3GPP TSG CN Plenary Meeting #18 **NP-020613**
4th - 6th December 2002. New Orleans, USA.

Source: TSG CN WG3

Title: CRs on R97 Work Item TEI [GPRS], [CR Pack 1]

Agenda item: 7.3

Document for: APPROVAL

Introduction:

This document contains **8** CRs on **R97 WI TEI [GPRS],** including the corresponding mirror CRs (as required).

These CRs have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary meeting #18 for approval.

WG_tdoc	Title	Spec	CR	Rev	Cat	Rel	Version
N3-021005	RADIUS enhancement for identification of VPLMN	09.61	A039	1	F	R97	6.8.0
N3-021006	RADIUS enhancement for identification of VPLMN	09.61	A040	1	A	R98	7.7.0
N3-020920	RADIUS enhancement for identification of VPLMN	29.061	070		A	R99	3.10.0
N3-020921	RADIUS enhancement for identification of VPLMN	29.061	071		A	Rel-4	4.5.0
N3-020922	RADIUS enhancement for identification of VPLMN	29.061	072		A	Rel-5	5.3.0
N3-020769	Correction of Radius Accounting Update figure	29.061	064		F	R99	3.10.0
N3-020770	Correction of Radius Accounting Update figure	29.061	065		A	Rel-4	4.5.0
N3-020771	Correction of Radius Accounting Update figure	29.061	066		A	Rel-5	5.3.0

3GPP TSG-CN WG3 Meeting #25
Miami, USA, 23rd - 27th September 2002.

Tdoc ⌘N3-020769

CR-Form-v7

CHANGE REQUEST

⌘ **29.061** **CR** **064** ⌘ **rev** **-** ⌘ Current version: **3.10.0** ⌘

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

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

Title:	⌘	Correction of figure for Radius Accounting Update
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	15/09/2002
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The figure in subclause 16.3.3 has in the latest release been replaced by the same figure as in subclause 16.3.4. It should be an editorial copy-and-paste error.
Summary of change:	⌘	Replace the figure with the one from previous release, modified to fit updated text.
Consequences if not approved:	⌘	Erroneous specification

Clauses affected:	⌘	16.3.3

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

⌘

Other comments: ⌘

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

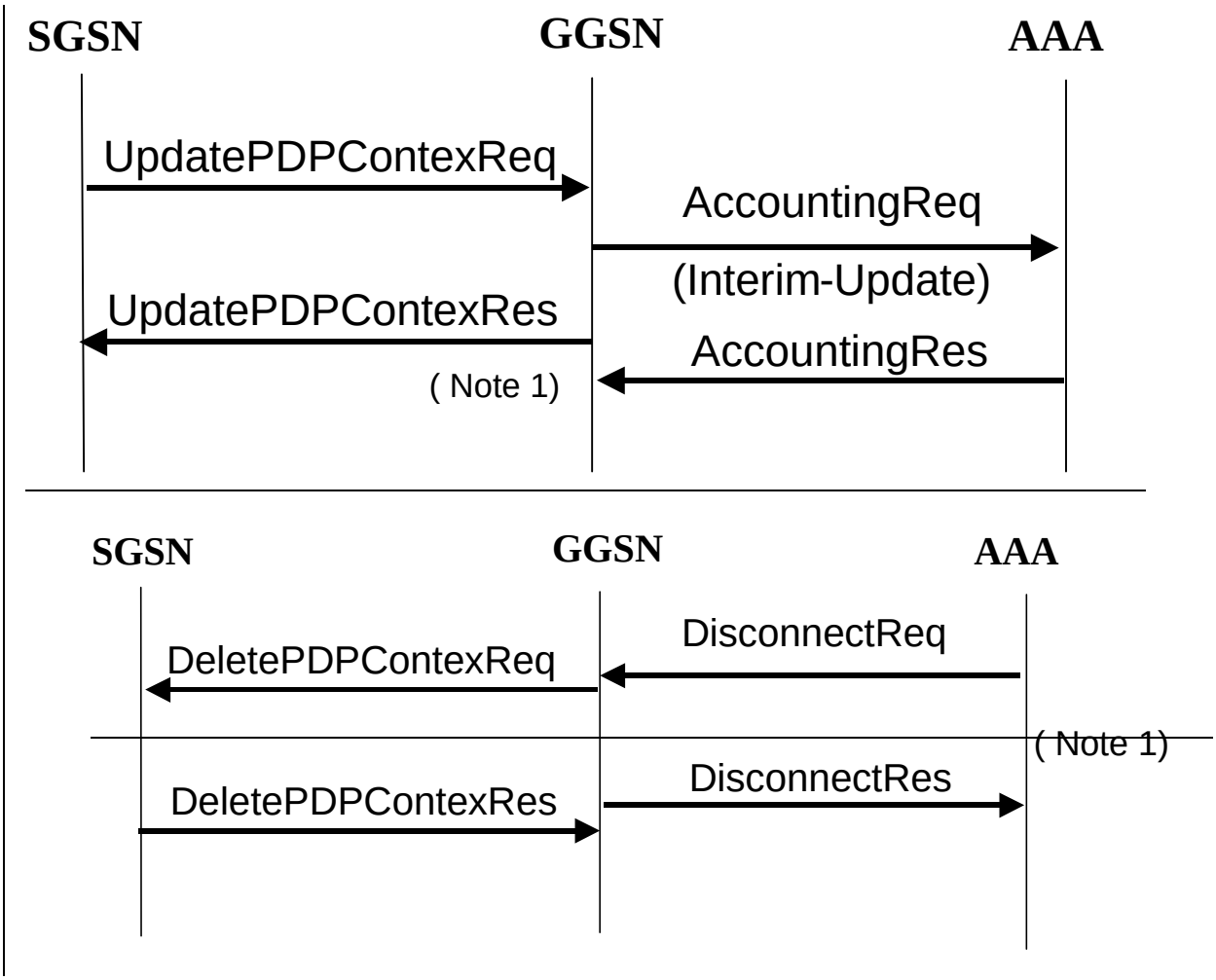
1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

