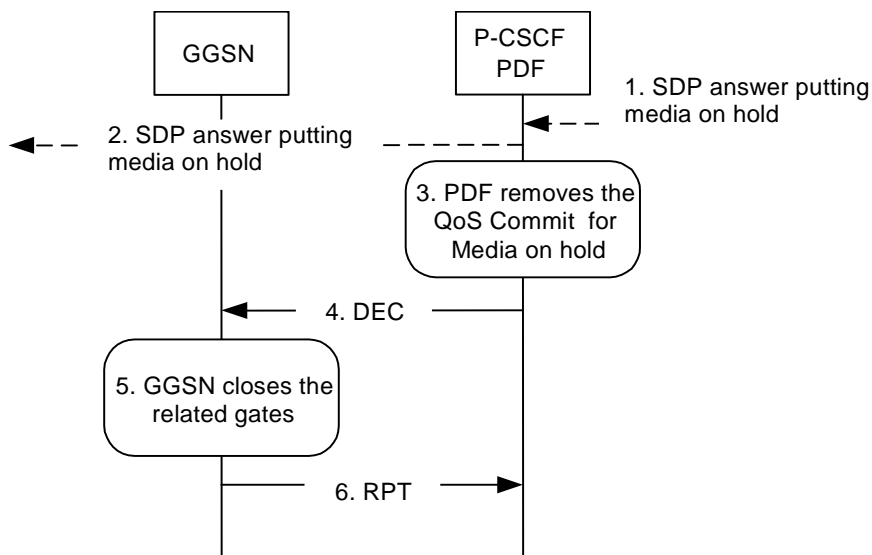
The "Removal of QoS commit" procedure is used e.g. when media IP flow(s) of a session is put on hold. (e.g. in case of a media re-negotiation or call hold). The PDF decision of "Removal of QoS commit" shall be sent as a separate decision to the GGSN corresponding to the previous "Authorize QoS Resources" request.

6.2.1 Removal of QoS commit at Media on Hold

Media is placed on hold as specified in RFC 3264 [11].

If a bidirectional media component is placed on hold by making it unidirectional, the QoS Commit shall only be removed in the deactivated direction.

Figure 6.2.1 presents the "Removal of QoS commit" procedure at media on hold to both the Mobile Originating (MO) side and the Mobile Terminating (MT) side.



1. P-CSCF receives an SDP answer putting media on hold within a SIP message. [\(NOTE 1\)](#)
2. P-CSCF forwards an SDP answer putting media on hold within a SIP message.
3. PDF removes the QoS commit for the media on hold.
4. PDF sends COPS DEC message(s) to the GGSN to close the relevant media IP flow gate(s), leaving the possible related RTCP gate(s) open to keep the connection alive.
5. GGSN receives the COPS DEC message(s) and closes the requested gate(s).
6. GGSN sends COPS RPT message(s) back to the PDF.

[NOTE 1: This procedure occurs whenever a bidirectional media is made unidirectional.](#)

Figure 6.2.1: Removal of QoS commit at Media on Hold to both the Mobile Originating (MO) side and the Mobile Terminating (MT) side

***** END OF MODIFIED SECTIONS *****

CHANGE REQUEST

⌘ **29.207 CR 121** ⌘ rev **1** ⌘ 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:	⌘ Mandatory traffic handling priority		
Source:	⌘ TSG_CN WG3		
Work item code:	⌘ E2EQoS	Date:	⌘ 06/02/2004
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ According to the current text, the derivation of the highest allowed UMTS Traffic class for the PDP context from the QoS class in the "Authorized QoS" according to table 4.3.1.1.1. is optional. However, a mandatory mapping is required in order to guarantee that the derivation of traffic class at UE and GGSN do not conflict.
Summary of change:	⌘ The GGSN is mandated to derive the highest allowed UMTS Traffic class for the PDP context from the QoS class in the "Authorized QoS" according to table 4.3.1.1.1.
Consequences if not approved:	⌘ An correctly behaving UE might request a higher traffic class as allowed by the GGSN, which may leed to a downgrading of QoS or a denial of a PDP context request by the GGSN

Clauses affected:	⌘ 4.3.1.1.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	⌘ 29.208 (CR060)
Y	N										
X											
	X										
	X										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

4.3.1.1.1 QoS Information processing

The GGSN is responsible for the policy based authorisation, i.e. to ensure that the requested QoS is in-line with the "Authorized QoS".

