3GPP TSG-CN Meeting #26 8th – 10th December 2004. Athens, Greece.

Source:	TSG CN WG3
Title:	CRs to Rel-6 on Work Item "TEI-6"(Pack2)
Agenda item:	9.21
Document for:	APPROVAL

Introduction:

This document contains 2 CRs to Rel-6 on Work Item "TEI-6" (Pack2) 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	Work Item
N3- 040847	29.061	138	1		RADIUS Enhancements on the Gi interface for QoS information (Negotiated DSCP)	Rel- 6	6.2.0	TEI
N3- 040846	29.061	139	1		RADIUS Enhancements on the Gi interface to enable QoS correlation (Packet Filters)	Rel- 6	6.2.0	TEI

3GPP TSG-CN WG3 Meeting #34

Tdoc N3-040846

4.

CHANGE REQUEST											CR-Form-v7
æ		29.061	CR	139	ж rev	1	Ħ	Current vers	ion:	6.2.0	ж
For <mark>H</mark>	ELP on u	sing this foi	m, see	bottom of th	is page or	look	at the	e pop-up text	over	the X syr	nbols.
Proposed	l change a	affects:	JICC aj	ops#	ME	Rac	lio Ac	ccess Netwo	rk	Core Ne	twork X
Title:	ж	RADIUS	Enhanc	ements on th	ne Gi inter	face t	o ena	able QoS cor	relati	<mark>on (Packe</mark>	t Filters)
Source:	ж	Cisco Sys	stems, S	Siemens, Vo	dafone, O	range)				
Work iten	n code: ೫	TEI_6						<i>Date:</i> ೫	15/	11/2004	
Category	: ¥	F (cor A (cor B (ada C (fun D (edi	rection) respond dition of ctional ri torial mo planatior	wing categorie ls to a correctio feature), nodification of polification) ns of the above <u>R 21.900</u> .	on in an ea feature)		lease	Release: ₩ Use <u>one</u> of 2 9) R96 R97 R98 R99 Rel-4 Rel-5 Rel-6	the fo (GSN (Rele (Rele (Rele (Rele (Rele	-	ases:
Reason f	or change			e the informa entication, au							

	operator to correctly correlate QoS with the appropriate session when IMS, SBLP or other services are used, additional information is needed on the GGSN RADIUS interface.
Summary of change: ೫	To export the required information, a new 3GPP Vendor Specific Attibute is defined:
	<u>3GPP-Packet-Filter</u> : this attribute contains the packet filters used on the GGSN for this PDP context. These packet filters may come from the TFT provided by the MS, or retrieved from the PDF via Go (if SBLP is used).
	This attribute can optionally be sent in the Accounting Request START, Accounting Request STOP and Accounting Request Interim-Update. Note: The forwarding of this optional attribute is not recommended for an inter- operator interface for security reason.
Consequences if % not approved:	QoS correlation may not be consistent.

Clauses affected:	ି ж 1	6.4.	7		
	Υ	Ν			
Other specs	ж	Χ	Other core specifications	ж	
affected:		Χ	Test specifications		
		Χ	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 <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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

Change in Clause 16.4.7

16.4.7 Sub-attributes of the 3GPP Vendor-Specific attribute

Table 7 describes the sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Access-Accept, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update and Disconnect-Request messages.

Sub-attr #	Sub-attribute Name	Description	Presence	Associated attribute
			Requirement	(Location of Sub-attr)
1	3GPP-IMSI	IMSI for this user	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
2	3GPP-Charging-Id	Charging ID for this PDP Context (this together with the GGSN- Address constitutes a unique identifier for the PDP context).	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
3	3GPP-PDP Type	Type of PDP context, e.g. IP or PPP	Conditional (mandatory if attribute 7 is present)	Access-Request Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
4	3GPP-CG-Address	Charging Gateway IP address	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
5	3GPP-GPRS- Negotiated-QoS-Profile	QoS profile applied by GGSN	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request

Table 7: List of the 3GPP Vendor-Specific sub-attributes

Sub-attr #	Sub-attribute Name	Description	Presence Requirement	Associated attribute (Location of Sub-attr)		
6	3GPP-SGSN-Address	SGSN IP address that is used by the GTP control plane for the handling of control messages. It may be used to identify the PLMN to which the user is attached.	Optional	Interim-Update Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update		
7	3GPP-GGSN-Address	GGSN IP address that is used by the GTP control plane for the context establishment. It is the same as the GGSN IP address used in the GCDRs.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update		
8	3GPP-IMSI-MCC-MNC	MCC and MNC extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update		
9	3GPP-GGSN- MCC- MNC	MCC-MNC of the network the GGSN belongs to.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update		
10	3GPP-NSAPI	Identifies a particular PDP context for the associated PDN and MSISDN/IMSI from creation to deletion.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP Accounting-Request Interim-Update		
11	3GPP- Session-Stop- Indicator	Indicates to the AAA server that the last PDP context of a session is released and that the PDP session has been terminated.	Optional	Accounting Request STOP		
12	3GPP- Selection-Mode	Contains the Selection mode for this PDP Context received in the Create PDP Context Request Message	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update		
13	3GPP-Charging- Characteristics	Contains the charging characteristics for this PDP Context received in the Create PDP Context Request Message (only available in R99 and later releases)	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update		

Sub-attr #	Sub-attribute Name	Description	Presence	Associated attribute
14	3GPP-CG-IPv6- Address	Charging Gateway IPv6 address	Requirement Optional	(Location of Sub-attr) Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
15	3GPP-SGSN-IPv6- Address	SGSN IPv6 address that is used by the GTP control plane for the handling of control messages. It may be used to identify the PLMN to which the user is attached.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
16	3GPP-GGSN-IPv6- Address	GGSN IPv6 address that is used by the GTP control plane for the context establishment.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
17	3GPP- IPv6-DNS- Servers	List of IPv6 addresses of DNS servers for an APN	Optional	Access-Accept
18	3GPP-SGSN-MCC- MNC	MCC and MNC extracted from the RAI within the Create PDP Context Request or Update PDP Context Request message.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
19	3GPP-Teardown- Indicator	Indicate to the GGSN that all PDP contexts for this particular user and sharing the same user session need to be deleted.	Optional	Disconnect Request
20	3GPP-IMEISV	International Mobile Equipment Id and its Software Version	Optional	Accounting-Request START, Access- Request
21	<u>3GPP-Packet-Filter</u>	Packet Filter used for this PDP context	<u>Optional</u>	Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update

The RADIUS vendor Attribute is encoded as follows (as per RFC 2865 [38])

Octets	8	7	6	5	4	3	2	1			
1				Type =	= 26						
2		Length = n									
3			Vei	ndor id	octet 1						
4			Vei	ndor id	octet 2	<u>)</u>					
5			Vei	ndor id	octet 3	3					
6			Vei	ndor id	octet 4	ŀ					
7-n				Strin	g						

Bits

 $n \ge 7$

3GPP Vendor Id = 10415

The string part is encoded as follows:

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			3	GPP ty	/pe =			
2			3GI	PP Len	gth = n	n		
3 –m			(3GPP v	alue			

$m \geq 2$ and $m \leq 248$

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-IMSI

				Bits	5					
Octets	8	7	6	5	4	3	2	1		
1			30	GPP typ	be = 1					
2	3GPP Length= m									
3-m		IMS	I digits	1-n (U	TF-8 e	ncode	d)			

3GPP Type: 1

n ≤15

Length: $m \le 17$

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24]. There shall be no padding characters between the MCC and MNC, and between the MNC and MSIN. If the IMSI is less than 15 digits, the padding in the GTP information element shall be removed by the GGSN and not encoded in this sub-attribute.

