3GPP TSG CN Plenary Meeting #27 **NP-050033**
9th – 11th March 2005 Tokyo, JAPAN.

Source: TSG CN WG4

Title: Corrections on GPRS Rel-5

Agenda item: 8.8

Document for: APPROVAL

Doc-2nd-Level	Spec	CR	Rev	Phase	Subject	Cat	Ver_C
N4-050439	29.060	533	1	Rel-5	Add Source RNC PDCP context info IE in Forward SRNS Context message	F	5.12.0
N4-050440	29.060	534	1	Rel-6	Add Source RNC PDCP context info IE in Forward SRNS Context message	A	6.7.0
N4-050441	29.060	541	1	Rel-5	Clarification of PCO IE in Update PDP context response	F	5.12.0
N4-050442	29.060	540	1	Rel-6	Clarification of PCO IE in Update PDP context response	A	6.7.0

3GPP TSG-CN WG4 Meeting #26 **N4-050439**
Sydney, AUSTRALIA. 14th to 18th February 2005.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.060** **CR** **533** ⌘ **rev** **1** ⌘ Current version: **5.12.0** ⌘

*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:	⌘	Add Source RNC PDCP context info IE in Forward SRNS Context message
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	18/1/2005
Category:	⌘	**F**
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:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	In TS 25.413, the RANAP message FORWARD SRNS CONTEXT include Source RNC PDCP context info IE ,but in TS 29.060, the Forward SRNS Context message does not include Source RNC PDCP context info IE. This CR is aimed at aligning the functionality in 29.060 with 25.413. **Essential correction.**
Summary of change:	⌘	In TS 29.060, Add Source RNC PDCP context info IE in Forward SRNS Context message.
Consequences if not approved:	⌘	Inconsistency with TS 25.413 will mislead the implementation..

Clauses affected:	⌘	7.5.13, 7.7, 7.7.XX

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.

*** First Modification ***

7.5.13 Forward SRNS Context

The Forward SRNS Context message is used in case of hard handover with switch in CN. When the old SGSN receives the RANAP message Forward SRNS Context, the old SGSN shall send a Forward SRNS Context message to the new SGSN. The new SGSN shall forward the message to the target RNC using the corresponding RANAP message.

For each RAB context in the received RANAP message, the old SGSN shall include a RAB Context IE in the GTP-C Forward SRNS Context message.

If available, the old SGSN shall include a Source RNC PDCP context info in the Forward SRNS Context message.

Table 36: Information Elements in a Forward SRNS Context

Information element	Presence requirement	Reference
RAB Context	Mandatory	7.7.19
Source RNC PDCP context info	Optional	7.7.~~47~~XX
Private Extension	Optional	7.7.46

*** Second Modification ***

7.7 Information Elements

A GTP Signalling 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 signalling 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.

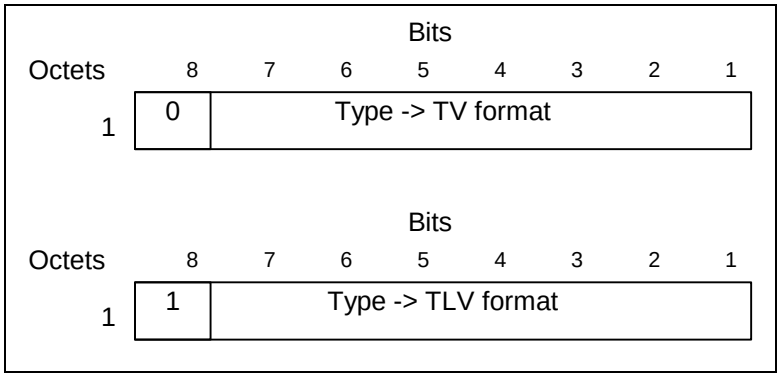


Figure 8: Type field for TV and TLV format

Table 37: Information Elements

IE Type Value	Format	Information Element	Reference
1	TV	Cause	7.7.1
2	TV	International Mobile Subscriber Identity (IMSI)	7.7.2
3	TV	Routeing Area Identity (RAI)	7.7.3