The GGSN needs the "Authorised QoS" information of the PDP context for the uplink as well as for the downlink direction. Therefore, the "Authorized QoS" information for the combination of all IP flows of each direction associated with the media component as determined by the PDF is used.

In case of an aggregation of multiple media components within one PDP context, the "Authorised QoS" for the bearer is provided by the PDF as the combination of the "Authorised QoS" information of the individual media components.

The GGSN shall perform the proper mapping between the IP QoS information and the UMTS QoS information. This mapping is performed by the Translation/mapping function which maps the "Authorised QoS" information for the PDP context into authorised UMTS QoS information.

~~It is recommended that the~~The GGSN shall derive the highest allowed UMTS Traffic class for the PDP context from the QoS class in the "Authorized QoS" according to table 4.3.1.1.1.

Table 4.3.1.1.1

QoS class	UMTS Traffic Class	Traffic Handling Priority
A	Conversational	N/A
B	Streaming	N/A
C	Interactive	1
D		2
E		3
F	Background	N/A
NOTE: QoS class represents the highest class that can be used for the bearer.		

The QoS class values given by the PDF are equal for both the uplink and the downlink directions.

The Data rate within the "Authorized QoS" information for the bearer is the combination of the data rate values of the "Authorised QoS" of the individual IP flows of the media components.

In the case of real-time UMTS bearers (conversational and streaming traffic classes), the GGSN shall consider, the Data rate value of the "Authorized QoS" information as the maximum value of the 'Guaranteed bitrate' UMTS QoS parameter, whereas the 'Maximum bitrate' UMTS QoS parameter is limited by the subscriber and service specific setting in the HLR/HSS (SGSN) and by the capacity/capabilities/service configuration of the network (GGSN, SGSN). In the case of non-real-time bearers (interactive and background traffic classes) the GGSN shall consider, the Data rate value of the "Authorized QoS" information as the maximum value of the 'Maximum bitrate' UMTS QoS parameter.

The UMTS BS Manager receives the authorised UMTS QoS information for the PDP context from the Translation/mapping function. If the requested QoS exceeds the authorised QoS, the UMTS BS Manager shall downgrade the requested UMTS QoS information to the authorised UMTS QoS information.

The GGSN may store the authorized QoS for the binding information of an active PDP context in order to be able to make local decisions, when the UE requests for a PDP context modification.

CR-Form-v7

CHANGE REQUEST

№ **29.208 CR 060** № rev **1** № 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:	№ Traffic handling priority in the mapping tables		
Source:	№ TSG_CN WG3		
Work item code:	№ E2EQoS	Date:	№ 09/02/2004
Category:	№ F	Release:	№ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-4	(Release 4)
		Rel-5	(Release 5)
		Rel-6	(Release 6)

Reason for change:	№ The parameter QoS Class does not only represent the UMTS traffic class but also the traffic handling priority for the Interactive traffic class. The mapping tables do not describe the mapping from the QoS Class to the traffic handling priority parameter. Additionally, the UE function for the generation of the maximum authorized traffic class per PDP context does not include the traffic handling priority.
Summary of change:	№ The traffic handling priority is added to the mapping rules in the GGSN and the UE.
Consequences if not approved:	№ The authorization of a specific traffic handling priority for the Interactive traffic class would not be possible. Consequently, the media types “data” and “control” could not be authorized differently.

Clauses affected:	№ 7.1.2, 7.2.2										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	№ 29.207 (N3-040131)
Y	N										
X											
	X										
	X										
		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.

Start of 1 st modified section

7.1.2 Authorized IP QoS parameters to Authorized UMTS QoS parameters mapping in GGSN

The Translation/Mapping function in the GGSN shall derive the Authorized UMTS QoS parameters from the Authorized IP QoS parameters received from the PDF according to the rules in table 7.1.2.