2 - 3GPP-Charging ID

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 2			
2			3G	PP Ler	ngth= 6	5		
3		Charging ID value Octet 1						
4		(Chargir	ig ID va	alue Oo	ctet 2		
5		(Chargir	ig ID va	alue Oo	ctet 3		
6		(Chargir	ig ID va	alue Oo	ctet 4		

Dite

3GPP Type: 2

Length: 6

Charging ID value: 32 bits unsigned integer

3 - 3GPP-PDP type

				Bits	8				
Octets	8	7	6	5	4	3	2	1	
1			30	GPP ty	oe = 3				
2		3GPP Length= 6							
3		PDP type octet 1							
4			PD	P type	octet 2)			
5			PD	P type	octet 3	}			
6				P type					

3GPP Type: 3

Length: 6

PDP type value: Unsigned 32 bits integer

PDP type octet possible values:

0 = IPv4

1 = PPP

2 = IPv6

4 - 3GPP-Charging Gateway address

Bits

Octets	8	7	6	5	4	3	2	1	
1			30	SPP typ	be = 4				
2			3G	PP Ler	ngth= 6	;			
3		Charging GW addr Octet 1							
4		(Chargin	g GW a	addr O	ctet 2			
5		(Chargin	g GW a	addr O	ctet 3			
6		(Chargin	g GW a	addr O	ctet 4			

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-GPRS Negotiated QoS profile

				Bits	5				
Octets	8	7	6	5	4	3	2	1	
1		3GPP type = 5							
2			3G	PP Ler	igth= L	-			
3 -L		l	JTF-8 e	ncoded	QoS	orofile			

3GPP Type: 5

Length: $L \le 33$ (release 5) or $L \le 27$ (release 99) or L = 11 (release 98)

QoS profile value: Text

UTF-8 encoded QoS profile syntax:

"<Release indicator> - <release specific QoS IE UTF-8 encoding>"

<Release indicator> = UTF-8 encoded number :

"98" = Release 98

"99"= Release 99

"05"= Release 5

<release specific QoS profile UTF-8 encoding> = UTF-8 encoded QoS profile for the release indicated by the release indicator.

The UTF-8 encoding of a QoS IE is defined as follows: each octet is described by 2 UTF-8 encoded digits, defining its hexadecimal representation. The QoS profile definition is in 3GPP TS 24.008 [54].

The release 98 QoS profile data is 3 octets long, which then results in a 6 octets UTF-8 encoded string.

The release 99 QoS profile data is 11 octets long, which results in a 22 octets UTF-8 encoded string.

The release 5 QoS profile data is 14 octets long, which results in a 28 octets UTF-8 encoded string.

6 - 3GPP-SGSN address

Octets	8	7	6	5	4	3	2	1	
1			30	GPP typ	be = 6				
2			3G	PP Ler	ngth= 6				
3			SGS	SN addr	· Octet	1			
4			SGS	SN addr	⁻ Octet	2			
5			SGS	SN addr	⁻ Octet	3			
6			SGS	SN addr	^r Octet	4			

Bits

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-GGSN address

Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 7								
2		3GPP Length= 6								
3			GGS	SN add	r Octet	1				
4			GGS	SN add	r Octet	2				
5			GGS	SN add	r Octet	3				
6			GGS	SN addi	r Octet	4				

Bits

3GPP Type: 7

Length: 6

GGSN address value: Address

8 - 3GPP-IMSI MCC-MNC

	Bits								
Octets	8	7	6	5	4	3	2	1	
1			30	GPP typ	be = 8				
2		3GPP Length= n							
3		MCC digit1 (UTF-8 encoded)							
4		MCC digit2 (UTF-8 encoded)							
5		М	CC digi	it3 (UTF	-8 end	coded)			
6		М	NC digi	it1 (UTF	-8 end	coded)			
7		MNC digit2 (UTF-8 encoded)							
8		MNC d	ligit3 if p	oresent	(UTF-	8 enco	ded)		

3GPP Type: 8

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

MS address value: text

This is the UTF-8 encoding of the MS MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

9 - 3GPP-GGSN MCC-MNC

		Bits								
Octets	8	7	6	5	4	3	2	1		
1			30	GPP typ	be = 9					
2		3GPP Length= n								
3		MCC digit1 (UTF-8 encoded)								
4		М	CC digi	t2 (UTF		coded)				
5		М	CC digi	t3 (UTF		coded)				
6		М	NC digi	t1 (UTF		coded)				
7		MNC digit2 (UTF-8 encoded)								
8		MNC d	ligit3 if p	present	(UTF-	8 enco	ded)			

3GPP Type: 9

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

GGSN address value: text

This is the UTF-8 encoding of the GGSN MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

10 - 3GPP-NSAPI

			DIG	,			
8	7	6	5	4	3	2	1
3GPP type = 10							
	3GPP Length= 3						
	NSAPI						
	8	8 7		8 7 6 5 3GPP typ 3GPP Ler	8 7 6 5 4 3GPP type = 10 3GPP Length= 3	8 7 6 5 4 3 3GPP type = 10 3GPP Length= 3 3	8 7 6 5 4 3 2 3GPP type = 10 3GPP Length= 3<

Rite

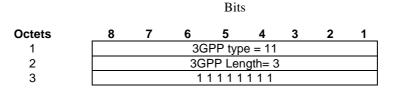
3GPP Type: 10

Length: 3

NSAPI value: text

It is the value of the NSAPI of the PDP context the RADIUS message is related to. It is encoded as its hexadecimal representation, using 1UTF-8 encoded digit.

11 - 3GPP-Session Stop Indicator



3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

		DIIS							
Octets	8	7	6	5	4	3	2	1	
1		3GPP type = 12							
2		3GPP Length= 1							
3		UTF-8	encode	ed Sele	ction n	node s	tring		

Dite

3GPP Type: 12

Length: 3

Selection mode value: Text

The format of this attribute shall be a character string consisting of a single digit, mapping from the binary value of the selection mode in the Create PDP Context message (3GPP TS 29.060 [24]). Where 3GPP TS 29.060 [24] provides for interpretation of the value, e.g. map '3' to '2', this shall be done by the GGSN.

13 - 3GPP-Charging-Characteristics

		Bits								
Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 13								
2			3G	PP Ler	ngth= 6	6				
3-6	UTF	-8 enc	oded C	harging	g Chara	acteris	tics val	ue		

3GPP Type: 13

Length: 6

Charging characteristics value: Text

The charging characteristics is value is the value of the 2 octets value field taken from the GTP IE described in 3GPP TS 29.060 [24], subclause 7.7.23.

Each octet of this IE field value is represented via 2 UTF-8 encoded digits, defining its hexadecimal representation.