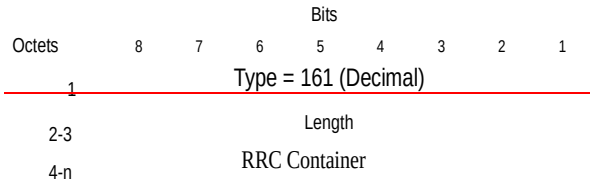
IE Type Value	Format	Information Element	Reference
4	TV	Temporary Logical Link Identity (TLLI)	7.7.4
5	TV	Packet TMSI (P-TMSI)	7.7.5
6-7	Spare		
8	TV	Reordering Required	7.7.6
9	TV	Authentication Triplet	7.7.7
10	Spare		
11	TV	MAP Cause	7.7.8
12	TV	P-TMSI Signature	7.7.9
13	TV	MS Validated	7.7.10
14	TV	Recovery	7.7.11
15	TV	Selection Mode	7.7.12
16	TV	Tunnel Endpoint Identifier Data I	7.7.13
17	TV	Tunnel Endpoint Identifier Control Plane	7.7.14
18	TV	Tunnel Endpoint Identifier Data II	7.7.15
19	TV	Teardown Ind	7.7.16
20	TV	NSAPI	7.7.17
21	TV	RANAP Cause	7.7.18
22	TV	RAB Context	7.7.19
23	TV	Radio Priority SMS	7.7.20
24	TV	Radio Priority	7.7.21
25	TV	Packet Flow Id	7.7.22
26	TV	Charging Characteristics	7.7.23
27	TV	Trace Reference	7.7.24
28	TV	Trace Type	7.7.25
29	TV	MS Not Reachable Reason	7.7.25A
117-126	Reserved for the GPRS charging protocol (see GTP' in 3GPP TS 32.215 [18])		
127	TV	Charging ID	7.7.26
128	TLV	End User Address	7.7.27
129	TLV	MM Context	7.7.28
130	TLV	PDP Context	7.7.29
131	TLV	Access Point Name	7.7.30
132	TLV	Protocol Configuration Options	7.7.31
133	TLV	GSN Address	7.7.32
134	TLV	MS International PSTN/ISDN Number (MSISDN)	7.7.33
135	TLV	Quality of Service Profile	7.7.34
136	TLV	Authentication Quintuplet	7.7.35
137	TLV	Traffic Flow Template	7.7.36
138	TLV	Target Identification	7.7.37
139	TLV	UTRAN Transparent Container	7.7.38
140	TLV	RAB Setup Information	7.7.39
141	TLV	Extension Header Type List	7.7.40
142	TLV	Trigger Id	7.7.41
143	TLV	OMC Identity	7.7.42
144	TLV	RAN Transparent Container	7.7.43
145	TLV	PDP Context Prioritization	7.7.45
146	TLV	Additional RAB Setup Information	7.7.45A
147-149	Spare		
150	TLV	Radio Priority LCS	7.7.25B
1XX~~61~~	TLV	Source RNC PDCP context info	7.7.XX~~47~~
239-250	Reserved for the GPRS charging protocol (see GTP' in 3GPP TS 32.215 [18])		
251	TLV	Charging Gateway Address	7.7.44
252-254	Reserved for the GPRS charging protocol (see GTP' in 3GPP TS 32.215 [18])		
255	TLV	Private Extension	7.7.46

*** Third Modification ***

7.7.47XX Source RNC PDCP context info

The purpose of the Source RNC PDCP context info IE is to transfer RNC PDCP context information from a source RNC to a target RNC during an SRNS relocation.

This IE is transparent to CN .



Octets	Bits 8	7	6	5	4	3	2	1
1	Type = 1XX (Decimal)							
2-3	Length							
4-n	RRC Container							

*** End Modification ***

3GPP TSG-CN WG4 Meeting #26 **N4-050440**
Sydney, AUSTRALIA. 14th to 18th February 2005.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.060** **CR** **534** ⌘ **rev** **1** ⌘ Current version: **6.7.0** ⌘

*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:	⌘	Add Source RNC PDCP context info IE in Forward SRNS Context message
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	18/12/2005
Category:	⌘	**A**
Release:	⌘	REL-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	In TS 25.413, the RANAP message FORWARD SRNS CONTEXT includes Source RNC PDCP context info IE ,but in TS 29.060, the Forward SRNS Context message does not include Source RNC PDCP context info IE. This CR is aimed at aligning the functionality in 29.060 with 25.413.
Summary of change:	⌘	In TS 29.060, Add Source RNC PDCP context info IE in Forward SRNS Context message.
Consequences if not approved:	⌘	Inconsistency with TS 25.413 will mislead the implementation.