16.3.3 Accounting Update

During the life of a PDP context some information related to this PDP context may change (i.e. SGSN address if a Inter-SGSN RA update occurs). Upon reception of an UpdatePDPContextRequest from the SGSN, the GGSN may send an Accounting Request Interim-Update to the AAA server to update the necessary information related to this PDP context (See Figure 24). In such a case, the GGSN need not wait for the RADIUS AccountingResponse from the AAA server message before sending the UpdatePDPContextResponse to the SGSN. The GGSN may delete the PDP context if the AccountingResponse is not received from the AAA.



Note 1: As shown the GGSN need not wait for the RADIUS AccountingResponse from the AAA server message to send the UpdatePDPContextResponse to the SGSN. The GGSN may delete the PDP context if the AccountingResponse is not received from the AAA.

Figure 24: RADIUS for PDP context Update

End of modified section

3GPP TSG-CN WG3 Meeting #25
Miami, USA, 23rd - 27th September 2002.

Tdoc ⌘N3-020770

CR-Form-v7

CHANGE REQUEST

⌘ **29.061** **CR** **065** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

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

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

Title:	⌘	Correction of figure for Radius Accounting Update
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	15/09/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The figure in subclause 16.3.3 has in the latest release been replaced by the same figure as in subclause 16.3.4. It should be an editorial copy-and-paste error.
Summary of change:	⌘	Replace the figure with the one from previous release, modified to fit updated text.
Consequences if not approved:	⌘	Erroneous specification

Clauses affected:	⌘	16.3.3

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

Other comments:	⌘	

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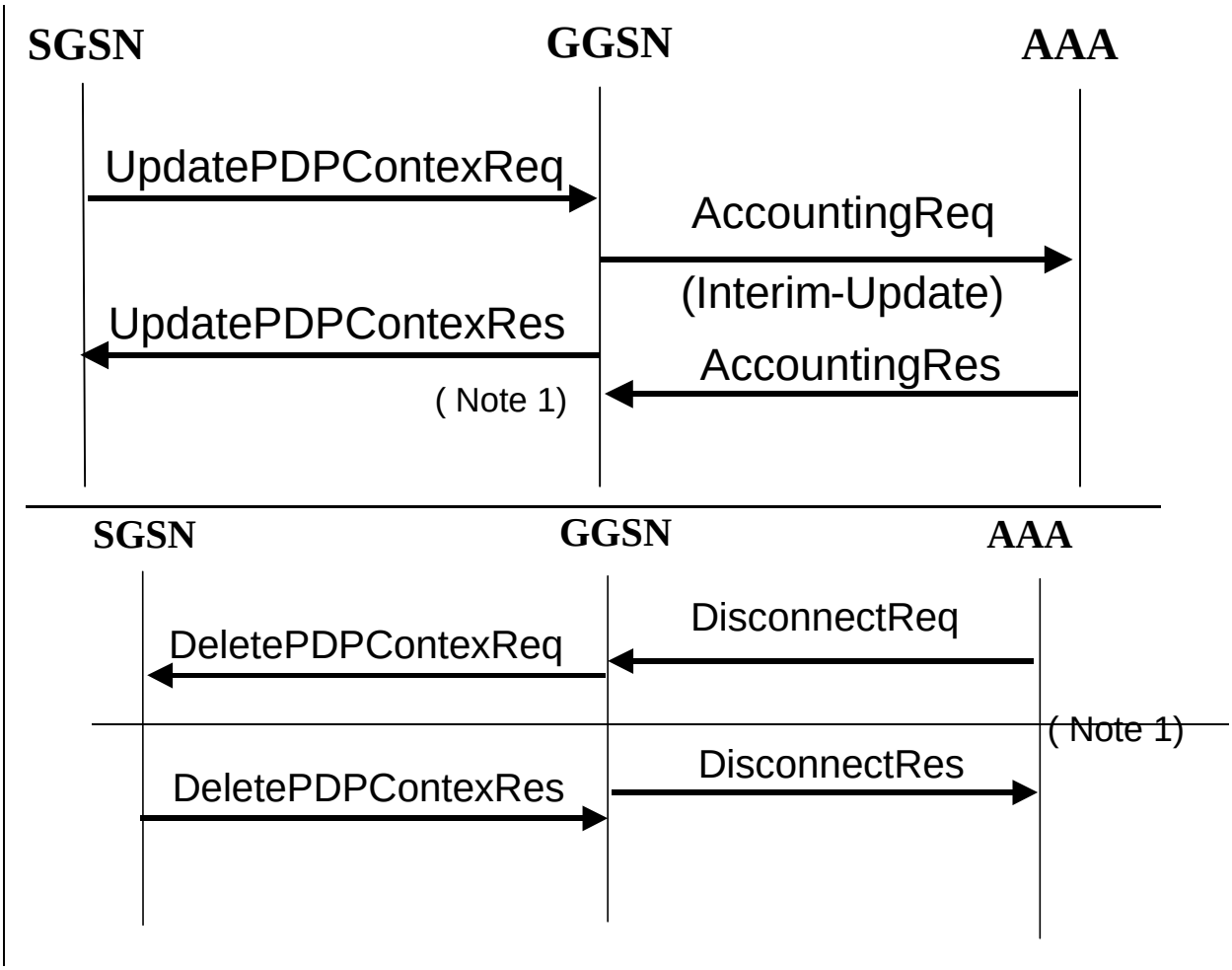