14 - 3GPP-Charging Gateway IPv6 address

		Bits						
Octets	8	7	6	5	4	3	2	1
1			3G	PP typ	e = 14			
2		3GPP Length= 18						
3		Cha	arging (GW IPv	6 addr	Octet	1	
4		Cha	arging (GW IPv	6 addr	Octet	2	
5-18		Char	ging G\	V IPv6	addr C	Octet 3	-16	

3GPP Type: 14

Length: 18

Charging GW IPv6 address value: IPv6 Address

15 - 3GPP-SGSN IPv6 address

				Bits	8					
Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 15								
2			3GF	P Len	gth= 18	3				
3			SGSN	IPv6 ad	ddr Oct	tet 1				
4		SGSN IPv6 addr Octet 2								
5-18		S	GSN IF	v6 add	lr Octe	t 3-16				

3GPP Type: 15

Length: 18

SGSN IPv6 address value: IPv6 Address

16 - 3GPP-GGSN IPv6 address

Bits								
8	7	6	5	4	3	2	1	
		30	PP typ	e = 16				
		3GI	PP Len	gth= 18	8			
		GGSN	IPv6 a	ddr Oc	tet 1			
	GGSN IPv6 addr Octet 2							
	G	GSN IF	v6 add	dr Octe	t 3-16			
	8		3G 3GI GGSN GGSN	8 7 6 5 3GPP typ 3GPP Len GGSN IPv6 ar GGSN IPv6 ar	8 7 6 5 4 3GPP type = 16 3GPP Length= 18 3GPP Length= 18 3GPN IPv6 addr Oc 3GSN IPv6 addr Oc	8 7 6 5 4 3 3GPP type = 16 3GPP Length= 18 3GPP Length= 18 3GGSN IPv6 addr Octet 1	8 7 6 5 4 3 2 3GPP type = 16 3GPP Length= 18 3GPN Length= 18 3GSN IPv6 addr Octet 1 3GSN IPv6 addr Octet 1 3GSN IPv6 addr Octet 2 3GSN IPv6 add	

3GPP Type: 16

Length: 18

GGSN IPv6 address value: IPv6 Address

17 - 3GPP-IPv6-DNS-Servers

Octets	8	7	6	5	4	3	2	1	
1			30	PP typ	e = 17				
2			3G	PP Len	gth= m	ו			
3-18		(1s	t) DNS	IPv6 a	ddr Oc	tet 1-1	6		
19-34		(2nd) DNS IPv6 addr Octet 1-16							
k-m		(n-t	h) DNS	IPv6 a	ddr Oo	tet 1-1	6		

Bits

Length: $m = n \times 16 + 2$; $n \ge 1$ and $n \le 15$; k = m-15

IPv6 DNS Server value: IPv6 AddressThe 3GPP- IPv6-DNS-Servers Attribute provides a list of one or more ('n') IPv6 addresses of Domain Name Server (DNS) servers for an APN. The DNS servers are listed in the order of preference for use by a client resolver, i.e. the first is 'Primary DNS Server', the second is 'Secondary DNS Server' etc. The attribute may be included in Access-Accept packets.

18 - 3GPP-SGSN MCC-MNC

	Bits									
Octets	8	7	6	5	4	3	2	1		
1			3G	PP typ	e = 18					
2		3GPP Length= n								
3		Μ	CC digi	t1 (UTF	-8 end	coded)				
4		Μ	CC digi	t2 (UTF	-8 end	coded)				
5		Μ	CC digi	t3 (UTF		coded)				
6		Μ	NC digi	t1 (UTF	-8 end	coded)				
7		MNC digit2 (UTF-8 encoded)								
8		MNC d	igit3 if p	present	(UTF-	8 enco	ded)			

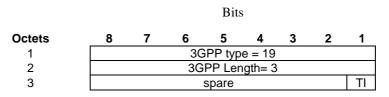
3GPP Type: 18

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

SGSN address value: text

This is the UTF-8 encoding of the RAI MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

19 - 3GPP-Teardown Indicator

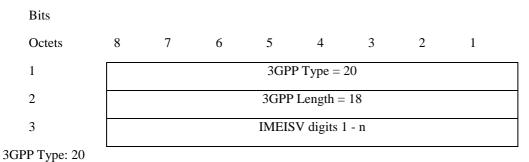


3GPP Type: 19

Length: 3

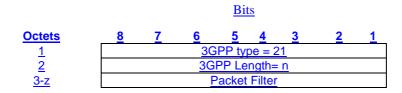
If the value of TI is set to "1", then all PDP contexts that share the same user session with the PDP context identified by the NSAPI included in the Delete PDP Context Request Message shall be torn down. Only the PDP context identified by the NSAPI included in the Delete PDP context Request shall be torn down if the value of TI is "0".

20 -3GGP- IMEISV



n = 16 where TAC = 8 digits SNR = 6 digits & SVN = 2 digits

21 - 3GPP-Packet-Filter



<u>3GPP Type: 21</u>

Length: n

Each 3GPP-Packet-Filter attribute contains only one packet filter. Multiple 3GPP-Packet-Filter attributes can be sent in one RADIUS Accounting Request -message.

When the GGSN sends the packet filter information, the RADIUS message shall carry ALL (or none) of the packet filters.

Packet Filter Value:

<u>8</u>	<u>7</u>	<u>6</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>			
		<u>Pa</u>	cket filte	er identi	fier			Octet 1		
	<u>Pa</u>	acket filt	er evalu	lation p	receden	ce		Octet 2		
		Length of	of Pack	et filter	contents	5		Octet 3		
		Direc	ction of	Packet	Filter			Octet 4		
	Packet filter contents									
								Octet m		

Direction Value:

00000000: Downlink

00000001: Uplink

The packet filter content is defined below:

<u>Type</u>	Value
<u>1: IPv4 address type</u>	Contains the source address if the direction value is set to Downlink, and the destination address if the direction value is set to Uplink.
	shall be encoded as a sequence of a four octet IPv4 address field and a four octet IPv4 address mask field. The IPv4 address field shall be transmitted first
2: IPv6 address type	Contains the source address if the direction value is set to Downlink, and the destination address if the direction value is set to Uplink.
	shall be encoded as a sequence of a sixteen octet <i>IPv6</i> address field and a sixteen octet <i>IPv6 address mask</i> field. The <i>IPv6 address</i> field shall be transmitted first
<u>3: Protocol identifier/Next header</u> <u>type</u>	shall be encoded as one octet which specifies the IPv4 protocol identifier or IPv6 next header
4: Single destination port type	shall be encoded as two octet which specifies a port number
5 : Destination port range type	shall be encoded as a sequence of a two octet <i>port</i>

	<u>range low limit field and a two octet port range high</u> <u>limit field. The port range low limit field shall be</u> <u>transmitted first</u>
<u>6 : Single source port type</u>	shall be encoded as two octet which specifies a port number
7: Source port range type	<u>shall be encoded as a sequence of a two octet <i>port</i> <u>range low limit field and a two octet port range high</u> <u>limit field. The port range low limit field shall be</u> <u>transmitted first</u></u>
8: Security parameter index type (IPv6)	shall be encoded as four octet which specifies the IPSec security parameter index
9: Type of service/Traffic class type	<u>shall be encoded as a sequence of a one octet Type-of-</u> <u>Service/Traffic Class field and a one octet Type-of-</u> <u>Service/Traffic Class mask field. The Type-of-</u> <u>Service/Traffic Class field shall be transmitted first</u>
10: Flow label type (IPv6)	shall be encoded as three octets which specify the IPv6 flow label. The bits 8 through 5 of the first octet shall be spare whereas the remaining 20 bits shall contain the IPv6 flow label

Note: The sending of this attribute is not recommended for an inter-operator interface for security reason

End of Change in Clause 16.4.7

3GPP TSG-CN WG3 Meeting #34

Tdoc N3-040846

4.

