3GPP TSG CN Plenary
Meeting #10, Bangkok, Thailand
6th – 8th December 2000

Tdoc NP-000641

Source: TSG_CN WG 4

Title: CRs to R99 Work Item GPRS

Agenda item: 7.13

Document for: APPROVAL

Introduction:

This document contains 4 CRs on R99 Work Item GPRS, that have been agreed by TSG_CN WG4, and is forwarded to TSG_CN Plenary meeting #10 for approval.

SMG#	TDoc	SPEC	CR	RE	PHAS	VERS	SUBJECT	CAT
CN10	N4-001012	29.060	159		R99	3.6.0	MS Network Capability in MM Context	F
CN10	N4-001053	29.060	136	2	R99	3.6.0	Compatibility GTPv0/GTPv1 in case of SGSN change	F
CN10	N4-001055	29.060	153	2	R99	3.6.0	Selecting GGSN IP address	F
CN10	N4-001051	29.060	151	1	R99	3.6.0	Correction of wrong entry in information table	F

CN#05 Meeting , Paris, FRANCE
13th November – 17th November 2000

Document N4-001053
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.060	CR	136r2	Current Version:	3.6.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: *list expected approval meeting # here ↑*		for approval	X	strategic		*(for SMG use only)*
		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio		Core Network	X

Source:	CN4	**Date:**	1st November 2000

Subject:	Compatibility GTPv0/GTPv1 in case of SGSN change

Work item:	GPRS

Category: *(only one category shall be marked with an X)*				**Release:**		
	F	Correction	X		Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
	B	Addition of feature			Release 97	
	C	Functional modification of feature			Release 98	
	D	Editorial modification			Release 99	X
					Release 00	

Reason for change:

Accepted by consensus.

Issue

Assuming the following configuration:

GGSN	Release 99
SGSN_1	Release 99
SGSN_2	Release 97/98

As a result, betwseen GGSN and SGSN_1 GTP v1 is used; between SGSN_1 and SGSN_2 as well as between SGSN_2 and GGSN GTP v0 is used.

Assuming the following scenarios:

An MS moves from SGSN_2 to SGSN_1.

The old SGSN_2 will response with PDP context data toward the new SGSN_1 using GTPv0, therefore delivering the Flow Label with the PDP context IE. The SGSN_1 shall use GTP v1 and therefore TEIDs are used between SGSN_1 and GGSN. When sending the “Update PDP Context Request” to GGSN; no TEID can be put into the header; when receiving this message, GGSN can not detect the associated PDP context, as the IMSI is not contained in the GTP v1 message “Update PDP Context Request”.

Proposed solution

a) The GGSN must be able to change from GTPv0 to GTPv1 for an open PDP

context to support the Update PDP Context procedure according to scenario_2.

b) The new SGSN_1 ignores the delivered Flow Label and sends an “Update PDP Context Request” with aTEID set to all zeros in the Header and additional IE containing the IMSI.

c) The GGSN has to detect the concerned PDP context on receiving the Update PDP Context Request and to switch the PDP context to the use of TEID. GGSN can identifiy the PDP context unambiguously by IMSI and NSAPI, both contained in the message.

Clauses affected: 7.3.3, 8.2

Other specs	Other 3G core specifications	**23.060**	→ List of CRs:	CR 177r1 (S2-001531(SP-000448))
Affected:	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

7.3.3 Update PDP Context Request

An Update PDP Context Request message shall be sent from a SGSN to a GGSN as part of the GPRS Inter SGSN Routeing Update procedure or the PDP Context Modification procedure or to redistribute contexts due to load sharing. It shall be used to change the QoS and the path. In addition it shall be used if it is neccessary to change the GTP version of a tunnel to a GGSN from GTP v0 to GTP v1. The message shall be sent by the new SGSN at the Inter SGSN Routeing Update procedure.

The NSAPI information element together with the Tunnel Endpoint Identifier in the GTP header unambiguously identifies a PDP Context in the GGSN.

The IMSI shall be ~~contained~~included ~~in case that~~ if the message is sent during an Inter SGSN change when changing the GTP version from GTP v0 to GTP v1; this is required, as the TEID in the header of the message is set to all zeros in this case.

The Tunnel Endpoint Identifier for Data (I) field specifies a downlink Tunnel Endpoint Identifier for G-PDUs which is chosen by the SGSN. The GGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent downlink G-PDUs that are related to the requested PDP context.

The Tunnel Endpoint Identifier Control Plane field specifies a downlink Tunnel Endpoint Identifier for signalling messages which is chosen by the SGSN. The GGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent downlink control plane messages that are related to the requested PDP context. If the SGSN has already confirmed successful assignment of its Tunnel Endpoint Identifier for Signalling to the peer GGSN, this field shall not be present. The SGSN confirms successful assignment of its Tunnel Endpoint Identifier for Signalling to the GGSN when it receives any message with its assigned Tunnel Endpoint Identifier for Signalling in the GTP header from the GGSN.

The Quality of Service Profile information element shall include the QoS negotiated between the MS and SGSN at PDP Context activation or the new QoS negotiated in the PDP Context Modification procedure.

The SGSN shall include an SGSN Address for control plane and an SGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). The GGSN shall store these SGSN Addresses and use them when sending subsequent control plane on this GTP tunnel or G-PDUs to the SGSN for the MS. When active contexts are being redistributed due to load sharing, G-PDUs that are in transit across the Gn-interface are in an undetermined state and may be lost.

The SGSN shall include a Recovery information element into the Update PDP Context Request if the SGSN is in contact with the GGSN for the very first time or if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN that receives a Recovery information element in the Update PDP Context Request message element shall handle it in the same way as when receiving an Echo Response message. The Update PDP Context Request message shall be considered as a valid update request for the PDP context indicated in the message.