Clauses affected:	⌘	7.5.13, 7.7, 7.7.XX

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

Other comments:	⌘	

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*** First Modification ***

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If available, the old SGSN shall include a Source RNC PDCP context info in the Forward SRNS Context message.

Table 36: Information Elements in a Forward SRNS Context

Information element	Presence requirement	Reference
RAB Context	Mandatory	7.7.19
Source RNC PDCP context info	Optional	7.7.~~61~~XX
Private Extension	Optional	7.7.46

*** Second Modification ***

7.7 Information Elements

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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.

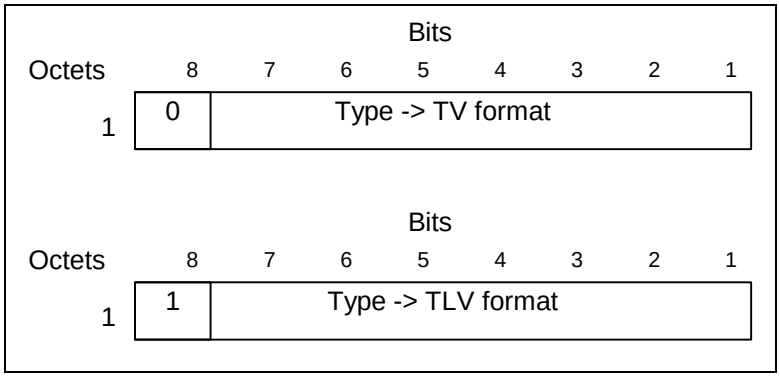

Figure 8: Type field for TV and TLV format

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10	Spare		
11	TV	MAP Cause	7.7.8
12	TV	P-TMSI Signature	7.7.9
13	TV	MS Validated	7.7.10
14	TV	Recovery	7.7.11
15	TV	Selection Mode	7.7.12
16	TV	Tunnel Endpoint Identifier Data I	7.7.13
17	TV	Tunnel Endpoint Identifier Control Plane	7.7.14
18	TV	Tunnel Endpoint Identifier Data II	7.7.15
19	TV	Teardown Ind	7.7.16
20	TV	NSAPI	7.7.17
21	TV	RANAP Cause	7.7.18
22	TV	RAB Context	7.7.19
23	TV	Radio Priority SMS	7.7.20
24	TV	Radio Priority	7.7.21
25	TV	Packet Flow Id	7.7.22
26	TV	Charging Characteristics	7.7.23
27	TV	Trace Reference	7.7.24
28	TV	Trace Type	7.7.25
29	TV	MS Not Reachable Reason	7.7.25A
30	TV	Radio Priority LCS	7.7.25B
31	TV	MBMS Session Duration	7.7.59
117-126	Reserved for the GPRS charging protocol (see GTP' in 3GPP TS 32.215 [18])		
127	TV	Charging ID	7.7.26
128	TLV	End User Address	7.7.27
129	TLV	MM Context	7.7.28
130	TLV	PDP Context	7.7.29
131	TLV	Access Point Name	7.7.30
132	TLV	Protocol Configuration Options	7.7.31
133	TLV	GSN Address	7.7.32
134	TLV	MS International PSTN/ISDN Number (MSISDN)	7.7.33
135	TLV	Quality of Service Profile	7.7.34
136	TLV	Authentication Quintuplet	7.7.35
137	TLV	Traffic Flow Template	7.7.36
138	TLV	Target Identification	7.7.37
139	TLV	UTRAN Transparent Container	7.7.38
140	TLV	RAB Setup Information	7.7.39
141	TLV	Extension Header Type List	7.7.40
142	TLV	Trigger Id	7.7.41
143	TLV	OMC Identity	7.7.42
144	TLV	RAN Transparent Container	7.7.43
145	TLV	PDP Context Prioritization	7.7.45
146	TLV	Additional RAB Setup Information	7.7.45A
147	TLV	SGSN Number	7.7.47
148	TLV	Common Flags	7.7.48
149	TLV	APN Restriction	7.7.49
150	TLV	Radio Priority LCS	7.7.25B
151	TLV	RAT Type	7.7.50
152	TLV	User Location Information	7.7.51
153	TLV	MS Time Zone	7.7.52
154	TLV	IMEI(SV)	7.7.53
155	TLV	CAMEL Charging Information Container	7.7.54
156	TLV	MBMS UE Context	7.7.55