										CR-Form-v7	
æ		29.061	CR	139	ж rev	1	Ħ	Current vers	ion:	6.2.0	ж
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Reason f	or change			e the informa entication, au							

	operator to correctly correlate QoS with the appropriate session when IMS, SBLP or other services are used, additional information is needed on the GGSN RADIUS interface.
Summary of change: ೫	To export the required information, a new 3GPP Vendor Specific Attibute is defined:
	<u>3GPP-Packet-Filter</u> : this attribute contains the packet filters used on the GGSN for this PDP context. These packet filters may come from the TFT provided by the MS, or retrieved from the PDF via Go (if SBLP is used).
	This attribute can optionally be sent in the Accounting Request START, Accounting Request STOP and Accounting Request Interim-Update. Note: The forwarding of this optional attribute is not recommended for an inter- operator interface for security reason.
Consequences if % not approved:	QoS correlation may not be consistent.

Clauses affected:	ି ж 1	6.4.	7		
	Y	Ν			
Other specs	ж	Χ	Other core specifications	ж	
affected:		Χ	Test specifications		
		Χ	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 <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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

Change in Clause 16.4.7

16.4.7 Sub-attributes of the 3GPP Vendor-Specific attribute

Table 7 describes the sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Access-Accept, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update and Disconnect-Request messages.

Sub-attr #	Sub-attr # Sub-attribute Name		Presence	Associated attribute
			Requirement	(Location of Sub-attr)
1	3GPP-IMSI	IMSI for this user	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
2	3GPP-Charging-Id	Charging ID for this PDP Context (this together with the GGSN- Address constitutes a unique identifier for the PDP context).	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
3	3GPP-PDP Type	Type of PDP context, e.g. IP or PPP	Conditional (mandatory if attribute 7 is present)	Access-Request Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
4	3GPP-CG-Address	Charging Gateway IP address	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
5	3GPP-GPRS- Negotiated-QoS-Profile	QoS profile applied by GGSN	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request

Table 7: List of the 3GPP Vendor-Specific sub-attributes

Sub-attr #	Sub-attribute Name	Description	Presence Requirement	Associated attribute (Location of Sub-attr)
6	3GPP-SGSN-Address	SGSN IP address that is used by the GTP control plane for the handling of control messages. It may be used to identify the PLMN to which the user is attached.	Optional	Interim-Update Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
7	3GPP-GGSN-Address	GGSN IP address that is used by the GTP control plane for the context establishment. It is the same as the GGSN IP address used in the GCDRs.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
8	3GPP-IMSI-MCC-MNC	MCC and MNC extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
9	3GPP-GGSN- MCC- MNC	MCC-MNC of the network the GGSN belongs to.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
10	3GPP-NSAPI	Identifies a particular PDP context for the associated PDN and MSISDN/IMSI from creation to deletion.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP Accounting-Request Interim-Update
11	3GPP- Session-Stop- Indicator	Indicates to the AAA server that the last PDP context of a session is released and that the PDP session has been terminated.	Optional	Accounting Request STOP
12	3GPP- Selection-Mode	Contains the Selection mode for this PDP Context received in the Create PDP Context Request Message	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
13	3GPP-Charging- Characteristics	Contains the charging characteristics for this PDP Context received in the Create PDP Context Request Message (only available in R99 and later releases)	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update

Sub-attr #	Sub-attribute Name	Description	Presence	Associated attribute
14	3GPP-CG-IPv6- Address	Charging Gateway IPv6 address	Requirement Optional	(Location of Sub-attr) Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
15	3GPP-SGSN-IPv6- Address	SGSN IPv6 address that is used by the GTP control plane for the handling of control messages. It may be used to identify the PLMN to which the user is attached.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
16	3GPP-GGSN-IPv6- Address	GGSN IPv6 address that is used by the GTP control plane for the context establishment.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
17	3GPP- IPv6-DNS- Servers	List of IPv6 addresses of DNS servers for an APN	Optional	Access-Accept
18	3GPP-SGSN-MCC- MNC	MCC and MNC extracted from the RAI within the Create PDP Context Request or Update PDP Context Request message.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
19	3GPP-Teardown- Indicator	Indicate to the GGSN that all PDP contexts for this particular user and sharing the same user session need to be deleted.	Optional	Disconnect Request
20	3GPP-IMEISV	International Mobile Equipment Id and its Software Version	Optional	Accounting-Request START, Access- Request
21	<u>3GPP-Packet-Filter</u>	Packet Filter used for this PDP context	<u>Optional</u>	Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update

The RADIUS vendor Attribute is encoded as follows (as per RFC 2865 [38])

				Ditt	,			
Octets	8	7	6	5	4	3	2	1
1				Type =	= 26			
2				Length	= n			
3			Vei	ndor id	octet 1			
4			Vei	ndor id	octet 2	<u>)</u>		
5			Vei	ndor id	octet 3	3		
6			Vei	ndor id	octet 4	ŀ		
7-n				Strin	g			

Bits

 $n \ge 7$

3GPP Vendor Id = 10415

The string part is encoded as follows:

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			3	GPP ty	/pe =			
2			3GI	PP Len	gth = n	n		
3 –m			(3GPP v	alue			

$m \geq 2$ and $m \leq 248$

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-IMSI

				Bits	5				
Octets	8	7	6	5	4	3	2	1	
1			30	GPP typ	be = 1				
2			3G	PP Len	gth= m	ו			
3-m		IMSI digits 1-n (UTF-8 encoded)							

3GPP Type: 1

n ≤15

Length: $m \le 17$

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24]. There shall be no padding characters between the MCC and MNC, and between the MNC and MSIN. If the IMSI is less than 15 digits, the padding in the GTP information element shall be removed by the GGSN and not encoded in this sub-attribute.

2 - 3GPP-Charging ID

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 2			
2			3G	PP Ler	ngth= 6	5		
3		(Chargir	ig ID va	alue Oo	ctet 1		
4		(Chargir	ig ID va	alue Oo	ctet 2		
5		(Chargir	ig ID va	alue Oo	ctet 3		
6		(Chargir	ig ID va	alue Oo	ctet 4		

Dite

3GPP Type: 2

Length: 6

Charging ID value: 32 bits unsigned integer

3 - 3GPP-PDP type

				Bits	8			
Octets	8	7	6	5	4	3	2	1
1			30	GPP ty	oe = 3			
2			3G	PP Ler	ngth= 6	;		
3			PD	P type	octet 1			
4			PD	P type	octet 2)		
5			PD	P type	octet 3	}		
6				P type				

3GPP Type: 3

Length: 6

PDP type value: Unsigned 32 bits integer

PDP type octet possible values:

0 = IPv4

1 = PPP

2 = IPv6

4 - 3GPP-Charging Gateway address

Bits

Octets	8	7	6	5	4	3	2	1
1			30	SPP typ	be = 4			
2			3G	PP Ler	ngth= 6	;		
3		(Chargin	g GW a	addr O	ctet 1		
4		(Chargin	g GW a	addr O	ctet 2		
5		(Chargin	g GW a	addr O	ctet 3		
6		(Chargin	g GW a	addr O	ctet 4		

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-GPRS Negotiated QoS profile

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 5			
2			3G	PP Ler	igth= L	-		
3 -L		l	JTF-8 e	ncoded	QoS	orofile		

3GPP Type: 5

Length: $L \le 33$ (release 5) or $L \le 27$ (release 99) or L = 11 (release 98)

QoS profile value: Text

UTF-8 encoded QoS profile syntax:

"<Release indicator> - <release specific QoS IE UTF-8 encoding>"

<Release indicator> = UTF-8 encoded number :

"98" = Release 98

"99"= Release 99

"05"= Release 5

<release specific QoS profile UTF-8 encoding> = UTF-8 encoded QoS profile for the release indicated by the release indicator.