The Traffic Flow Template (TFT) is used to distinguish between different user traffic flows.

The SGSN shall include Trace Reference, Trace Type, Trigger Id, and OMC Identity in the message if GGSN trace is activated while the PDP context is active. The SGSN shall copy Trace Reference, Trace Type, and OMC Identity from the trace request received from the HLR or OMC.

The optional Private Extension contains vendor or operator specific information.

Table 7: Information Elements in an SGSN-Initiated Update PDP Context Request

Information element	Presence requirement	Reference
IMSI	Conditional	7.7.2
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier for Data (I)	Mandatory	7.7.13
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
NSAPI	Mandatory	7.7.17
Trace Reference	Optional	7.7.24
Trace Type	Optional	7.7.25
SGSN Address for Control Plane	Mandatory	GSN Address 7.7.32
SGSN Address for User Traffic	Mandatory	GSN Address 7.7.32
Quality of Service Profile	Mandatory	7.7.34
TFT	Optional	7.7.36
Trigger Id	Optional	7.7.41
OMC Identity	Optional	7.7.42
Private Extension	Optional	7.7.44

An Update PDP Context Request may also be sent from a GGSN to a SGSN to re-negotiate the QoS of a PDP context. This GGSN-initiated Update PDP Context Request can also be used to provide a PDP address to the SGSN (and MS). The latter shall be used by GGSN when it acts as a DHCP Relay Agent or Mobil IP Foreign Agent.

The Quality of Service Profile information element shall include the GGSN requested QoS.

The End User Address information element shall contain a valid IPv4 or IPv6 address.

The GGSN shall include a Recovery information element into the Update PDP Context Request if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN that receives a Recovery information element in the Update PDP Context Request message element shall handle it in the same way as when receiving an Echo Response message. The Update PDP Context Request message shall be considered as a valid update request for the PDP context indicated in the message.

The NSAPI information element together with the Tunnel Endpoint Identifier in the GTP header unambiguously identifies a PDP Context in the SGSN.

The optional Private Extension contains vendor or operator specific information.

Table 8: Information Elements in a GGSN-Initiated Update PDP Context Request

Information element	Presence requirement	Reference
Recovery	Optional	7.7.11
NSAPI	Mandatory	7.7.17
End User Address	Optional	7.7.27
Quality of Service Profile	Optional	7.7.34
Private Extension	Optional	7.7.44

8.2 Usage of the GTP-C Header

For control plane messages the GTP header shall be used as follows:

- Version shall be set to decimal 1 (‘001’).
- Protocol Type (PT) shall be set to ‘1’.
- (S) shall be set to ‘1’.
- PN shall be set to ‘0’. A GTP-C receiver shall ignore this flag.

- Message Type shall be set to the unique value that is used for each type of control plane message. Valid message types are marked with an x in the GTP-C column in Table 1.

- Length shall be the length, in octets, of the control plane message excluding the GTP header.

- The Tunnel Endpoint Identifier is set by the sending entity to the value requested by the corresponding entity (SGSN or GGSN); it identifies the MS and its associated context data, except for the following cases:

  - The Create PDP Context Request message for a given MS sent to a specific GGSN shall have the Tunnel Endpoint Identifier set to all zeros, if the SGSN has not been assigned a Tunnel Endpoint Identifier for Signalling by the GGSN.

  - The Update PDP Context Request message for a given MS sent to a specific GGSN shall have the Tunnel Endpoint Identifier set to all zeros, if it is used to switch the GTP version of the tunnel to the GGSN from GTP v0 to GTP v1.

  - The Identification Request/Response messages, where the Tunnel Endpoint Identifier shall be set to all zeros.

  - The SGSN Context Request message, where the Tunnel Endpoint Identifier shall be set to all zeros.

  - The Echo Request/Response, Supported Extension Headers notification and the Version Not Supported messages, where the Tunnel Endpoint Identifier shall be set to all zeros.

  - The Forward Relocation Request message, where the Tunnel Endpoint Identifier shall be set to all zeros.

  - The PDU Notification Request message, where the Tunnel Endpoint Identifier shall be set to all zeros, except for the case where the GGSN has already been assigned a Tunnel Endpoint Identifier for Signalling by the peer SGSN.

  - The Error Indication message where the Tunnel Endpoint Identifier shall be set to all zeros, in case there is no signalling tunnel established for that specific MS.

  - The Relocation Cancel Request message where the Tunnel Endpoint Identifier shall be set to all zeros, except for the case where the old SGSN has already been assigned the Tunnel Endpoint Identifier Signalling of the new SGSN.

  - All Location Management messages, where the Tunnel Endpoint Identifier shall be set to all zeros.

- Sequence Number shall be a message number valid for a path. Within a given set of contiguous Sequence Numbers from 0 to 65535, a given Sequence Number shall, if used, unambiguously define a GTP control plane request message sent on the path (see section Reliable delivery of control plane messages). The Sequence Number in a control plane response message shall be copied from the control plane request message that the GSN is replying to.

- N-PDU Number shall not be interpreted.

The GTP-C header may be followed by subsequent information elements dependent on the type of control plane message. Only one information element of each type is allowed in a single control plane message, except for the Authentication Triplet, the PDP Context and the Tunnel Endpoint Identifier for Data (II) information element where several occurrences of each type are allowed.