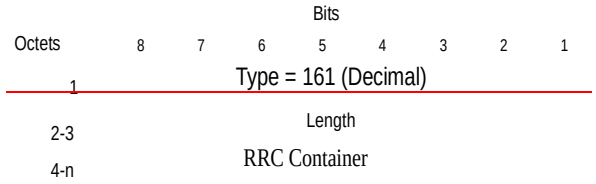
IE Type Value	Format	Information Element	Reference
157	TLV	Temporary Mobile Group Identity (TMGI)	7.7.56
158	TLV	RIM Routing Address	7.7.57
159	TLV	MBMS Protocol Configuration Options	7.7.58
160	TLV	MBMS Service Area	7.7.60
161XX	TLV	Source RNC PDCP context info	7.7.61XX
239-250	Reserved for the GPRS charging protocol (see GTP' in 3GPP TS 32.215 [18])		
251	TLV	Charging Gateway Address	7.7.44
252-254	Reserved for the GPRS charging protocol (see GTP' in 3GPP TS 32.215 [18])		
255	TLV	Private Extension	7.7.46

*** Third Modification ***

7.7. 61XX- Source RNC PDCP context info

The purpose of the Source RNC PDCP context info IE is to transfer RNC PDCP context information from a source RNC to a target RNC during an SRNS relocation procedure.

This IE is transparent to CN .



Bits

Octets	8	7	6	5	4	3	2	1
1	Type = 1XX (Decimal)							
2-3	Length							
4-n	RRC Container							

*** End Modification ***

3GPP TSG-CN WG4 Meeting #26 **Tdoc N4-050441**

Sydney, Australia, 14th to 18th February 2005.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.060** **CR** **541** ⌘ **rev** **1** ⌘ Current version: **5.12.0** ⌘

*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:	⌘	Clarification of PCO IE in Update PDP context response
Source:	⌘	CN4
Work item code:	⌘	TEI-5
Date:	⌘	20/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	During CN4#15 meeting the PCO IE was added to 29.060, chapters 7.3.3 Update PDP Context Request and 7.3.4 Update PDP Context Response in CR 329r1. However, it is not clear from the specification when the PCO shall be included in the Response. The reason for this CR is to adapt the behavior in SGSN when the GGSN rejects an Update PDP Context response with a reject cause, to make it possible to transfer the IE PCO from GGSN to MS also for that scenario. In order to be compatible with 24.008, where the PCO may be included in the MODIFY PDP CONTEXT REJECT message from the SGSN to the MS, the Update PDP Context Response in case of Reject needs to include the PCO IE. ESSENTIAL CORRECTION.
Summary of change:	⌘	In chapter 7.3.4 the PCO is added to the Update PDP Context Response also in case of another cause than 'Request accepted'.
Consequences if not approved:	⌘	The Protocol Configuration Options can not be transferred to the UE in this case, causing failure of indicating PDP parameters to the UE, which may result in communication failure.

Clauses affected:	⌘	7.3.4

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.

Start of modifications

7.3.4 Update PDP Context Response

The message shall be sent from a GGSN node to a SGSN node as a response of an Update PDP Context Request.

If the SGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context.

Only the Cause information element, optionally Protocol Configuration Options and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are:

- 'Request Accepted'.
- 'Non-existent'.
- 'Service not supported'.
- 'System failure'.
- 'Semantic error in the TFT operation'.
- 'Syntactic error in the TFT operation'.
- 'Semantic errors in packet filter(s)'.
- 'Syntactic errors in packet filters(s)'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.

The Tunnel Endpoint Identifier Data field specifies an uplink Tunnel Endpoint Identifier for G-PDUs that is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink G-PDUs that are related to the requested PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

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

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the GGSN. The negotiated values or the original value from SGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted'.

The GGSN may start to forward T-PDUs after the Update PDP Context Response has been sent. The SGSN may start to forward T-PDUs when the Update PDP Context Response has been received. In this case the SGSN shall also be prepared to receive T-PDUs from the GGSN after it has sent an Update PDP Context Request but before an Update PDP Context Response has been received.