Note 1: As shown the GGSN need not wait for the RADIUS AccountingResponse from the AAA server message to send the UpdatePDPContextResponse to the SGSN. The GGSN may delete the PDP context if the AccountingResponse is not received from the AAA.

Figure 24: RADIUS for PDP context Update

End of modified section

3GPP TSG-CN WG3 Meeting #25
Miami, USA, 23rd - 27th September 2002.

Tdoc ⌘N3-020771

CR-Form-v7

CHANGE REQUEST

⌘ **29.061** **CR** **066** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

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

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

Title:	⌘	Correction of figure for Radius Accounting Update
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	15/09/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The figure in subclause 16.3.3 has in the latest release been replaced by the same figure as in subclause 16.3.4. It should be an editorial copy-and-paste error.
Summary of change:	⌘	Replace the figure with the one from previous release, modified to fit updated text.
Consequences if not approved:	⌘	Erroneous specification

Clauses affected:	⌘	16.3.3			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	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.

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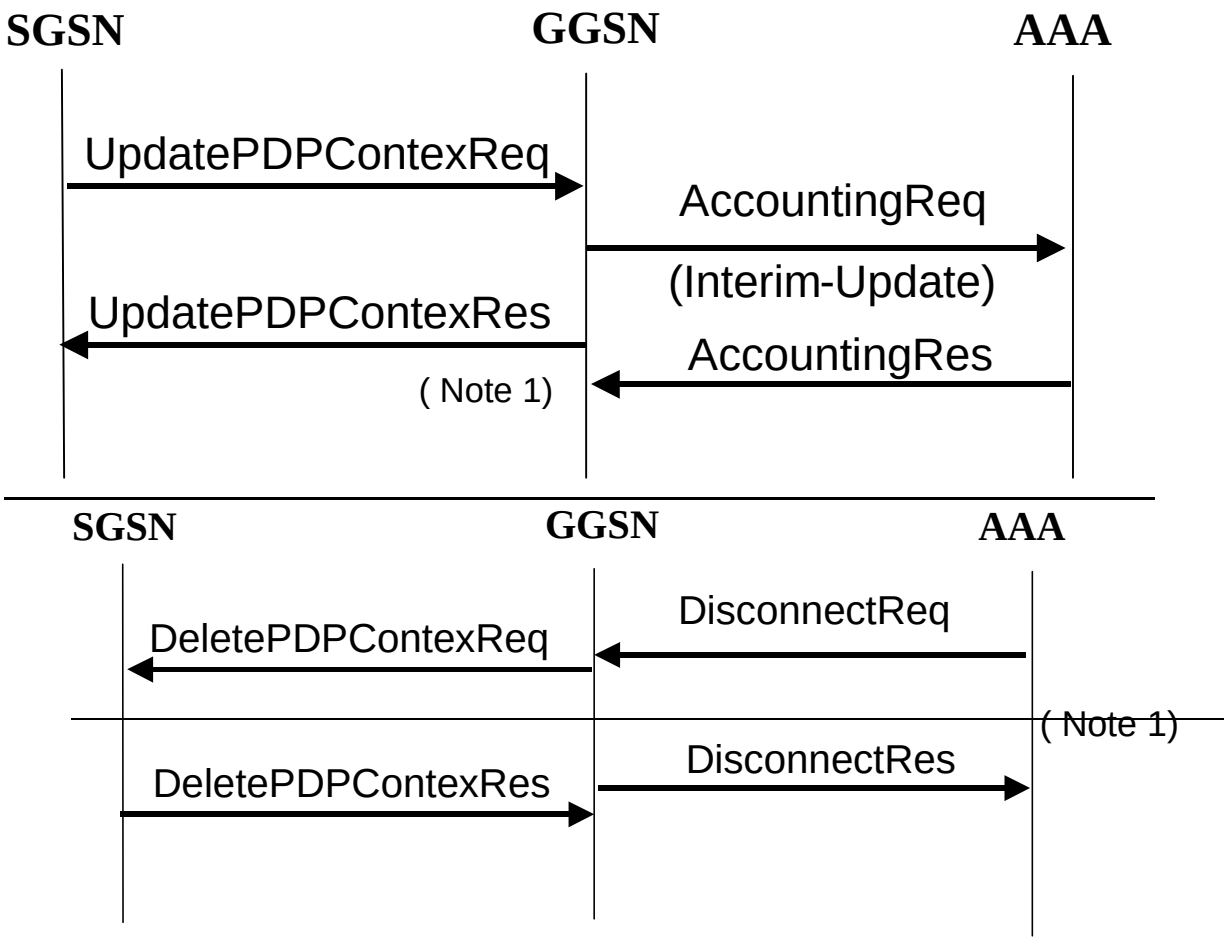