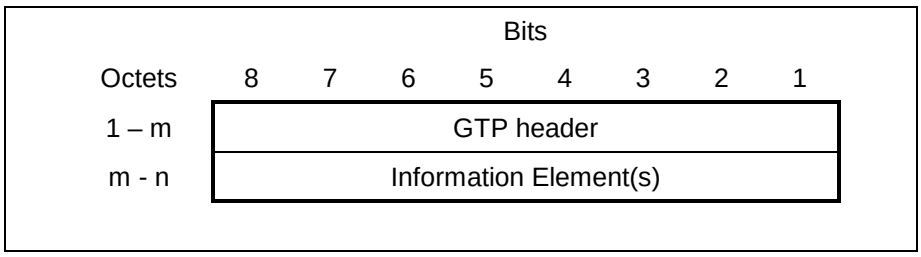


Figure 61: GTP Header followed by subsequent Information Elements

3GPP TSG-CN WG4 Meeting #5
Paris, France, 13-17 November 2000

Tdoc N4-001051

CR-Form-v3

CHANGE REQUEST

⌘ **29.060** **CR** **151** ⌘ rev **1** ⌘ Current version: **3.6.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction of wrong entry in information table
Source:	⌘	CN4
Work item code:	⌘	GPRS
Date:	⌘	13/Nov/2000
Category:	⌘	**F** Consensus by the CN4 meeting
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential 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)*

Reason for change:	⌘	A) Target RNC Information IE was renamed to RAB Setup Information that was proposed in CR 29.060-090r1 and approved in CN#8. B) Type value of RANAP Cause, Charging Characteristics, RAB Setup Information, Extension Header Type List, Trigger Id and OMC Identity in the figures shall be corrected to have the varue listed in table 37.
Summary of change:	⌘	A-1. Target RNC information in section 7.5.7 shall be corrected as RAB Setup Information. A-2. Target RNC information in the table 37 shall be corrected as RAB Setup Information. B-1. Type value of RANAP Cause in figure 26 shall be corrected as 21. B-2. Type value of Charging Characteristics in figure 31 shall be corrected as 26. B-3. Type value of RAB Setup Information in figure 54 shall be corrected as 140. The expression of “Information Element” in the title of figure 54 should be unified as “IE” that is described in the title of figure 53. B-4. Type value of Extension Header Type List in figure 55 shall be corrected as 141. B-5. Type value of Trigger Id in figure 56 shall be corrected as 142. B-6. Type value of OMC Identity in figure 57 shall be corrected as 143.
Consequences if not approved:	⌘	The parameters that are described above and the parameters that have same value as above parameters can not be understood correctly.

Clauses affected:	⌘	7.5.7, 7.7, 7.7.18, 7.7.23, 7.7.39, 7.7.40, 7.7.41, 7.7.42
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

7.5.7 Forward Relocation Response

The new SGSN shall send a Forward Relocation Response to the old SGSN as a response to a previous Forward Relocation Request.

Possible Cause values is:

- 'Request Accepted'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'No resources available'.
- 'Invalid message format'.
- 'Version not supported'.
- 'Relocation failure'.

RANAP Cause is mandatory if cause value is contained in RANAP message.

RAB Setup Information~~Target RNC Information~~, UTRAN transparent container and RANAP Cause are information from the target RNC in the new SGSN.

One or more RAB Setup Information parameters shall be set in this message. This information element shall be included if the Cause contains the value 'Request accepted'.

The new SGSN shall include a SGSN Address for control plane. The old SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the new SGSN in the SRNS Relocation Procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier that is chosen by the new SGSN. The old SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent signalling messages that are sent from the old SGSN to the new SGSN. This information element shall be included if the Cause contains the value 'Request accepted'.

The optional Private Extension contains vendor or operator specific information.

Table 30: Information Elements in a Forward Relocation Response

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
RANAP Cause	Conditional	7.7.18
SGSN Address for Control plane	Conditional	7.7.32
UTRAN transparent container	Optional	7.7.38
RAB Setup Information	Conditional	7.7.39
Private Extension	Optional	7.7.44

*** NEXT MODIFIED SECTION ***

7.7 Information Elements

A control plane message may contain several information elements. The TLV (Type, Length, Value) or TV (Type, Value) encoding format shall be used for the GTP information elements. The information elements shall be sorted, with the Type fields in ascending order, in the control plane messages. The Length field contains the length of the information element excluding the Type and Length field.

For all the length fields, bit 8 of the lowest numbered octet is the most significant bit and bit 1 of the highest numbered octet is the least significant bit.

Within information elements, certain fields may be described as spare. These bits shall be transmitted with the value defined for them. To allow for future features, the receiver shall not evaluate these bits.

The most significant bit in the Type field is set to 0 when the TV format is used and set to 1 for the TLV format.