The UTF-8 encoding of a QoS IE is defined as follows: each octet is described by 2 UTF-8 encoded digits, defining its hexadecimal representation. The QoS profile definition is in 3GPP TS 24.008 [54].

The release 98 QoS profile data is 3 octets long, which then results in a 6 octets UTF-8 encoded string.

The release 99 QoS profile data is 11 octets long, which results in a 22 octets UTF-8 encoded string.

The release 5 QoS profile data is 14 octets long, which results in a 28 octets UTF-8 encoded string.

6 - 3GPP-SGSN address

				210	·			
Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 6			
2			3G	PP Ler	ngth= 6			
3			SGS	SN addr	· Octet	1		
4			SGS	SN addr	⁻ Octet	2		
5			SGS	SN addr	⁻ Octet	3		
6			SGS	SN addr	^r Octet	4		

Bits

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-GGSN address

Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	oe = 7			
2			3G	PP Ler	ngth= 6	;		
3			GGS	SN add	r Octet	1		
4			GGS	SN add	r Octet	2		
5			GGS	SN add	r Octet	3		
6			GGS	SN add	r Octet	4		

Bits

3GPP Type: 7

Length: 6

GGSN address value: Address

8 - 3GPP-IMSI MCC-MNC

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 8			
2			3G	PP Ler	igth= n			
3		М	CC digi	it1 (UTF		coded)		
4		М	CC digi	it2 (UTF	-8 end	coded)		
5		М	CC digi	it3 (UTF	-8 end	coded)		
6		М	NC digi	it1 (UTF	-8 end	coded)		
7		М	NC digi	it2 (UTF	-8 end	coded)		
8		MNC d	ligit3 if p	oresent	(UTF-	8 enco	ded)	

3GPP Type: 8

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

MS address value: text

This is the UTF-8 encoding of the MS MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

9 - 3GPP-GGSN MCC-MNC

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 9			
2		3GPP Length= n						
3		MCC digit1 (UTF-8 encoded)						
4		М	CC digi	t2 (UTF		coded)		
5		MCC digit3 (UTF-8 encoded)						
6		MNC digit1 (UTF-8 encoded)						
7		М	NC digi	t2 (UTF		coded)		
8		MNC d	ligit3 if p	present	(UTF-	8 enco	ded)	

3GPP Type: 9

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

GGSN address value: text

This is the UTF-8 encoding of the GGSN MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

10 - 3GPP-NSAPI

			DIG	,			
8	7	6	5	4	3	2	1
		3G	PP typ	e = 10			
		3G	PP Ler	ngth= 3	;		
			NSA	PI			
	8	8 7		8 7 6 5 3GPP typ 3GPP Ler	8 7 6 5 4 3GPP type = 10	8 7 6 5 4 3 3GPP type = 10 3GPP Length= 3 3	8 7 6 5 4 3 2 3GPP type = 10 3GPP Length= 3<

Rite

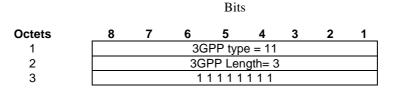
3GPP Type: 10

Length: 3

NSAPI value: text

It is the value of the NSAPI of the PDP context the RADIUS message is related to. It is encoded as its hexadecimal representation, using 1UTF-8 encoded digit.

11 - 3GPP-Session Stop Indicator



3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

				DIR	5			
Octets	8	7	6	5	4	3	2	1
1			3G	PP typ	e = 12			
2		3GPP Length= 1						
3		UTF-8	encode	ed Sele	ction n	node s	tring	

Dite

3GPP Type: 12

Length: 3

Selection mode value: Text

The format of this attribute shall be a character string consisting of a single digit, mapping from the binary value of the selection mode in the Create PDP Context message (3GPP TS 29.060 [24]). Where 3GPP TS 29.060 [24] provides for interpretation of the value, e.g. map '3' to '2', this shall be done by the GGSN.

13 - 3GPP-Charging-Characteristics

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1		3GPP type = 13						
2		3GPP Length= 6						
3-6	UTF	-8 enc	oded C	harging	g Chara	acteris	tics val	ue

3GPP Type: 13

Length: 6

Charging characteristics value: Text

The charging characteristics is value is the value of the 2 octets value field taken from the GTP IE described in 3GPP TS 29.060 [24], subclause 7.7.23.

Each octet of this IE field value is represented via 2 UTF-8 encoded digits, defining its hexadecimal representation.

14 - 3GPP-Charging Gateway IPv6 address

				Bits	5			
Octets	8	7	6	5	4	3	2	1
1		3GPP type = 14						
2		3GPP Length= 18						
3		Charging GW IPv6 addr Octet 1						
4		Charging GW IPv6 addr Octet 2						
5-18		Char	ging G\	V IPv6	addr C	Octet 3	-16	

3GPP Type: 14

Length: 18

Charging GW IPv6 address value: IPv6 Address

15 - 3GPP-SGSN IPv6 address

				Bits	8			
Octets	8	7	6	5	4	3	2	1
1		3GPP type = 15						
2		3GPP Length= 18						
3		SGSN IPv6 addr Octet 1						
4		SGSN IPv6 addr Octet 2						
5-18		S	GSN IF	v6 add	lr Octe	t 3-16		

3GPP Type: 15

Length: 18

SGSN IPv6 address value: IPv6 Address

16 - 3GPP-GGSN IPv6 address

			Bits	5			
8	7	6	5	4	3	2	1
		30	PP typ	e = 16			
	3GPP Length= 18						
	GGSN IPv6 addr Octet 1						
	GGSN IPv6 addr Octet 2						
	G	GSN IF	v6 add	dr Octe	t 3-16		
	8		3G 3GI GGSN GGSN	8 7 6 5 3GPP typ 3GPP Len GGSN IPv6 ar GGSN IPv6 ar	3GPP type = 16 3GPP Length= 17 GGSN IPv6 addr Oc GGSN IPv6 addr Oc	8 7 6 5 4 3 3GPP type = 16 3GPP Length= 18 3GPP Length= 18 3GGSN IPv6 addr Octet 1	8 7 6 5 4 3 2 3GPP type = 16 3GPP Length= 18 3GPN Length= 18 3GSN IPv6 addr Octet 1 3GSN IPv6 addr Octet 1 3GSN IPv6 addr Octet 2 3GSN IPv6 add

3GPP Type: 16

Length: 18

GGSN IPv6 address value: IPv6 Address

17 - 3GPP-IPv6-DNS-Servers

Octets	8	7	6	5	4	3	2	1
1			30	PP typ	e = 17			
2		3GPP Length= m						
3-18		(1st) DNS IPv6 addr Octet 1-16						
19-34		(2nd) DNS IPv6 addr Octet 1-16						
k-m		(n-t	h) DNS	IPv6 a	ddr Oo	tet 1-1	6	

Bits

Length: $m = n \times 16 + 2$; $n \ge 1$ and $n \le 15$; k = m-15

IPv6 DNS Server value: IPv6 AddressThe 3GPP- IPv6-DNS-Servers Attribute provides a list of one or more ('n') IPv6 addresses of Domain Name Server (DNS) servers for an APN. The DNS servers are listed in the order of preference for use by a client resolver, i.e. the first is 'Primary DNS Server', the second is 'Secondary DNS Server' etc. The attribute may be included in Access-Accept packets.