Note 1: As shown the GGSN need not wait for the RADIUS AccountingResponse from the AAA server message to send the UpdatePDPContextResponse to the SGSN. The GGSN may delete the PDP context if the AccountingResponse is not received from the AAA.

Figure 24: RADIUS for PDP context Update

End of modified section

3GPP TSG-CN WG3 Meeting #26 ***Tdoc ⌘N3-020920***
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **29.061** **CR** **070** ⌘ **rev** **-** ⌘ Current version: **3.10.0** ⌘

*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:	⌘	RADIUS enhancement for identification of VPLMN
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	05/11/2002
Category:	⌘	**A**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	GPRS network operators in most countries are required to operate within the legal constraints as defined by the appropriate regulatory bodies. Once such legal constraint is the nature of content that is permissible in certain countries. In order for network operators to comply with the regulatory demands regarding the nature of content, the network operator will need the capability to perform policing of a subscriber's requseted content before allowing a content download.
Summary of change:	⌘	Definition of a new RADIUS 3GPP Vendor-specific attribute
Consequences if not approved:	⌘	Operators will not be able to comply with the regulatory demands in those countries which impose restrictions on the content available to users of internet access.

Clauses affected:	⌘	16.4.7

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

⌘

Other comments: ⌘

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

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

Table 7: The sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Accounting-Request START, Accounting-Request STOP and Accounting-Request Interim-Update 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	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	Optional	Access-Request, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

		IMSI).		
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 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-	MCC and MNC	Optional	Access-Request,

	MNC	extracted from the RAI within the Create PDP Context Request or Update PDP Context Request message.		Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

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

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 26							
2	Length = n							
3	Vendor id octet 1							
4	Vendor id octet 2							
5	Vendor id octet 3							
6	Vendor id octet 4							
7-n	String							

n>=7

3GPP Vendor Id = 10415

The string part is encoded as follows:

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type =							
2	3GPP Length = m							
3 –m	3GPP value							

m>=2 and m<= 248

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-*IMSI*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 1							
2	3GPP Length= m							
3-m	IMSI digits 1-n (UTF-8 encoded)							

3GPP Type: 1

n <=15

Length: m =17

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with [24] and [41]. 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

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 2							
2	3GPP Length= 6							
3	Charging ID value Octet 1							
4	Charging ID value Octet 2							
5	Charging ID value Octet 3							
6	Charging ID value Octet 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	3GPP type = 3							
2	3GPP Length= 6							
3	PDP type octet 1							
4	PDP type octet 2							
5	PDP type octet 3							
6	PDP 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	3GPP type = 4							
2	3GPP Length= 6							
3	Charging GW addr Octet 1							
4	Charging GW addr Octet 2							
5	Charging GW addr Octet 3							
6	Charging GW addr Octet 4							

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-*GPRS Negotiated QoS profile*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 5							
2	3GPP Length= L							
3 -L	UTF-8 encoded QoS profile							

3GPP Type: 5

Length: 27 (release 99) or 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

<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 3G TS 24.008

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.