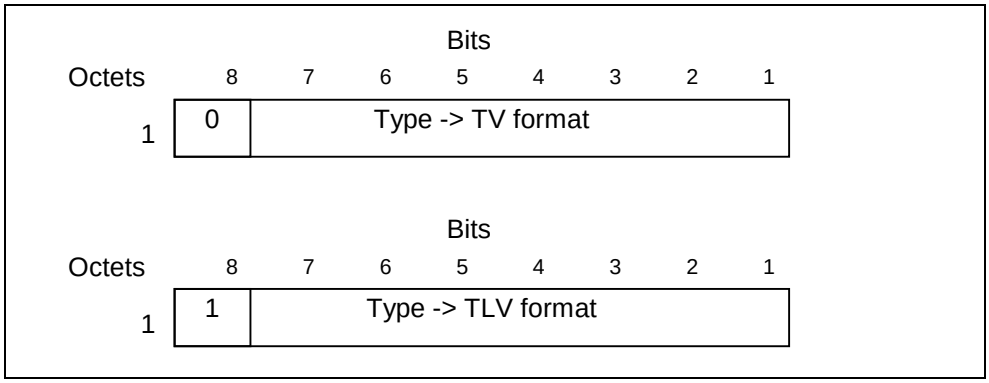


Figure 8: Type field for TV and TLV format

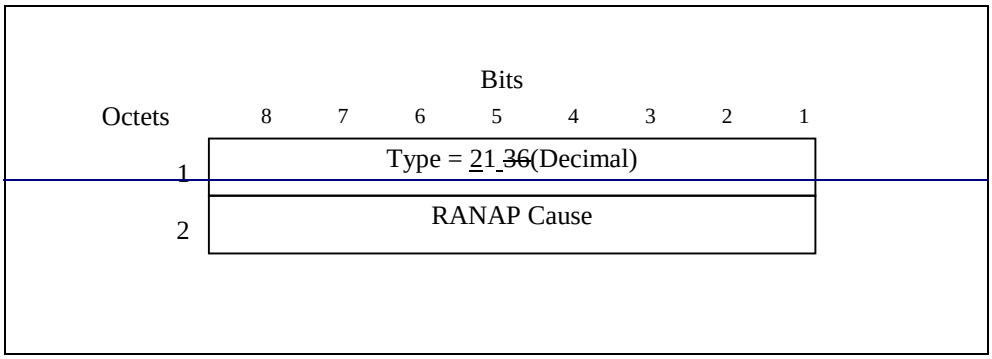
Table 37: Information Elements

IE Type Value	Format	Information Element	Reference
1	TV	Cause	7.7.1
2	"	International Mobile Subscriber Identity (IMSI)	7.7.2
3	"	Routeing Area Identity (RAI)	7.7.3
4	"	Temporary Logical Link Identity (TLLI)	7.7.4
5	"	Packet TMSI (P-TMSI)	7.7.5
6-7	Spare		
8	"	Reordering Required	7.7.6
9	"	Authentication Triplet	7.7.7
10	Spare		
11	"	MAP Cause	7.7.8
12	"	P-TMSI Signature	7.7.9
13	"	MS Validated	7.7.10
14	"	Recovery	7.7.11
15	"	Selection Mode	7.7.12
16	"	Tunnel Endpoint Identifier Data I	7.7.13
17	"	Tunnel Endpoint Identifier Control Plane	7.7.14
18	"	Tunnel Endpoint Identifier Data II	7.7.15
19	"	Teardown Ind	7.7.16
20	"	NSAPI	7.7.17
21	"	RANAP Cause	7.7.18
22	"	RAB Context	7.7.19
23	"	Radio Priority SMS	7.7.20
24	"	Radio Priority	7.7.21
25	"	Packet Flow Id	7.7.22
26	"	Charging Characteristics	7.7.23
27	"	Trace Reference	7.7.24
28	"	Trace Type	7.7.25
29	"	MS Not Reachable Reason	7.7.25A
117-126	Reserved for the GPRS charging protocol (see GTP' in GSM 12.15)		
127	"	Charging ID	7.7.26
128	TLV	End User Address	7.7.27
129	"	MM Context	7.7.28
130	"	PDP Context	7.7.29
131	"	Access Point Name	7.7.30
132	"	Protocol Configuration Options	7.7.31
133	"	GSN Address	7.7.32
134	"	MS International PSTN/ISDN Number (MSISDN)	7.7.33
135	"	Quality of Service Profile	7.7.34
136	"	Authentication Quintuplet	7.7.35
137	"	Traffic Flow Template	7.7.36
138	"	Target Identification	7.7.37
139	"	UTRAN Transparent Container	7.7.38
140	"	RAB Setup Information ~~Target RNC Information~~	7.7.39
141	"	Extension Header Type List	7.7.40
142	"	Trigger Id	7.7.41
143	"	OMC Identity	7.7.42
239-250	Reserved for the GPRS charging protocol (see GTP' in GSM 12.15)		
251	"	Charging Gateway Address	7.7.43
252-254	Reserved for the GPRS charging protocol (see GTP' in GSM 12.15)		
255	"	Private Extension	7.7.44

*** NEXT MODIFIED SECTION ***

7.7.18 RANAP Cause

The RANAP Cause information element contains the cause as defined in 3G TS 25.413.



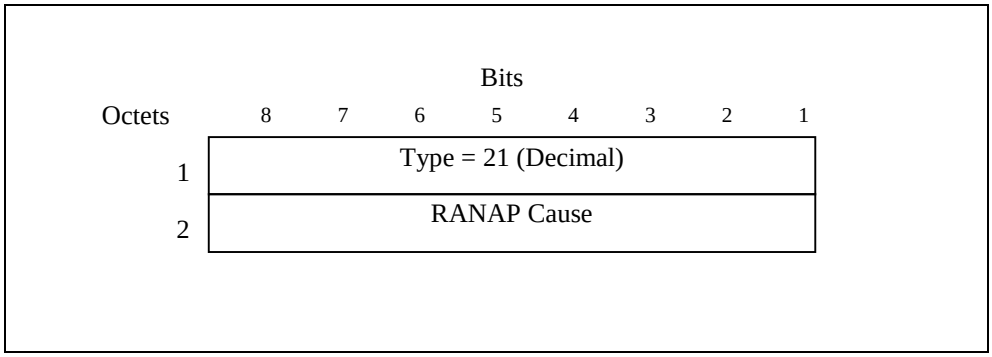
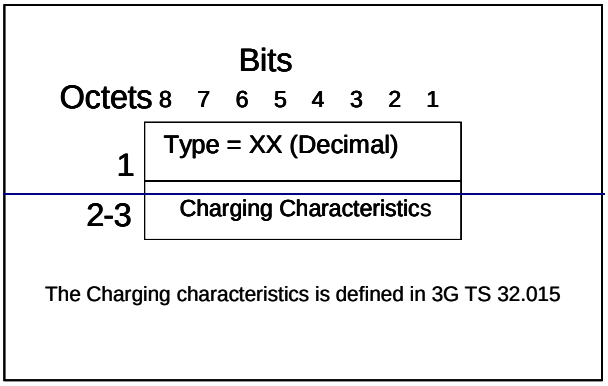


Figure 26: RANAP Cause Information Element

*** NEXT MODIFIED SECTION ***

7.7.23 Charging Characteristics

The charging characteristics information element is a way of informing both the SGSN and GGSN of the rules for producing charging information based on operator configured triggers. For the encoding of this information element see TS 3G 32.015.