The GGSN shall include a GGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). IPv4/IPv6 capable GGSN shall include both its IP version addresses. If the Update PDP Context Request received from the SGSN included IPv6 SGSN addresses, an IPv4/IPv6 capable GGSN shall include an IPv6 address in the field GGSN Address for User Traffic and a corresponding IPv4 address in the field Alternative GGSN Address for User Traffic. If SGSN included only an IPv4 SGSN address in the request, IPv4/IPv6 capable GGSN shall include IPv4 address for user traffic in the field GGSN Address for User Traffic and IPv6 address in the field Alternative GGSN Address for User Traffic. The SGSN shall store the GGSN Addresses and use one of them when sending G-PDUs to the GGSN 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 GGSN shall also include a GGSN address for control plane, which shall not differ from that provided at PDP context setup time and shall remain unchanged for the lifetime of the PDP context. If the Update PDP Context Request received from the SGSN included IPv6 SGSN addresses, an IPv4/IPv6 capable GGSN shall include an IPv6 address in the field GGSN Address for Control Plane and a corresponding IPv4 address in the field Alternative GGSN Address for Control Plane. If SGSN included only an IPv4 SGSN address in the request, IPv4/IPv6 capable GGSN shall include IPv4 address for Control plane in the field GGSN Address for Control Plane and IPv6 address for Control plane in the field Alternative GGSN Address for Control Plane.

The GGSN Address for control plane and the GGSN Address for user traffic shall be included if the Cause contains the value 'Request accepted'. The Alternative GGSN Addresses shall be included if the GGSN supports IPv6 below GTP and the Cause contains the value 'Request accepted'.

The GGSN shall include the Recovery information element into the Update PDP Context Response if the GGSN is in contact with the SGSN for the first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the GGSN.

The Charging ID is used to identify all charging records produced in SGSN(s) and the GGSN for this PDP context. The Charging ID has been previously generated by the GGSN and is unique for this PDP context. If an inter-SGSN routing area update occurs, it is transferred to the new SGSN as part of each active PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Charging Gateway Address is the IP address of the recommended Charging Gateway Functionality to which the SGSN should transfer the Charging Detail Records (CDR) for this PDP Context.

The Alternative Charging Gateway Address IE has a similar purpose as the Charging Gateway Address but enables co-existence of IPv4 and IPv6 stacks in the Ga charging interfaces, without mandating any node to have a dual stack. The format of the optional Alternative Charging Gateway Address information element is the same as the format of the Charging Gateway Address.

When both these addresses are present, the Charging Gateway address IE shall contain the IPv4 address of the Charging Gateway Function and the Alternative Charging Gateway address IE shall contain the IPv6 address of the Charging Gateway Function.

NOTE: The Charging Gateway Address and Alternative Charging Gateway Address both refer to the same Charging Gateway Function.

The optional Private Extension contains vendor or operator specific information.

The GGSN includes the Protocol Configuration Options (PCO) information element in the response if the GGSN wishes to provide the MS with application specific parameters.

Table 9: Information Elements in an Update PDP Context Response sent by a GGSN

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier Data I	Conditional	7.7.13
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Charging ID	Conditional	7.7.26
Protocol Configuration Options	Optional	7.7.31
GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Alternative GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
Alternative GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Quality of Service Profile	Conditional	7.7.34
Charging Gateway Address	Optional	7.7.44
Alternative Charging Gateway Address	Optional	7.7.44
Private Extension	Optional	7.7.46

The message can also be sent from a SGSN node to a GGSN node as a response of a GGSN-initiated Update PDP Context Request.

If the GGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context if the associated Update PDP Context Request was sent only to re-negotiate the QoS of a PDP context. Furthermore if the associated Update PDP Context Request included an 'End User Address' information element the GGSN shall delete the PDP context using the Delete PDP Context procedure and may notify the Operation and Maintenance network element.

Only the Cause information element, optionally Protocol Configuration Options and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are the same as for the Update PDP Context Response sent by a GGSN. When the optional IMSI IE value differs from the IMSI IE value associated to the PDP context, the SGSN shall respond using the cause value 'Non-existent'.

The SGSN includes the Protocol Configuration Options (PCO) information element in the response if the MS wishes to provide the GGSN with application specific parameters. The SGSN includes this IE in the Update PDP Context Response message if the associated Modify PDP Context Accept message from the MS includes protocol configuration options. The SGSN shall copy the content of this IE transparently from the content of the PCO IE in the Modify PDP Context Accept message.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the SGSN. The negotiated values or the original value from GGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted' and a QoS information element was supplied in the corresponding request message.