6 - 3GPP-*SGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 6							
2	3GPP Length= 6							
3	SGSN addr Octet 1							
4	SGSN addr Octet 2							
5	SGSN addr Octet 3							
6	SGSN addr Octet 4							

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-*GGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 7							
2	3GPP Length= 6							
3	GGSN addr Octet 1							
4	GGSN addr Octet 2							
5	GGSN addr Octet 3							
6	GGSN addr Octet 4							

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	3GPP type = 8							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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	3GPP type = 9							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 10							
2	3GPP Length= 3							
3	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	3GPP type = 11							
2	3GPP Length= 3							
3	1 1 1 1 1 1 1 1							

3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 12							
2	3GPP Length= 1							
3	UTF-8 encoded Selection mode string							

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 [24]. Where TS 29.060 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	3GPP Length= 6							
3-6	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 29.060section 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	3GPP type = 14							
2	3GPP Length= 18							
3	Charging GW IPv6 addr Octet 1							
4	Charging GW IPv6 addr Octet 2							
5-18	Charging GW IPv6 addr Octet 3-16							

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	3GPP Length= 18							
3	SGSN IPv6 addr Octet 1							
4	SGSN IPv6 addr Octet 2							
5-18	SGSN IPv6 addr Octet 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	3GPP Length= 18							
3	GGSN IPv6 addr Octet 1							
4	GGSN IPv6 addr Octet 2							
5-18	GGSN IPv6 addr Octet 3-16							

3GPP Type: 16

Length: 18

GGSN IPv6 address value: IPv6 Address

17 - 3GPP-*IPv6-DNS-Servers*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 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-th) DNS IPv6 addr Octet 1-16							

3GPP Type: 17

Length: m = n*16 + 2; n>=1 and n<=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	3GPP type = 18							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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.

3GPP TSG-CN WG3 Meeting #26 ***Tdoc ⌘N3-020921***
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **29.061** **CR** **071** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*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 **X**

Title:	⌘	RADIUS enhancement for identification of VPLMN
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	05/11/2002
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	GPRS network operators in most countries are required to operate within the legal constraints as defined by the appropriate regulatory bodies. Once such legal constraint is the nature of content that is permissible in certain countries. In order for network operators to comply with the regulatory demands regarding the nature of content, the network operator will need the capability to perform policing of a subscriber's requseted content before allowing a content download.
Summary of change:	⌘	Definition of a new RADIUS 3GPP Vendor-specific attribute
Consequences if not approved:	⌘	Operators will not be able to comply with the regulatory demands in those countries which impose restrictions on the content available to users of internet access.

Clauses affected:	⌘	16.4.7

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

⌘

Other comments: ⌘

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

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

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

Table 7: The sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Accounting-Request START, Accounting-Request STOP and Accounting-Request Interim-Update 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	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	Optional	Access-Request, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

		IMSI).		
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 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-	MCC and MNC	Optional	Access-Request,

	MNC	extracted from the RAI within the Create PDP Context Request or Update PDP Context Request message.		Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

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

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 26							
2	Length = n							
3	Vendor id octet 1							
4	Vendor id octet 2							
5	Vendor id octet 3							
6	Vendor id octet 4							
7-n	String							

n>=7

3GPP Vendor Id = 10415

The string part is encoded as follows:

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type =							
2	3GPP Length = m							
3 –m	3GPP value							

m>=2 and m<= 248

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-*IMSI*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 1							
2	3GPP Length= m							
3-m	IMSI digits 1-n (UTF-8 encoded)							

3GPP Type: 1

n <=15

Length: m =17

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with [24] and [41]. 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

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 2							
2	3GPP Length= 6							
3	Charging ID value Octet 1							
4	Charging ID value Octet 2							
5	Charging ID value Octet 3							
6	Charging ID value Octet 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	3GPP type = 3							
2	3GPP Length= 6							
3	PDP type octet 1							
4	PDP type octet 2							
5	PDP type octet 3							
6	PDP 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	3GPP type = 4							
2	3GPP Length= 6							
3	Charging GW addr Octet 1							
4	Charging GW addr Octet 2							
5	Charging GW addr Octet 3							
6	Charging GW addr Octet 4							

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-*GPRS Negotiated QoS profile*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 5							
2	3GPP Length= L							
3 -L	UTF-8 encoded QoS profile							

3GPP Type: 5

Length: 27 (release 99) or 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

<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 3G TS 24.008

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.