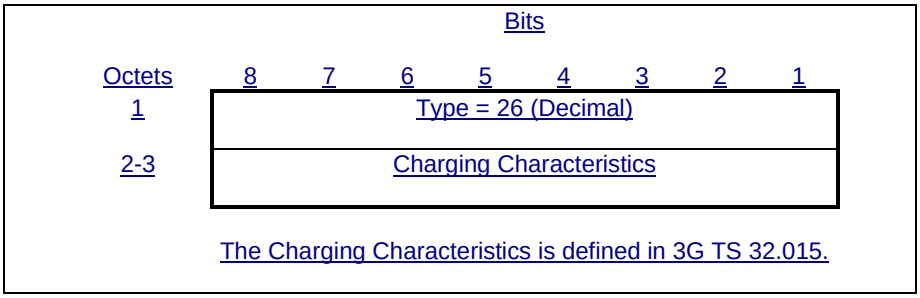


Figure 31: Charging Characteristics Information Element

*** NEXT MODIFIED SECTION ***

7.7.39 RAB Setup Information

If the target RNC successfully allocated resources associated with the NSAPI, the RAB Setup Information IE contains the RNC Tunnel Endpoint Identifier and RNC IP address for data forwarding from source RNC to target RNC. If the target RNC or the new SGSN failed to allocate resources the RAB Setup Information IE contains only Length and NSAPI indicating that the source RNC shall release the resources associated with the NSAPI.

The spare bits x indicate unused bits, which shall be set to 0 by the sending side and which shall not be evaluated by the receiving side.

The format of the RNC IP address is the same as the GSN address as defined in 3G TS 23.003.

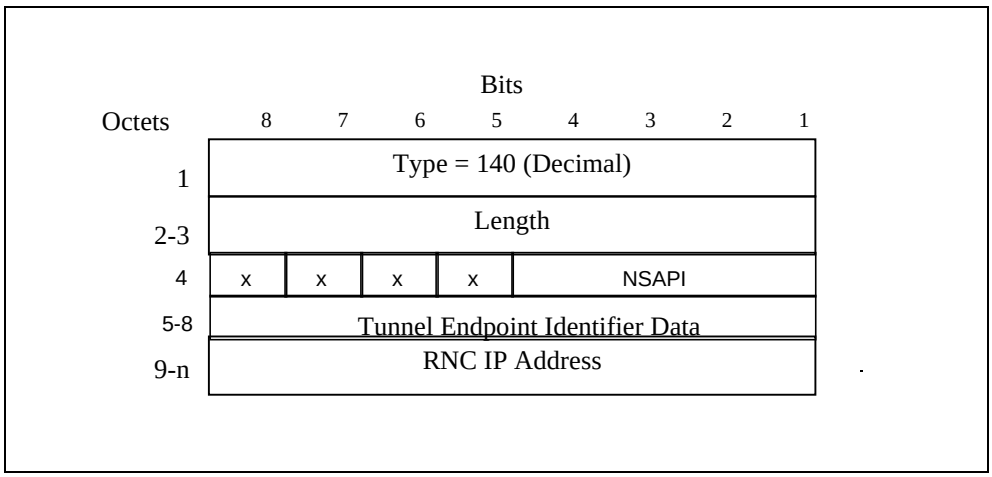


Figure 53: RAB Setup Information IE for data forwarding

Figure 54: RAB Setup Information IE~~information element~~ for release of resources

7.7.40 Extension Header Type List

This information element contains a list of 'n' Extension Header Types. The length field is set to the number of extension header types included.

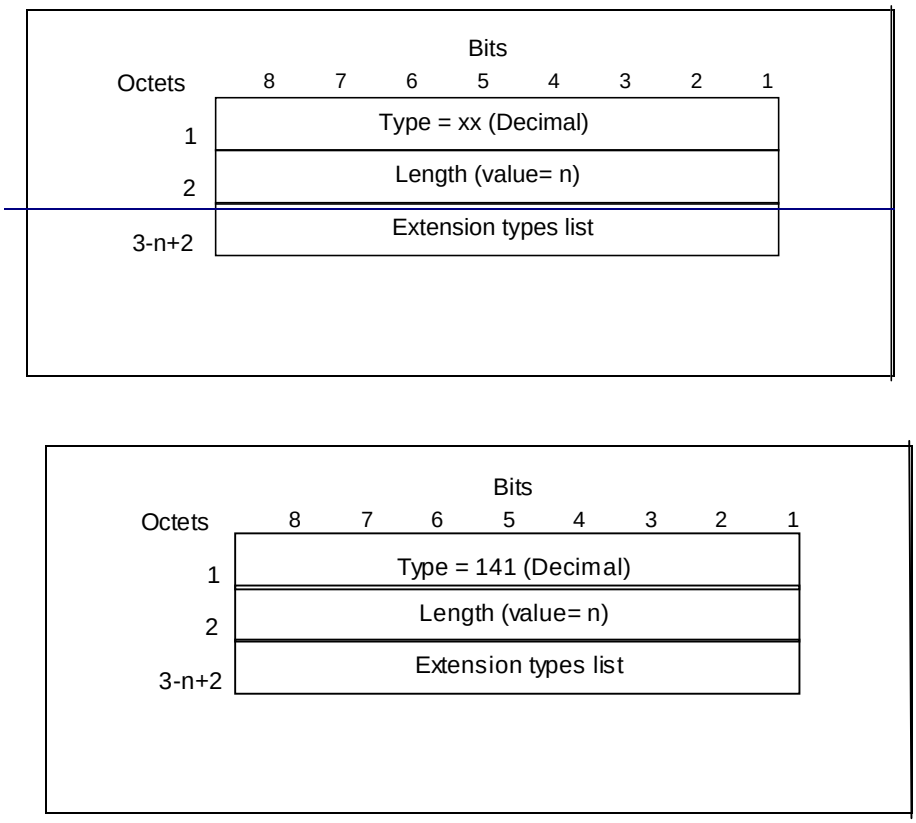


Figure 55: Extension Header Type List Information Element

7.7.41 Trigger Id

The Trigger Id information element identifies the entity that triggered the trace.