Table 7.1.2: Rules for derivation of the Authorized UMTS QoS Parameters per PDP context from the Authorized IP QoS Parameters per Client Handle in GGSN

Authorized UMTS QoS Parameter per PDP context	Derivation from Authorized IP QoS Parameters
Maximum Authorized Bandwidth DL and UL per PDP context	Maximum Authorized Bandwidth DL/UL per PDP context = Maximum Authorized Data Rate DL/UL per Client Handle
Maximum Authorized Traffic Class per PDP context	<pre> IF Maximum Authorized QoS Class = "A" THEN Maximum Authorized Traffic Class = "Conversational" ELSEIF Maximum Authorized QoS Class = "B" THEN Maximum Authorized Traffic Class = "Streaming" ELSEIF Maximum Authorized QoS Class = "C" THEN Maximum Authorized Traffic Class = "Interactive"; Maximum Authorized Traffic Handling Priority = "1"; ELSEIF Maximum Authorized QoS Class = "D" THEN Maximum Authorized Traffic Class = "Interactive"; Maximum Authorized Traffic Handling Priority = "2"; ELSEIF Maximum Authorized QoS Class = "E" THEN Maximum Authorized Traffic Class = "Interactive"; Maximum Authorized Traffic Handling Priority = "3"; ELSE Maximum Authorized Traffic Class = "Background" ENDIF ; </pre>

End of 1 st modified section

Start of 2 nd modified section

7.2.2 SDP parameters to Authorized UMTS QoS parameters mapping in UE

If the PDP Context is activated or modified in an IMS context in which SBLP is applied, i.e. an authorization token has been received, then the UE should use the mapping rules in table 7.2.2.1 to derive the Maximum Authorized Bandwidth UL/DL per flow identifier.

Table 7.2.2.1 also has a mapping rule for derivation of Maximum Authorized Traffic Class per flow identifier which applies for session initiation and modification.

In future releases this mapping rule may change. For release 5 this mapping rule is optional for the ReUE. In the case of forking, the various forked responses may have different QoS requirements for the same IP flows of a media component. When the Authorized UMTS QoS Parameters are used by the UE, they shall be set equal to the highest values requested for the IP flows of that media component by any of the active forked responses. The UE should use the mapping rule in table 7.2.2.1 for each forked response.

Table 7.2.2.1: Rules for derivation of the Maximum Authorized Bandwidth DL/UL and the Maximum Authorized Traffic Class per flow identifier in the UE

Authorized UMTS QoS Parameter per flow identifier	Derivation from SDP Parameters (see note 4)
<p>Maximum Authorized Bandwidth DL (Max_BW_DL) and UL (Max_BW_UL) per flow identifier (see note 5)</p>	<pre> IF SBLP is applied THEN /* The Direction of the IP flow(s) identified by the flow identifier */ IF a=recvonly THEN IF <SDP direction> = mobile originated THEN Direction:= downlink; ELSE /* mobile terminated */ Direction:= uplink; ENDIF; ELSE; IF a=sendonly THEN IF <SDP direction> = mobile originated THEN Direction:= uplink; ELSE /* mobile terminated */ Direction:= downlink; ENDIF; ELSE /*sendrecv, inactive or no direction attribute*/ Direction:=both; ENDIF; ENDIF; /* Max_BW_UL and Max_BW_DL */ IF media IP flow(s) THEN IF b_{AS}=AS:<bandwidth> is present THEN IF Direction=downlink THEN Max_BW_UL:= 0; Max_BW_DL:= b_{AS}; ELSE IF Direction=uplink THEN Max_BW_UL:= b_{AS}; Max_BW_DL:= 0; ELSE /*Direction=both*/ Max_BW_UL:= b_{AS}; Max_BW_DL:= b_{AS}; ENDIF; ENDIF; ELSE bw:= as set by the UE manufacturer; IF Direction=downlink THEN Max_BW_UL:= 0; Max_BW_DL:= bw; ELSE IF Direction=uplink THEN Max_BW_UL:= bw; Max_BW_DL:= 0; ELSE /*Direction=both*/ Max_BW_UL:= bw; Max_BW_DL:= bw; ENDIF; ENDIF; ENDIF; ELSE /* RTCP IP flow(s) */ IF b_{RS}=RS:<bandwidth> and b_{RR}=RR:<bandwidth> is present THEN Max_BW_UL:= (b_{RS} + b_{RR}) / 1000; Max_BW_DL:= (b_{RS} + b_{RR}) / 1000; ELSE IF b_{AS}=AS:<bandwidth> is present THEN IF b_{RS}=RS:<bandwidth> is present and b_{RR}=RR:<bandwidth> is not present THEN Max_BW_UL:= MAX[0.05 * b_{AS}, b_{RS} / 1000]; Max_BW_DL:= MAX[0.05 * b_{AS}, b_{RS} / 1000]; ENDIF; IF b_{RS}=RS:<bandwidth> is not present and b_{RR}=RR:<bandwidth> is present THEN Max_BW_UL:= MAX[0.05 * b_{AS}, b_{RR} / 1000]; Max_BW_DL:= MAX[0.05 * b_{AS}, b_{RR} / 1000]; ENDIF; IF b_{RS}=RS:<bandwidth> and b_{RR}=RR:<bandwidth> is not present THEN Max_BW_UL:= 0.05 * b_{AS}; ENDIF; ENDIF; ENDIF; </pre>