6 - 3GPP-*SGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 6							
2	3GPP Length= 6							
3	SGSN addr Octet 1							
4	SGSN addr Octet 2							
5	SGSN addr Octet 3							
6	SGSN addr Octet 4							

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-*GGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 7							
2	3GPP Length= 6							
3	GGSN addr Octet 1							
4	GGSN addr Octet 2							
5	GGSN addr Octet 3							
6	GGSN addr Octet 4							

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	3GPP type = 8							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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	3GPP type = 9							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 10							
2	3GPP Length= 3							
3	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	3GPP type = 11							
2	3GPP Length= 3							
3	1 1 1 1 1 1 1 1							

3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 12							
2	3GPP Length= 1							
3	UTF-8 encoded Selection mode string							

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 [24]. Where TS 29.060 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	3GPP Length= 6							
3-6	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 29.060section 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	3GPP type = 14							
2	3GPP Length= 18							
3	Charging GW IPv6 addr Octet 1							
4	Charging GW IPv6 addr Octet 2							
5-18	Charging GW IPv6 addr Octet 3-16							

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	3GPP Length= 18							
3	SGSN IPv6 addr Octet 1							
4	SGSN IPv6 addr Octet 2							
5-18	SGSN IPv6 addr Octet 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	3GPP Length= 18							
3	GGSN IPv6 addr Octet 1							
4	GGSN IPv6 addr Octet 2							
5-18	GGSN IPv6 addr Octet 3-16							

3GPP Type: 16

Length: 18

GGSN IPv6 address value: IPv6 Address

17 - 3GPP-*IPv6-DNS-Servers*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 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-th) DNS IPv6 addr Octet 1-16							

3GPP Type: 17

Length: m = n*16 + 2; n>=1 and n<=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	3GPP type = 18							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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.

3GPP TSG-CN WG3 Meeting #26 **Tdoc ⌘N3-020922**
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **29.061** **CR** **072** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	RADIUS enhancement for identification of VPLMN
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	05/11/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	GPRS network operators in most countries are required to operate within the legal constraints as defined by the appropriate regulatory bodies. Once such legal constraint is the nature of content that is permissible in certain countries. In order for network operators to comply with the regulatory demands regarding the nature of content, the network operator will need the capability to perform policing of a subscriber's requseted content before allowing a content download.
Summary of change:	⌘	Definition of a new RADIUS 3GPP Vendor-specific attribute
Consequences if not approved:	⌘	Operators will not be able to comply with the regulatory demands in those countries which impose restrictions on the content available to users of internet access.

Clauses affected:	⌘	16.4.7

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

⌘

Other comments: ⌘

How to create CRs using this form:
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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.

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

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

Table 7: The sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Accounting-Request START, Accounting-Request STOP and Accounting-Request Interim-Update 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	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	Optional	Access-Request, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

		IMSI).		
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 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-	MCC and MNC	Optional	Access-Request,

	MNC	extracted from the RAI within the Create PDP Context Request or Update PDP Context Request message.		Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

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

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 26							
2	Length = n							
3	Vendor id octet 1							
4	Vendor id octet 2							
5	Vendor id octet 3							
6	Vendor id octet 4							
7-n	String							

n>=7

3GPP Vendor Id = 10415

The string part is encoded as follows:

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type =							
2	3GPP Length = m							
3 –m	3GPP value							

m>=2 and m<= 248

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-*IMSI*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 1							
2	3GPP Length= m							
3-m	IMSI digits 1-n (UTF-8 encoded)							

3GPP Type: 1

n <=15

Length: m =17

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with [24] and [41]. 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

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 2							
2	3GPP Length= 6							
3	Charging ID value Octet 1							
4	Charging ID value Octet 2							
5	Charging ID value Octet 3							
6	Charging ID value Octet 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	3GPP type = 3							
2	3GPP Length= 6							
3	PDP type octet 1							
4	PDP type octet 2							
5	PDP type octet 3							
6	PDP 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	3GPP type = 4							
2	3GPP Length= 6							
3	Charging GW addr Octet 1							
4	Charging GW addr Octet 2							
5	Charging GW addr Octet 3							
6	Charging GW addr Octet 4							

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-*GPRS Negotiated QoS profile*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 5							
2	3GPP Length= L							
3 -L	UTF-8 encoded QoS profile							

3GPP Type: 5

Length: 27 (release 99) or 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

<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 3G TS 24.008

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.

6 - 3GPP-*SGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 6							
2	3GPP Length= 6							
3	SGSN addr Octet 1							
4	SGSN addr Octet 2							
5	SGSN addr Octet 3							
6	SGSN addr Octet 4							

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-*GGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 7							
2	3GPP Length= 6							
3	GGSN addr Octet 1							
4	GGSN addr Octet 2							
5	GGSN addr Octet 3							
6	GGSN addr Octet 4							

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	3GPP type = 8							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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	3GPP type = 9							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 10							
2	3GPP Length= 3							
3	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	3GPP type = 11							
2	3GPP Length= 3							
3	1 1 1 1 1 1 1 1							

3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 12							
2	3GPP Length= 1							
3	UTF-8 encoded Selection mode string							

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 [24]. Where TS 29.060 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	3GPP Length= 6							
3-6	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 29.060section 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	3GPP type = 14							
2	3GPP Length= 18							
3	Charging GW IPv6 addr Octet 1							
4	Charging GW IPv6 addr Octet 2							
5-18	Charging GW IPv6 addr Octet 3-16							