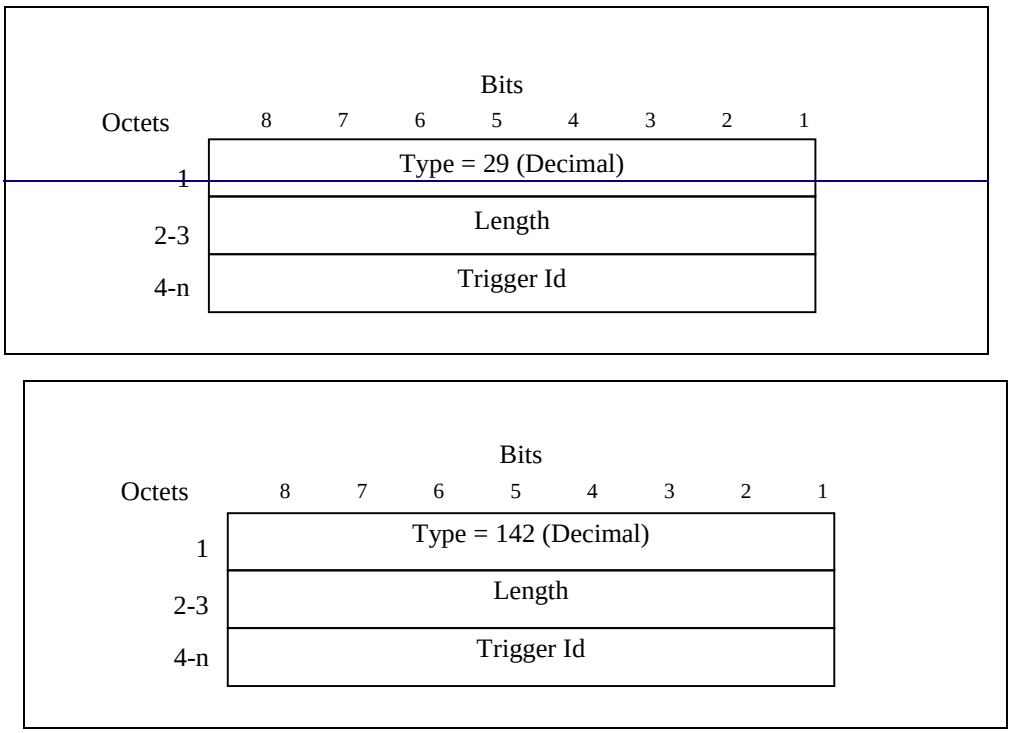


Figure 56: Trigger Id Information Element

7.7.42 OMC Identity

The OMC Identity information element identifies the OMC that shall receive the trace record(s).

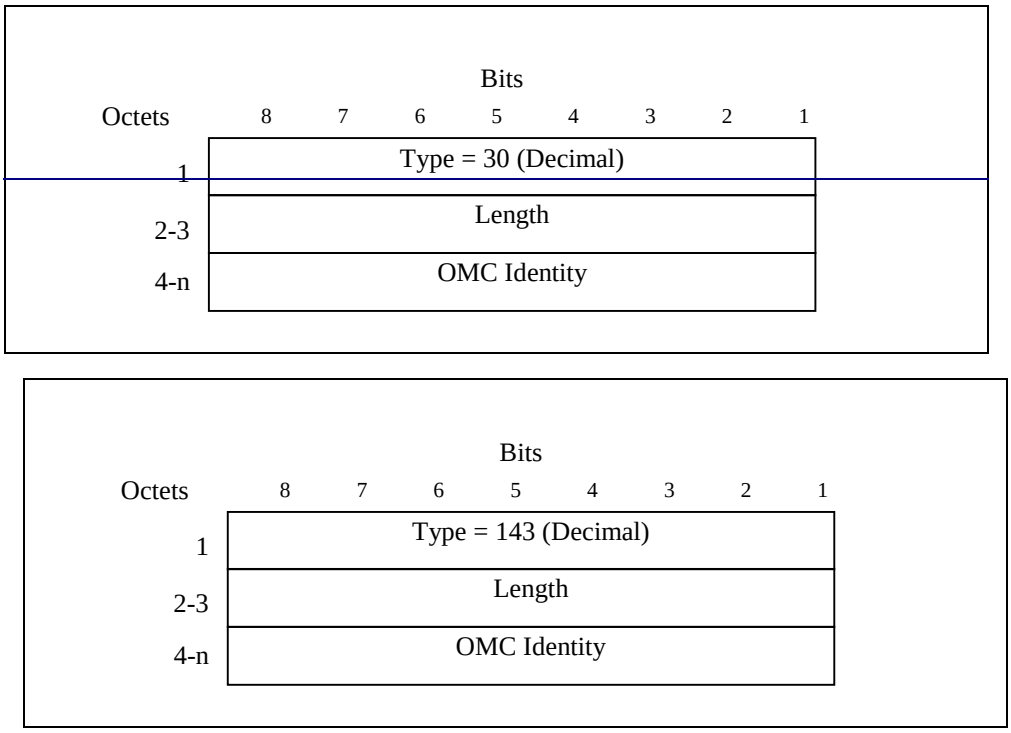


Figure 57: OMC Identity Information Element

3GPP-CN4 Meeting # 5
Paris, France 13-17 November 2000

***Document* N4-001055**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

29.060	CR	153r2	Current Version:	3.6.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	CN#10	for approval	X	Strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: CN4 **Date:** 14 November 2000

Subject: Selecting GGSN IP address

Work item: GPRS

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change:

CR approved by consensus of the meeting.