18 - 3GPP-SGSN MCC-MNC

				Bits				
Octets	8	7	6	5	4	3	2	1
1			3G	PP typ	e = 18			
2			3G	PP Len	igth= n	1		
3		MCC digit1 (UTF-8 encoded)						
4		М	CC digi	t2 (UTF	-8 end	coded)		
5		М	CC digi	t3 (UTF	-8 end	coded)		
6		MNC digit1 (UTF-8 encoded)						
7	MNC digit2 (UTF-8 encoded)							
8		MNC d	ligit3 if p	present	(UTF-	8 enco	ded)	

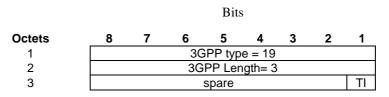
3GPP Type: 18

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

SGSN address value: text

This is the UTF-8 encoding of the RAI MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

19 - 3GPP-Teardown Indicator

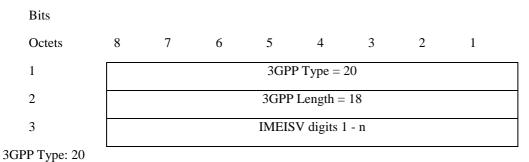


3GPP Type: 19

Length: 3

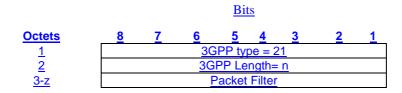
If the value of TI is set to "1", then all PDP contexts that share the same user session with the PDP context identified by the NSAPI included in the Delete PDP Context Request Message shall be torn down. Only the PDP context identified by the NSAPI included in the Delete PDP context Request shall be torn down if the value of TI is "0".

20 -3GGP- IMEISV



n = 16 where TAC = 8 digits SNR = 6 digits & SVN = 2 digits

21 - 3GPP-Packet-Filter



<u>3GPP Type: 21</u>

Length: n

Each 3GPP-Packet-Filter attribute contains only one packet filter. Multiple 3GPP-Packet-Filter attributes can be sent in one RADIUS Accounting Request -message.

When the GGSN sends the packet filter information, the RADIUS message shall carry ALL (or none) of the packet filters.

Packet Filter Value:

<u>8</u>	<u>7</u>	<u>6</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	
		<u>Pa</u>	cket filte	er identi	fier			Octet 1
	<u>Pa</u>	acket filt	er evalu	lation p	receden	ce		Octet 2
		Length of	of Pack	et filter	contents	5		Octet 3
		Direc	ction of	Packet	Filter			Octet 4
		Pa	cket filte	er conte	ents			Octet 5
								Octet m

Direction Value:

00000000: Downlink

00000001: Uplink

The packet filter content is defined below:

<u>Type</u>	Value
1: IPv4 address type	Contains the source address in case if the direction value is set to Downlink, and the destination address in case if the direction value is set to Uplink.
	shall be encoded as a sequence of a four octet <i>IPv4</i> address field and a four octet <i>IPv4 address mask</i> field. The <i>IPv4 address</i> field shall be transmitted first
2: IPv6 address type	Contains the source address-in case if the direction value is set to Downlink, and the destination address in ease if the direction value is set to Uplink.shall be encoded as a sequence of a sixteen octet IPv6 address field and a sixteen octet IPv6 address mask field. The IPv6 address field shall be transmitted first
<u>3: Protocol identifier/Next header</u> <u>type</u>	shall be encoded as one octet which specifies the IPv4 protocol identifier or IPv6 next header
4: Single destination port type	shall be encoded as two octet which specifies a port number
<u>5 : Destination port range type</u>	shall be encoded as a sequence of a two octet <i>port</i>

	<u>range low limit field and a two octet port range high</u> <u>limit field. The port range low limit field shall be</u> <u>transmitted first</u>
<u>6 : Single source port type</u>	shall be encoded as two octet which specifies a port number
7: Source port range type	<u>shall be encoded as a sequence of a two octet <i>port</i> <u>range low limit field and a two octet port range high</u> <u>limit field. The port range low limit field shall be</u> <u>transmitted first</u></u>
8: Security parameter index type (IPv6)	shall be encoded as four octet which specifies the IPSec security parameter index
9: Type of service/Traffic class type	<u>shall be encoded as a sequence of a one octet Type-of-</u> <u>Service/Traffic Class field and a one octet Type-of-</u> <u>Service/Traffic Class mask field. The Type-of-</u> <u>Service/Traffic Class field shall be transmitted first</u>
10: Flow label type (IPv6)	shall be encoded as three octets which specify the IPv6 flow label. The bits 8 through 5 of the first octet shall be spare whereas the remaining 20 bits shall contain the IPv6 flow label

Note: The sending of this attribute is not recommended for an inter-operator interface for security reason

End of Change in Clause 16.4.7

3GPP TSG-CN WG3 Meeting #34

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Tdoc N3-040847

Seoul, Korea. 15th to 19th November 2004.

			C	HA	NGE	ERE	QU	ES [.]	Т				CR-Form-v7.1
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Consequences if not approved:	ж	QoS	correla	ition m	ay be i	incons	istent.						
Clauses affected:	ж	16.4.	7										
Other specs affected:	ж	Y N X X X	Test s	core s pecific Specifi	ations		9	ß					

Other comments:

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <u>http://www.3gpp.org/specs/CR.htm</u>. 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 <u>ftp://ftp.3gpp.org/specs/</u> 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.

Change in Clause 16.4.7

16.4.7 Sub-attributes of the 3GPP Vendor-Specific attribute

Table 7 describes the sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Access-Accept, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update and Disconnect-Request messages.

Sub-attr #	Sub-attribute Name	Description	Presence Requirement	Associated attribute (Location of Sub-attr)
1	3GPP-IMSI	IMSI for this user	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
2	3GPP-Charging-Id	Charging ID for this PDP Context (this together with the GGSN- Address constitutes a unique identifier for the PDP context).	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
3	3GPP-PDP Type	Type of PDP context, e.g. IP or PPP	Conditional (mandatory if attribute 7 is present)	Access-Request Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
4	3GPP-CG-Address	Charging Gateway IP address	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
5	3GPP-GPRS- Negotiated-QoS-Profile	QoS profile applied by GGSN	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
6	3GPP-SGSN-Address	SGSN IP address that is used by the GTP control plane for the handling of control messages. It may be used to identify the PLMN to which the user is attached.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
7	3GPP-GGSN-Address 3GPP-IMSI-MCC-MNC	GGSN IP address that is used by the GTP control plane for the context establishment. It is the same as the GGSN IP address used in the GCDRs. MCC and MNC	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update Access-Request,