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	3GPP Length= 18							
3	SGSN IPv6 addr Octet 1							
4	SGSN IPv6 addr Octet 2							
5-18	SGSN IPv6 addr Octet 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	3GPP Length= 18							
3	GGSN IPv6 addr Octet 1							
4	GGSN IPv6 addr Octet 2							
5-18	GGSN IPv6 addr Octet 3-16							

3GPP Type: 16

Length: 18

GGSN IPv6 address value: IPv6 Address

17 - 3GPP-*IPv6-DNS-Servers*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 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-th) DNS IPv6 addr Octet 1-16							

3GPP Type: 17

Length: m = n*16 + 2; n>=1 and n<=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	3GPP type = 18							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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.

3GPP TSG-CN WG3 Meeting #26 **Tdoc ⌘N3-021005**
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **09.61** **CR** **A039** ⌘ **rev** **1** ⌘ Current version: **6.8.0** ⌘

*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 **X**

Title:	⌘	RADIUS enhancement for identification of VPLMN
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	14/11/2002
Category:	⌘	**F**
Release:	⌘	R97

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	GPRS network operators in most countries are required to operate within the legal constraints as defined by the appropriate regulatory bodies. Once such legal constraint is the nature of content that is permissible in certain countries. In order for network operators to comply with the regulatory demands regarding the nature of content, the network operator will need the capability to perform policing of a subscriber's requseted content before allowing a content download.
Summary of change:	⌘	Definition of a new RADIUS 3GPP Vendor-specific attribute
Consequences if not approved:	⌘	Operators will not be able to comply with the regulatory demands in those countries which impose restrictions on the content available to users of internet access.

Clauses affected:	⌘	16.4.7

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

⌘

Other comments: ⌘

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

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

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

Table 7: The sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Accounting-Request START, Accounting-Request STOP and Accounting-Request Interim-Update 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	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	Optional	Access-Request, Accounting-Request START, Accounting-Request STOP, Accounting-Request Interim-Update

		IMSI).		
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
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

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

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 26							
2	Length = n							
3	Vendor id octet 1							
4	Vendor id octet 2							
5	Vendor id octet 3							
6	Vendor id octet 4							
7-n	String							

n>=7

3GPP Vendor Id = 10415

The string part is encoded as follows:

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type =							
2	3GPP Length = m							
3 –m	3GPP value							

m>=2 and m<= 248

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-*IMSI*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 1							
2	3GPP Length= m							
3-m	IMSI digits 1-n (UTF-8 encoded)							

3GPP Type: 1

n <=15

Length: m <=17

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with [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

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 2							
2	3GPP Length= 6							
3	Charging ID value Octet 1							
4	Charging ID value Octet 2							
5	Charging ID value Octet 3							
6	Charging ID value Octet 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	3GPP type = 3							
2	3GPP Length= 6							
3	PDP type octet 1							
4	PDP type octet 2							
5	PDP type octet 3							
6	PDP type octet 4							

3GPP Type: 3

Length: 6

PDP type value: Unsigned 32 bits integer

PDP type octet possible values:

0 = IP

4 - 3GPP-*Charging Gateway address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 4							
2	3GPP Length= 6							
3	Charging GW addr Octet 1							
4	Charging GW addr Octet 2							
5	Charging GW addr Octet 3							
6	Charging GW addr Octet 4							

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-*GPRS Negotiated QoS profile*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 5							
2	3GPP Length= L							
3 -L	UTF-8 encoded QoS profile							

3GPP Type: 5

Length: 27 (release 99) or 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

<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 3G TS 24.008

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.

6 - 3GPP-*SGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 6							
2	3GPP Length= 6							
3	SGSN addr Octet 1							
4	SGSN addr Octet 2							
5	SGSN addr Octet 3							
6	SGSN addr Octet 4							

3GPP Type: 6

Length: 6

SGSN address value: Address

7 - 3GPP-*GGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 7							
2	3GPP Length= 6							
3	GGSN addr Octet 1							
4	GGSN addr Octet 2							
5	GGSN addr Octet 3							
6	GGSN addr Octet 4							

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	3GPP type = 8							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [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	3GPP type = 9							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [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*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 10							
2	3GPP Length= 3							
3	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	3GPP type = 11							
2	3GPP Length= 3							
3	1 1 1 1 1 1 1 1							

3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 12							
2	3GPP Length= 1							
3	UTF-8 encoded Selection mode string							

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 [22]. Where TS 29.060 provides for interpretation of the value, e.g. map '3' to '2', this shall be done by the GGSN.

18 - 3GPP-SGSN *MCC-MNC*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 18							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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.

3GPP TSG-CN WG3 Meeting #26
Bangkok, Thailand, 11th - 15th November 2002.