The SGSN shall include the Recovery information element into the Update PDP Context Response if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the SGSN.

Table 10: Information Elements in an Update PDP Context Response sent by a SGSN

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Protocol Configuration Options	Optional	7.7.31
Quality of Service Profile	Conditional	7.7.34
Private Extension	Optional	7.7.46

3GPP TSG-CN WG4 Meeting #26 **Tdoc N4-050442**

Sydney, Australia, 14th to 18th February 2005.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.060** **CR** **540** ⌘ **rev** **1** ⌘ Current version: **6.7.0** ⌘

*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:	⌘	Clarification of PCO IE in Update PDP context response
Source:	⌘	Ericsson
Work item code:	⌘	TEI-5
Date:	⌘	20/01/2005
Category:	⌘	**A**
Release:	⌘	Rel-6

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

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	During CN4#15 meeting the PCO IE was added to 29.060, chapters 7.3.3 Update PDP Context Request and 7.3.4 Update PDP Context Response in CR 329r1. However, it is not clear from the specification when the PCO shall be included in the Response. The reason for this CR is to adapt the behavior in SGSN when the GGSN rejects an Update PDP Context response with a reject cause, to make it possible to transfer the IE PCO from GGSN to MS also for that scenario. In order to be compatible with 24.008, where the PCO may be included in the MODIFY PDP CONTEXT REJECT message from the SGSN to the MS, the Update PDP Context Response in case of Reject needs to include the PCO IE.
Summary of change:	⌘	In chapter 7.3.4 the PCO is added to the Update PDP Context Response also in case of another cause than 'Request accepted'.
Consequences if not approved:	⌘	The Protocol Configuration Options can not be transferred to the UE in this case, causing failure of indicating PDP parameters to the UE, which may result in communication failure.

Clauses affected:	⌘	7.3.4

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.

Start of modifications

7.3.4 Update PDP Context Response

The message shall be sent from a GGSN node to a SGSN node as a response of an Update PDP Context Request.

If the SGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context.

If the SGSN receives an Update PDP Context Response with a Cause value ‘Non-existent', it shall delete the PDP Context.

Only the Cause information element, optionally Protocol Configuration Options and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are:

- 'Request Accepted'.
- 'Non-existent'.
- 'Service not supported'.
- 'System failure'.
- 'Semantic error in the TFT operation'.
- 'Syntactic error in the TFT operation'.
- 'Semantic errors in packet filter(s)'.
- 'Syntactic errors in packet filters(s)'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.

The Tunnel Endpoint Identifier Data field specifies an uplink Tunnel Endpoint Identifier for G-PDUs that is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink G-PDUs that are related to the requested PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

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

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the GGSN. The negotiated values or the original value from SGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted'.

The GGSN may start to forward T-PDUs after the Update PDP Context Response has been sent. The SGSN may start to forward T-PDUs when the Update PDP Context Response has been received. In this case the SGSN shall also be prepared to receive T-PDUs from the GGSN after it has sent an Update PDP Context Request but before an Update PDP Context Response has been received.

The GGSN shall include a GGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). An IPv4/IPv6 capable GGSN shall include both its IP version addresses. If the Update PDP Context Request received from the SGSN included IPv6 SGSN addresses, an IPv4/IPv6 capable GGSN shall include an IPv6 address in the field GGSN Address for User Traffic and a corresponding IPv4 address in the field Alternative GGSN Address for User Traffic. If SGSN included only an IPv4 SGSN address in the request, IPv4/IPv6 capable GGSN shall include IPv4 address for user traffic in the field GGSN Address for User Traffic and IPv6 address in the field Alternative GGSN Address for User Traffic. An IPv4/IPv6 capable SGSN shall store the GGSN Addresses and use one of them when sending G-PDUs to the GGSN for the MS. An IPv4 only SGSN shall not store the IPv6 address included in the Alternative GGSN Address. 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 GGSN shall also include a GGSN address for control plane, which shall not differ from that provided at PDP context setup time and shall remain unchanged for the lifetime of the PDP context. If the Update PDP Context Request received from the SGSN included IPv6 SGSN addresses, an IPv4/IPv6 capable GGSN shall include an IPv6 address in the field GGSN Address for Control Plane and a corresponding IPv4 address in the field Alternative GGSN Address for Control Plane. If SGSN included only an IPv4 SGSN address in the request, IPv4/IPv6 capable GGSN shall include IPv4 address for Control plane in the field GGSN Address for Control Plane and IPv6 address for Control plane in the field Alternative GGSN Address for Control Plane.