Table 7: List of the 3GPP Vendor-Specific sub-attributes

Sub-attr #	Sub-attribute Name	Description	Presence Requirement	Associated attribute (Location of Sub-attr)
		extracted from the user's IMSI (first 5 or 6 digits, as applicable from the presented IMSI).		Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
9	3GPP-GGSN- MCC- MNC	MCC-MNC of the network the GGSN belongs to.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
10	3GPP-NSAPI	Identifies a particular PDP context for the associated PDN and MSISDN/IMSI from creation to deletion.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP Accounting-Request Interim-Update
11	3GPP- Session-Stop- Indicator	Indicates to the AAA server that the last PDP context of a session is released and that the PDP session has been terminated.	Optional	Accounting Request STOP
12	3GPP- Selection-Mode	Contains the Selection mode for this PDP Context received in the Create PDP Context Request Message	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
13	3GPP-Charging- Characteristics	Contains the charging characteristics for this PDP Context received in the Create PDP Context Request Message (only available in R99 and later releases)	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
14	3GPP-CG-IPv6- Address	Charging Gateway IPv6 address	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
15	3GPP-SGSN-IPv6- Address	SGSN IPv6 address that is used by the GTP control plane for the handling of control messages. It may be used to identify the PLMN to which the user is attached.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
16	3GPP-GGSN-IPv6- Address	GGSN IPv6 address that is used by the GTP control plane for	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP,

Sub-attr #	Sub-attribute Name	Description	Presence Requirement	Associated attribute (Location of Sub-attr)
		the context establishment.		Accounting-Request Interim-Update
17	3GPP- IPv6-DNS- Servers	List of IPv6 addresses of DNS servers for an APN	Optional	Access-Accept
18	3GPP-SGSN-MCC- MNC	MCC and MNC extracted from the RAI within the Create PDP Context Request or Update PDP Context Request message.	Optional	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update
19	3GPP-Teardown- Indicator	Indicate to the GGSN that all PDP contexts for this particular user and sharing the same user session need to be deleted.	Optional	Disconnect Request
20	3GPP-IMEISV	International Mobile Equipment Id and its Software Version	Optional	Accounting-Request START, Access- Request
22	<u>3GPP-Negotiated-</u> DSCP	DSCP used to mark the IP packets of this PDP context on the Gi interface	<u>Optional</u>	Access-Request, Accounting-Request START, Accounting- Request STOP, Accounting-Request Interim-Update

The RADIUS vendor Attribute is encoded as follows (as per RFC 2865 [38])

Bits

Octets	8	7	6	5	4	3	2	1
1				Type =	= 26			
2				Length	= n			
3			Vei	ndor id	octet 1			
4			Vei	ndor id	octet 2			
5			Vei	ndor id	octet 3	5		
6			Vei	ndor id	octet 4			
7-n				Strin	g			

$n \ge 7$

3GPP Vendor Id = 10415

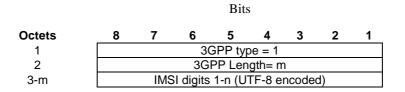
The string part is encoded as follows:

Bits

Octets	8	7	6	5	4	3	2	1
1			3	GPP ty	/pe =			
2			3GI	PP Len	gth = n	n		
3 –m				3GPP v	alue			

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-*IMSI*



3GPP Type: 1

n ≤15

Length: $m \le 17$

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24]. There shall be no padding characters between the MCC and MNC, and between the MNC and MSIN. If the IMSI is less than 15 digits, the padding in the GTP information element shall be removed by the GGSN and not encoded in this sub-attribute.

2 - 3GPP-Charging ID

				Bits	S			
Octets	8	7	6	5	4	3	2	1
1			30	GPP ty	pe = 2			
2			3G	PP Ler	ngth= 6			
3			Chargir	ng ID va	alue Oc	tet 1		
4			Chargir	ng ID va	alue Oc	tet 2		
5			Chargir	ng ID va	alue Oc	tet 3		
6			Chargir	ng ID va	alue Oc	tet 4		

3GPP Type: 2

Length: 6

Charging ID value: 32 bits unsigned integer

3 - 3GPP-PDP type

Bits

Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 3			
2			3G	PP Ler	ngth= 6			
3			PD	P type	octet 1			
4			PD	P type	octet 2			
5			PD	P type	octet 3			
6			PD	P type	octet 4			

3GPP Type: 3

Length: 6

PDP type value: Unsigned 32 bits integer

PDP type octet possible values:

0 = IPv4

1 = PPP

$$2 = IPv6$$

4 - 3GPP-Charging Gateway address

Bits

Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 4			
2			3G	PP Ler	ngth= 6	;		
3		C	Chargin	g GW a	addr O	ctet 1		
4		C	Chargin	g GW a	addr O	ctet 2		
5		C	Chargin	g GW a	addr O	ctet 3		
6		0	Chargin	g GW a	addr O	ctet 4		

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-GPRS Negotiated QoS profile

				Bits	8			
Octets	8	7	6	5	4	3	2	1
1			30	GPP ty	pe = 5			
2			3G	PP Ler	ngth= L	-		
3 -L		ι	JTF-8 e	ncodec	d QoS I	orofile		

D:4-

3GPP Type: 5

Length: $L \le 33$ (release 5) or $L \le 27$ (release 99) or L = 11 (release 98)

QoS profile value: Text

UTF-8 encoded QoS profile syntax:

"<Release indicator> - <release specific QoS IE UTF-8 encoding>"

<Release indicator> = UTF-8 encoded number :

"98" = Release 98

"99"= Release 99

"05"= Release 5

<release specific QoS profile UTF-8 encoding> = UTF-8 encoded QoS profile for the release indicated by the release indicator.

The UTF-8 encoding of a QoS IE is defined as follows: each octet is described by 2 UTF-8 encoded digits, defining its hexadecimal representation. The QoS profile definition is in 3GPP TS 24.008 [54].

The release 98 QoS profile data is 3 octets long, which then results in a 6 octets UTF-8 encoded string.

The release 99 QoS profile data is 11 octets long, which results in a 22 octets UTF-8 encoded string.

The release 5 QoS profile data is 14 octets long, which results in a 28 octets UTF-8 encoded string.

6 - 3GPP-SGSN address

Bits

Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 6			
2			3G	PP Ler	igth= 6			
3			SGS	SN addr	Octet	1		
4			SGS	SN addr	Octet	2		
5			SGS	SN addr	Octet	3		
6			SGS	SN addr	Octet	4		

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-GGSN address

Octets	8	7	6	5	4	3	2	1
1			30	GPP typ	be = 7			
2			3G	PP Ler	ngth= 6			
3			GGS	SN addi	[·] Octet	1		
4			GGS	SN addi	^r Octet	2		
5			GGS	SN addi	[·] Octet	3		
6			GGS	SN addi	Octet	4		

Bits

3GPP Type: 7

Length: 6

GGSN address value: Address

8 - 3GPP-IMSI MCC-MNC

				Bits	5					
Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 8								
2		3GPP Length= n								
3		MCC digit1 (UTF-8 encoded)								
4		М	CC digi	t2 (UTI		coded)				
5		Μ	CC digi	t3 (UTF		coded)				
6		Μ	NC digi	t1 (UTF		coded)				
7		М	NC digi	t2 (UTI		coded)				
8		MNC d	ligit3 if p	present	(UTF-	8 enco	ded)			

3GPP Type: 8

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

MS address value: text

This is the UTF-8 encoding of the MS MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