29.060 reads, that "the GGSN IP address where the SGSN sends the Create PDP Context Request the first IP address in the list of IP addresses provided by the DNS server". Using the first address from the list is not the best possible way of selection. Therefore, this feature should be an implementation dependent one. It is relevant to note, that this issue does not belong to the 29.060.

Stage 2 specs do not specify how SGSN shall select the IP address.

It is proposed to remove the above mentioned ambiguous statement.

Besides, it is proposed to correct an editorial error in Section 6, Figure 3.

Clauses affected: 7.3.1; 6

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


help.doc

<--------- double-click here for help and instructions on how to create a CR.

7.3.1 Create PDP Context Request

A Create PDP Context Request shall be sent from a SGSN node to a GGSN node as a part of the GPRS PDP Context Activation procedure. ~~The GGSN IP address where the SGSN sends the Create PDP Context Request is the first IP address in the list of IP addresses provided by the DNS server~~After sending the Create PDP Context Request message, the SGSN marks the PDP context as 'waiting for response'. In this state the SGSN shall accept G-PDUs from the GGSN but shall not send these G-PDUs to the MS. A valid request initiates the creation of a tunnel between a PDP Context in a SGSN and a PDP Context in a GGSN. If the procedure is not successfully completed, the SGSN repeats the Create PDP Context Request message to the next GGSN address in the list of IP addresses, if there is one. If the list is exhausted the activation procedure fails.

*** *Next Modification* ***

6 GTP Header

Bits

Octets	8	7	6	5	4	3	2	1
1	Version			PT	(*)	E	S	PN
2	Message Type							
3	Length (1st Octet)							
4	Length (2nd Octet)							
5	Tunnel Endpoint Identifier (1st Octet)							
6	Tunnel Endpoint Identifier (2nd Octet)							
7	Tunnel Endpoint Identifier (3rd Octet)							
8	Tunnel Endpoint Identifier (4th Octet)							
9	Sequence Number (1st Octet) 1) 4)							
10	Sequence Number (2nd Octet) 1) 4)							
11	N-PDU Number 2) 4)							
12	Next Extension Header Type 3) 4)							

(*) This bit is a spare bit. It shall be sent as '0'. The receiver shall not evaluate this bit.
1) This field shall only be evaluated when indicated by the S flag.
2) This field shall only be evaluated when indicated by the PN flag.
3) This field shall only be evaluated when indicated by the E flag.
4) This field shall be present when any one or more of the S~~P~~, PN and E flags are set.

Figure 2: Outline of the GTP Header

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CN#05 Meeting , Paris, FRANCE
13th November – 17th November 2000

CHANGE REQUEST

29.060	CR	159	Current Version:	3.6.0

For submission to:	CN#10	for approval	X	strategic	
		for information		non-strategic	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: CN4 **Date:** 1st November 2000

Subject: MS Network Capability in MM Context

Work item: GPRS

Category:

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: CR approved by consensus of the meeting.
MS capability is changed to variable length. At MM Context the change is not done in the new added table.

Clauses affected: 7.7.28

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

7.7.28 MM Context

The MM Context information element contains the Mobility Management, MS and security parameters that are necessary to transfer between SGSNs at the Inter SGSN Routeing Area Update procedure.

Security Mode indicates the type of security keys (GSM/UMTS) and Authentication Vectors (quintuplets/triplets) that are passed to the new SGSN.

Ciphering Key Sequence Number (CKSN) is described in 3G TS 24.008. Possible values are integers in the range [0; 6]. The value 7 is reserved. The Ciphering Key Sequence Number is applicable to GSM as well as UMTS security key(s).

Used Cipher indicates the GSM ciphering algorithm that is in use.

Kc is the GSM ciphering key currently used by the old SGSN. Kc shall be present if GSM key is indicated in the Security Mode.

CK is the UMTS ciphering key currently used by the old SGSN. CK shall be present if UMTS keys are indicated in the Security Mode.

IK is the UMTS integrity key currently used by the old SGSN. IK shall be present if UMTS keys are indicated in the Security Mode.

The Triplet array contains triplets encoded as the value in the Authentication Triplet information element The Triplet array shall be present if indicated in the Security Mode.

The Quintuplet array contains Quintuplets encoded as the value in the Authentication Quintuplet information element. The Quintuplet shall be present if indicated in the Security Mode.

DRX parameter indicates whether the MS uses DRX mode or not.

MS Network Capability provides the network with information concerning aspects of the MS related to GPRS. MS Network Capability and MS Network Capability Length are coded as in the value part described in 3G TS 24.008.

DRX parameter is coded as described in 3G TS 24.008, the value part only.

The two octets Container Length holds the length of the Container, excluding the Container Length octets.

Container contains one or several optional information elements as described in the sub-clause ‘Overview’, from the clause ‘General message format and information elements coding’ in 3G TS 24.008.