The GGSN Address for control plane and the GGSN Address for user traffic shall be included if the Cause contains the value 'Request accepted'. The Alternative GGSN Addresses shall be included if the GGSN supports IPv6 below GTP and the Cause contains the value 'Request accepted'.

The GGSN shall include the Recovery information element into the Update PDP Context Response if the GGSN is in contact with the SGSN for the first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN or if the GGSN has noticed that the path between itself and the SGSN has failed at some point and has deleted all the active PDP contexts, MBMS UE contexts, and MBMS Bearer contexts associated with the SGSN as a result and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the GGSN.

The Charging ID is used to identify all charging records produced in SGSN(s) and the GGSN for this PDP context. The Charging ID has been previously generated by the GGSN and is unique for this PDP context. If an inter-SGSN routing area update occurs, it is transferred to the new SGSN as part of each active PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Charging Gateway Address is the IP address of the recommended Charging Gateway Functionality to which the SGSN should transfer the Charging Detail Records (CDR) for this PDP Context.

The Alternative Charging Gateway Address IE has a similar purpose as the Charging Gateway Address but enables co-existence of IPv4 and IPv6 stacks in the Ga charging interfaces, without mandating any node to have a dual stack. The format of the optional Alternative Charging Gateway Address information element is the same as the format of the Charging Gateway Address.

When both these addresses are present, the Charging Gateway address IE shall contain the IPv4 address of the Charging Gateway Function and the Alternative Charging Gateway address IE shall contain the IPv6 address of the Charging Gateway Function.

NOTE: The Charging Gateway Address and Alternative Charging Gateway Address both refer to the same Charging Gateway Function.

The optional Private Extension contains vendor or operator specific information.

The GGSN includes the Protocol Configuration Options (PCO) information element in the response if the GGSN wishes to provide the MS with application specific parameters.

The presence of the Common Flags IE is optional. If the Prohibit Payload Compression bit of the Common Flags IE is set to 1, then for A/Gb mode access the SGSN shall not compress the payload of user data regardless of whether the user asks for payload compression. If the Prohibit Payload Compression bit of the Common Flags IE is set to 0 or the Common Flags IE is absent then the SGSN shall perform payload compression when the user asks for it as per normal operation.

The APN Restriction is an optional information element. In this instance it is used by the GGSN to convey to the SGSN the restriction type of the associated PDP Context being updated.

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Alternative GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Quality of Service Profile	Conditional	7.7.34
Charging Gateway Address	Optional	7.7.44
Alternative Charging Gateway Address	Optional	7.7.44
Private Extension	Optional	7.7.46
Common Flags	Optional	7.7.48
APN Restriction	Optional	7.7.49

The message can also be sent from a SGSN node to a GGSN node as a response of a GGSN-initiated Update PDP Context Request.

If the GGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context if the associated Update PDP Context Request was sent only to re-negotiate the QoS of a PDP context. Furthermore if the associated Update PDP Context Request included an 'End User Address' information element the GGSN shall delete the PDP context using the Delete PDP Context procedure and may notify the Operation and Maintenance network element.

Only the Cause information element, optionally Protocol Configuration Options and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are the same as for the Update PDP Context Response sent by a GGSN. When the optional IMSI IE value differs from the IMSI IE value associated to the PDP context, the SGSN shall respond using the cause value 'Non-existent'.

The SGSN includes the Protocol Configuration Options (PCO) information element in the response if the MS wishes to provide the GGSN with application specific parameters. The SGSN includes this IE in the Update PDP Context Response message if the associated Modify PDP Context Accept message from the MS includes protocol configuration options. The SGSN shall copy the content of this IE transparently from the content of the PCO IE in the Modify PDP Context Accept message.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the SGSN. The negotiated values or the original value from GGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted' and a QoS information element was supplied in the corresponding request message.

The SGSN shall include the Recovery information element into the Update PDP Context Response if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN or if the SGSN has noticed that the path between itself and the GGSN has failed at some point and has deleted all the active PDP contexts, MBMS UE contexts, and MBMS Bearer contexts associated with the GGSN as a result and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the SGSN.

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