Authorized UMTS QoS Parameter per flow identifier	Derivation from SDP Parameters (see note 4)
	<pre> Max_BW_DL:= 0.05 * b_{AS}; ENDIF; ELSE Max_BW_UL:= as set by the UE manufacture; Max_BW_DL:= as set by the UE manufacture; ENDIF; ENDIF; ELSE No authorization is done ; ENDIF ; </pre>
Maximum Authorized Traffic Class [MaxTrafficClass] per flow identifier (see NOTE 1, 2 and3)	<pre> IF SBLP is applied THEN IF (all media IP flows of media type "audio" or "video" for the session have the same direction) THEN MaxService:= streaming; ELSE MaxService:= conversational; ENDIF; CASE <media> OF "audio": MaxTrafficClass:= MaxService; "video": MaxTrafficClass:= MaxService; "application": MaxTrafficClass:=conversational; "data": MaxTrafficClass:=interactive with priority 3; "control": MaxTrafficClass:=interactive with priority 1; /*new media type*/ OTHERWISE: MaxTrafficClass:=background; END; ELSE No authorization is done ; ENDIF ; </pre>
<p>NOTE 1: The Maximum Authorized Traffic Class for a RTCP IP flow is the same as for the corresponding RTP media IP flow.</p> <p>NOTE 2: When audio or video IP flow(s) are removed from a session, the maximum Authorized Traffic Class shall keep the originally assigned value.</p> <p>NOTE 3: When audio or video IP flow(s) are added to a session, the UE shall derive the maximum Authorized Traffic Class taking into account the already existing media IP flows within the session</p> <p>NOTE 4: The SDP parameters are described in RFC 2327 [9].</p> <p>NOTE 5: The 'b=RS:' and 'b=RR:' SDP bandwidth modifiers are defined in RFC 3556 [10].</p>	

The UE should per ongoing session store the Authorized UMTS QoS parameters per flow identifier.

Before activate or modify a PDP context the UE should check that the requested Guaranteed Bitrate UL/DL (if the Traffic Class is Conversational or Streaming) or the requested Maximum Bitrate UL/DL (if the Traffic Class is Interactive or Background) does not exceed the Maximum Authorized Bandwidth UL/DL per PDP context (calculated according to the rule in table 7.2.2.2). Furthermore, if the rule in table 7.2.2.1 for calculating Traffic Class per flow identifier is implemented, the UE should check that the requested UMTS QoS parameter Traffic Class does not exceed the Maximum Authorized Traffic Class per PDP context (calculated according to the rule in table 7.2.2.2).

Table 7.2.2.2: Rules for calculating the Maximum Authorized Bandwidths and Maximum Authorized Traffic Class per PDP Context in the UE

Authorized UMTS QoS Parameter per PDP Context	Calculation Rule
<p>Maximum Authorized Bandwidth DL and UL per PDP Context</p>	<pre> IF SBLP is applied THEN Maximum Authorized Bandwidth DL/UL per PDP Context is the sum of all Maximum Authorized Bandwidth DL/UL for all the flow identifiers associated with that PDP Context ; IF Maximum Authorized Bandwidth DL/UL per PDP Context > 16000 kbps THEN Maximum Authorized Bandwidth DL/UL per PDP Context = 16000 kbps /* See ref [8] */ END; ELSE No authorization is done ; ENDIF ; </pre>
<p>Maximum Authorized Traffic Class per PDP Context</p>	<pre> IF SBLP is applied THEN Maximum Authorised Traffic Class per PDP Context = MAX [Maximum Authorised Traffic Class per flow identifier among all the flow identifiers associated with that PDP Context] ; ELSE No authorization is done ; ENDIF ; (The MAX function ranks the possible Maximum Authorised Traffic Class values as follows: Conversational > Streaming > Interactive with priority 1 > Interactive with priority 2 > Interactive with priority 3 > Background) </pre>

End of 2nd modified section