9 - 3GPP-GGSN MCC-MNC

Bits

Octets	8	7	6	5	4	3	2	1			
1			30	SPP typ	be = 9						
2		3GPP Length= n									
3		MCC digit1 (UTF-8 encoded)									
4		MCC digit2 (UTF-8 encoded)									
5		Μ	CC digi	t3 (UTF	-8 en	coded)					
6		Μ	NC digi	t1 (UTF	-8 en	coded)					
7		MNC digit2 (UTF-8 encoded)									
8		MNC c	ligit3 if p	resent	(UTF-	8 enco	ded)				

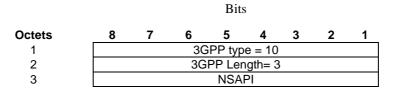
3GPP Type: 9

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

GGSN address value: text

This is the UTF-8 encoding of the GGSN MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

10 - 3GPP-NSAPI



3GPP Type: 10

Length: 3

NSAPI value: text

It is the value of the NSAPI of the PDP context the RADIUS message is related to. It is encoded as its hexadecimal representation, using 1UTF-8 encoded digit.

11 - 3GPP-Session Stop Indicator

	Bits									
Octets	8	7	6	5	4	3	2	1		
1			3G	PP typ	e = 11					
2			3G	PP Ler	ngth= 3					
3		1111111								

3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 12								
2		3GPP Length= 1								
3		UTF-8	encode	ed Sele	ection n	node s	tring			

Bits

3GPP Type: 12

Length: 3

Selection mode value: Text

The format of this attribute shall be a character string consisting of a single digit, mapping from the binary value of the selection mode in the Create PDP Context message (3GPP TS 29.060 [24]). Where 3GPP TS 29.060 [24] provides for interpretation of the value, e.g. map '3' to '2', this shall be done by the GGSN.

13 - 3GPP-Charging-Characteristics

				Bits	5					
Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 13								
2		3GPP Length= 6								
3-6	UTF	UTF-8 encoded Charging Characteristics value								

3GPP Type: 13

Length: 6

Charging characteristics value: Text

The charging characteristics is value is the value of the 2 octets value field taken from the GTP IE described in 3GPP TS 29.060 [24], subclause 7.7.23.

Each octet of this IE field value is represented via 2 UTF-8 encoded digits, defining its hexadecimal representation.

14 - 3GPP-Charging Gateway IPv6 address

				Dite	,					
Octets	8	7	6	5	4	3	2	1		
1		3GPP type = 14								
2		3GPP Length= 18								
3		Ch	arging (GW IPv	6 addr	Octet	1			
4		Charging GW IPv6 addr Octet 2								
5-18		Char	ging G\	V IPv6	addr C	Octet 3	-16			

Rite

3GPP Type: 14

Length: 18

Charging GW IPv6 address value: IPv6 Address

15 - 3GPP-SGSN IPv6 address

	Bits										
Octets	8	7	6	5	4	3	2	1			
1		3GPP type = 15									
2			3GI	P Len	gth= 18	8					
3			SGSN	IPv6 ad	ddr Oc	tet 1					
4		SGSN IPv6 addr Octet 2									
5-18		S	GSN IF	v6 add	Ir Octe	t 3-16					

3GPP Type: 15

Length: 18

SGSN IPv6 address value: IPv6 Address

16 - 3GPP-GGSN IPv6 address

		Bits									
Octets	8	7	6	5	4	3	2	1			
1		3GPP type = 16									
2			3G	PP Len	gth= 18	8					
3			GGSN	IPv6 a	ddr Oc	tet 1					
4		GGSN IPv6 addr Octet 2									
5-18		Ģ	GSN II	Pv6 add	dr Octe	t 3-16					

3GPP Type: 16

Length: 18

GGSN IPv6 address value: IPv6 Address

17 - 3GPP-IPv6-DNS-Servers

Octets	8	7	6	5	4	3	2	1		
1	3GPP type = 17									
2	3GPP Length= m									
3-18		(1s	t) DNS	IPv6 a	ddr Oc	tet 1-1	6			
19-34	(2nd) DNS IPv6 addr Octet 1-16									
k-m		(n-t	h) DNS	i IPv6 a	ddr Oo	ctet 1-1	6			

Bits

3GPP Type: 17

Length: $m = n \times 16 + 2$; $n \ge 1$ and $n \le 15$; k = m-15

IPv6 DNS Server value: IPv6 AddressThe 3GPP- IPv6-DNS-Servers Attribute provides a list of one or more ('n') IPv6 addresses of Domain Name Server (DNS) servers for an APN. The DNS servers are listed in the order of preference for use by a client resolver, i.e. the first is 'Primary DNS Server', the second is 'Secondary DNS Server' etc. The attribute may be included in Access-Accept packets.

18 - 3GPP-SGSN MCC-MNC

		Dits									
Octets	8	7	6	5	4	3	2	1			
1		3GPP type = 18									
2		3GPP Length= n									
3		MCC digit1 (UTF-8 encoded)									
4		М	CC digi	t2 (UTF	-8 end	coded)					
5		М	CC digi	t3 (UTF	-8 end	coded)					
6		М	NC digi	t1 (UTF	-8 end	coded)					
7		М	NC digi	t2 (UTF	-8 end	coded)					
8		MNC d	ligit3 if p	present	(UTF-	8 enco	ded)				

Dite

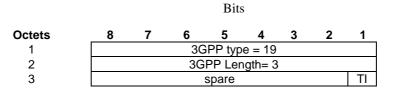
3GPP Type: 18

Length: n shall be 7 or 8 octets depending on the presence of MNC digit 3

SGSN address value: text

This is the UTF-8 encoding of the RAI MCC-MNC values. In accordance with 3GPP TS 23.003 [40] and 3GPP TS 29.060 [24] the MCC shall be 3 digits and the MNC shall be either 2 or 3 digits. There shall be no padding characters between the MCC and MNC.

19 - 3GPP-Teardown Indicator

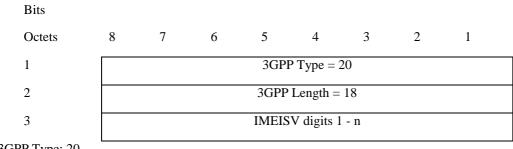


3GPP Type: 19

Length: 3

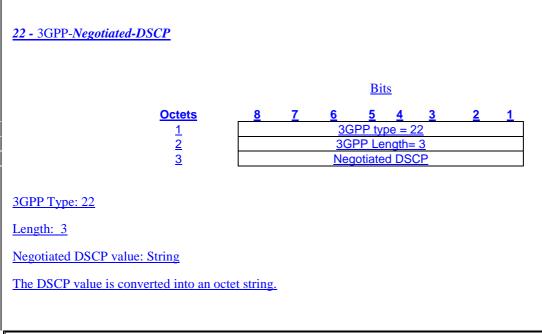
If the value of TI is set to "1", then all PDP contexts that share the same user session with the PDP context identified by the NSAPI included in the Delete PDP Context Request Message shall be torn down. Only the PDP context identified by the NSAPI included in the Delete PDP context Request shall be torn down if the value of TI is "0".

20 -3GGP- IMEISV



3GPP Type: 20

n = 16 where TAC = 8 digits SNR = 6 digits & SVN = 2 digits



End of Change in Clause 16.4.7