Tdoc ⌘N3-021006

CR-Form-v7

CHANGE REQUEST

⌘ **09.61** **CR** **A040** ⌘ **rev** **1** ⌘ Current version: **7.7.0** ⌘

*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:	⌘	RADIUS enhancement for identification of VPLMN
Source:	⌘	TSG_CN WG3
Work item code:	⌘	TEI
Date:	⌘	14/11/2002
Category:	⌘	**A**
Release:	⌘	R98

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	GPRS network operators in most countries are required to operate within the legal constraints as defined by the appropriate regulatory bodies. Once such legal constraint is the nature of content that is permissible in certain countries. In order for network operators to comply with the regulatory demands regarding the nature of content, the network operator will need the capability to perform policing of a subscriber's requseted content before allowing a content download.
Summary of change:	⌘	Definition of a new RADIUS 3GPP Vendor-specific attribute
Consequences if not approved:	⌘	Operators will not be able to comply with the regulatory demands in those countries which impose restrictions on the content available to users of internet access.

Clauses affected:	⌘	16.4.7

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

⌘

Other comments: ⌘

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

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

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

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

Table 7: The sub-attributes of the 3GPP Vendor-Specific attribute of the Access-Request, Accounting-Request START, Accounting-Request STOP and Accounting-Request Interim-Update 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	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	Optional	Access-Request, Accounting-Request START, Accounting-

		MSISDN/IMSI from creation to deletion.		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
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

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

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 26							
2	Length = n							
3	Vendor id octet 1							
4	Vendor id octet 2							
5	Vendor id octet 3							
6	Vendor id octet 4							
7-n	String							

n>=7

3GPP Vendor Id = 10415

The string part is encoded as follows:

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type =							
2	3GPP Length = m							
3 –m	3GPP value							

m>=2 and m<= 248

The 3GPP specific attributes encoding is clarified below.

1 - 3GPP-*IMSI*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 1							
2	3GPP Length= m							
3-m	IMSI digits 1-n (UTF-8 encoded)							

3GPP Type: 1

n <=15

Length: m =17

IMSI value: Text:

This is the UTF-8 encoded IMSI; The definition of IMSI shall be in accordance with [26]. 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

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 2							
2	3GPP Length= 6							
3	Charging ID value Octet 1							
4	Charging ID value Octet 2							
5	Charging ID value Octet 3							
6	Charging ID value Octet 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	3GPP type = 3							
2	3GPP Length= 6							
3	PDP type octet 1							
4	PDP type octet 2							
5	PDP type octet 3							
6	PDP type octet 4							

3GPP Type: 3

Length: 6

PDP type value: Unsigned 32 bits integer

PDP type octet possible values:

0 = IP

1 = PPP

4 - 3GPP-*Charging Gateway address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 4							
2	3GPP Length= 6							
3	Charging GW addr Octet 1							
4	Charging GW addr Octet 2							
5	Charging GW addr Octet 3							
6	Charging GW addr Octet 4							

3GPP Type: 4

Length: 6

Charging GW address value: Address

5 - 3GPP-*GPRS Negotiated QoS profile*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 5							
2	3GPP Length= L							
3 -L	UTF-8 encoded QoS profile							

3GPP Type: 5

Length: 27 (release 99) or 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

<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

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.

6 - 3GPP-*SGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 6							
2	3GPP Length= 6							
3	SGSN addr Octet 1							
4	SGSN addr Octet 2							
5	SGSN addr Octet 3							
6	SGSN addr Octet 4							

3GPP Type: 6

Length: 6

SGSN address value: Address

7- 3GPP-*GGSN address*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 7							
2	3GPP Length= 6							
3	GGSN addr Octet 1							
4	GGSN addr Octet 2							
5	GGSN addr Octet 3							
6	GGSN addr Octet 4							

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	3GPP type = 8							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [26] 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	3GPP type = 9							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [26] 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*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 10							
2	3GPP Length= 3							
3	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	3GPP type = 11							
2	3GPP Length= 3							
3	1 1 1 1 1 1 1 1							

3GPP Type: 11

Length: 3

Value is set to all 1.

12 - 3GPP-Selection-Mode

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 12							
2	3GPP Length= 1							
3	UTF-8 encoded Selection mode string							

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 [24]. Where 3GPP TS 29.060 provides for interpretation of the value, e.g. map '3' to '2', this shall be done by the GGSN.

18 - 3GPP-SGSN *MCC-MNC*

Bits

Octets	8	7	6	5	4	3	2	1
1	3GPP type = 18							
2	3GPP Length= n							
3	MCC digit1 (UTF-8 encoded)							
4	MCC digit2 (UTF-8 encoded)							
5	MCC digit3 (UTF-8 encoded)							
6	MNC digit1 (UTF-8 encoded)							
7	MNC digit2 (UTF-8 encoded)							
8	MNC digit3 if present (UTF-8 encoded)							

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 [24] and [41] 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.