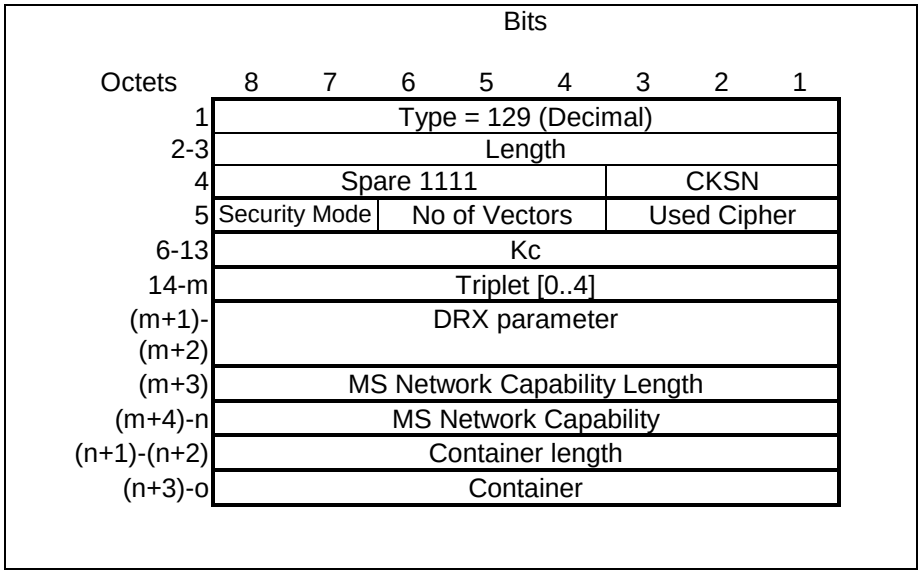


Figure 40: MM Context Information Element with GSM Key and Triplets

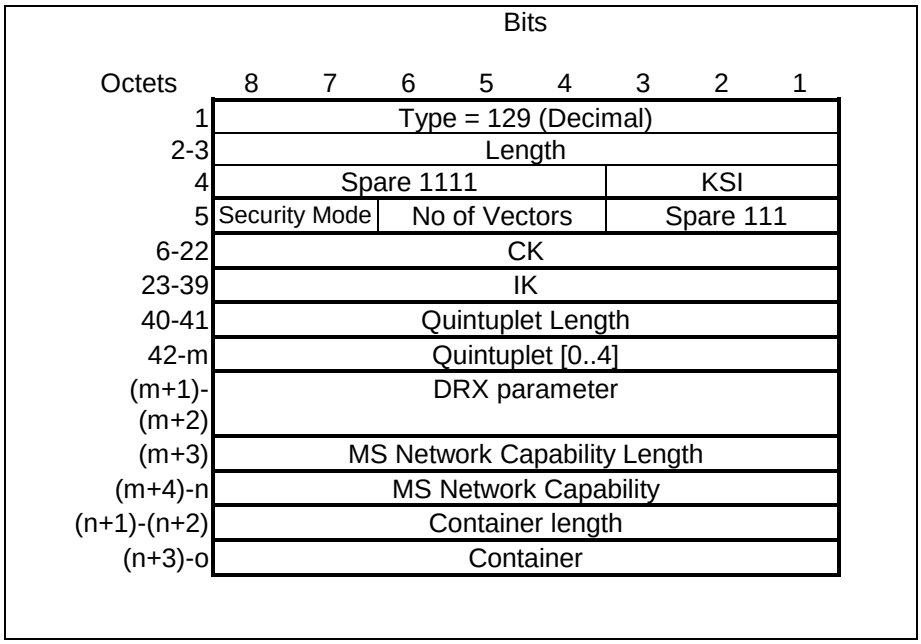
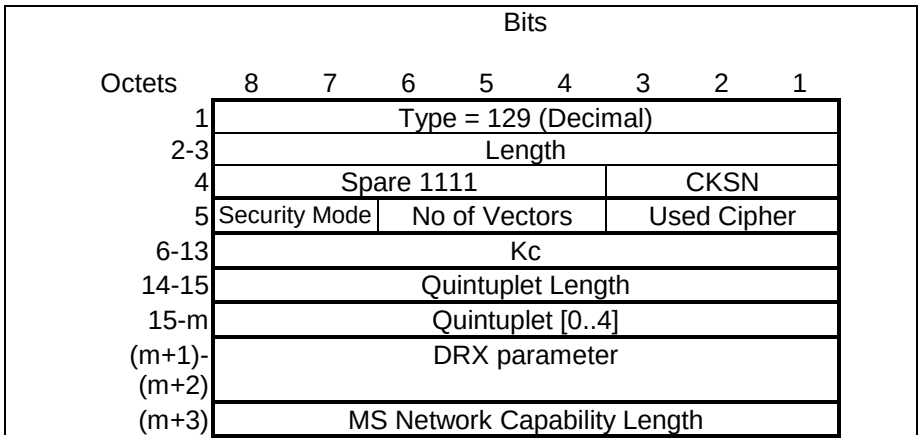


Figure 41: MM Context Information Element with UMTS Keys and Quintuplets



(m+4)-n	MS Network Capability
n+1-n+2	Container length
n+3-o	Container

Figure 42: MM Context Information Element with GSM Keys and UMTS Quintuplets

Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 129 (Decimal)							
2-3	Length							
4	Spare 1111					CKSN		
5	Security Mode		No of Vectors			Used Cipher		
6-22	CK							
23-39	IK							
40-41	Quintuplet Length							
42-m	Quintuplet [0..4]							
(m+1)-(m+2)	DRX parameter							
(m+3)-~~(m+4)~~	MS Network Capability length							
(m+4)-n	MS Network Capability							
(~~m+5~~n+1)-(~~m+6~~n+2)	Container length							
(~~m+7~~n+3)-~~n~~o	Container							

Figure 42A: MM Context Information Element with Used Cipher value,UMTS Keys and Quintuplets

Table 46: Used Cipher Values

Cipher Algorithm	Value (Decimal)
No ciphering	0
GEA/1	1
GEA/2	2
GEA/3	3
GEA/4	4
GEA/5	5
GEA/6	6
GEA/7	7

Table 47: Security Mode Values

Security Type	Value (Decimal)
GSM key and triplets	1
GSM key and quintuplets	3
UMTS key and quintuplets	2
Used cipher value, UMTS Keys and Quintuplets	0