3GPP TSG_CN#7 ETSI SMG3 Plenary Meeting #7, Madrid, Spain 13th – 15th March 2000

Agenda item:5.1.3Source:TSG_N WG1Title:CRs to 3G Work Item GPRS

Introduction:

This document contains "21" CRs on **Work Item GPRS**, that have been agreed by **TSG_N WG1**, and are forwarded to **TSG_N Plenary** meeting #7 for approval.

Tdoc	Spec	CR	R ev	CAT	Rel.	Old Ver	New Ver	Subject
N1-000253	04.08	CRA975	1	Α	R98	7.4.0	7.6.0	Clarification to the MS handling when
								receiving detach type 'IMSI detach'
N1-000252	04.08	CRA973	1	F	R97	6.7.0	6.9.0	Clarification to the MS handling when
								receiving detach type 'IMSI detach'
N1-000457	24.008	CR139	1	A	R99	3.2.1	3.3.0	Collision of network initiated Detach
								with the attach and RAU procedure
N1-000326	24.008	CR140		A	R99	3.2.1	3.3.0	Conditions when to start the GMM timer T3321
N1-000363	09.18	CRA044		F	R98	7.2.0	7.3.0	Correction of Gs Cause
N1-000362	09.18	CRA043		F	R97	6.5.0	6.6.0	Correction of Gs Cause
N1-000234	04.08	CRA959	1	А	R98	7.4.0	7.6.0	Correction of N-PDU IE Length in
								GMM messages Routing Area Update
								Accept and Routing Area Update
								Complete.
N1-000248	04.08	CRA957	2	F	R97	6.7.0	6.9.0	Correction of N-PDU IE Length in
								GMM messages Routing Area Update
								Complete
N1 000235	24.008	CP 110	1	٨	D 00	3 2 1	330	Correction of N PDU IE Longth in
N1-000233	24.000	CK 119	1	A	K77	5.2.1	5.5.0	GMM messages Routing Area Undate
								Accept and Routing Area Undate
								Complete.
N1-000365	29.018	CR009		F	R99	3.2.0	3.3.0	Encoding of MS classmark in LUP
								Request
N1-000495	04.08	CRA1007		А	R98	7.4.0	7.6.0	GPRS detach type corrections
N1-000494	04.08	CRA1003		F	R97	6.7.0	6.9.0	GPRS detach type corrections
N1-000092	04.08	CRA955		А	R98	7.4.0	7.6.0	Removal of APN from REQUEST PDP
								CONTEXT ACTIVATION REJECT
								message
N1-000091	04.08	CRA953		F	R97	6.7.0	6.9.0	Removal of APN from REQUEST PDP
								CONTEXT ACTIVATION REJECT
								message
N1-000093	24.008	CR117		A	R99	3.2.1	3.3.0	Removal of APN from REQUEST PDP
								CONTEXT ACTIVATION REJECT
N1 000224	20.019	CD 002	2	•	DOC	220	220	message
INT-000334	29.018	CK 003	12	A	K99	3.2.0	3.3.0	SUSIN reaction upon a KAU request after

								VLR failure
N1-000459	24.008	CR 091	1	Α	R99	3.2.1	3.3.0	Timer control for GPRS detach
N1-000561	24.008	CR182	2	A	R99	3.2.1	3.3.0	Usage of cause code IE in network initiated detach
N1-000237	04.08	CRA963	1	A	R98	7.4.0	7.6.0	Usage of Combined Procedures during CM service reject
N1-000249	04.08	CRA961	2	F	R97	6.7.0	6.9.0	Usage of Combined Procedures during CM service reject
N1-000238	24.008	CR120	1	A	R99	3.2.1	3.3.0	Usage of Combined Procedures during CM service reject

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

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		04.08	CR /	4953	Current Versio	on: 6.7.0	
GSM (AA.BB) or 3G	(AA.BBB) specifica	tion number ↑		↑ CR nui	mber as allocated by MCC s	support team	
For submission t list expected approval me	to: CN#7 eeting # here ↑	for ap for infor	oproval) mation		strate non-strate	gic (for SMG gic use only)	
Forr Proposed chang (at least one should be m	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) (U)SIM ME X UTRAN / Radio Core Network X						
Source:	CN1				Date:	04/01/2000	
Subject:	Removal of	APN from REQU	EST PDP		ACTIVATION RE.	JECT message	
Work item:	GPRS						
Category:FA(only one categoryshall be markedCwith an X)D	Correction Correspond Addition of f Functional r Editorial mo	s to a correction i eature nodification of fea dification	n an earlie ature	r release	X Release:	Phase 2Release 96Release 97XRelease 98Release 99Release 00	
<u>Reason for</u> <u>change:</u>	The original ACTIVATIO correspondin each messa If the curren says that a F but if they ar to clarify this condition "is	reason for adding N REJECT messing REQUEST PD ge should be end t collision behavio REJECT should a e not equal. This ambiguity it is pr able to compare	g the APN age was to P CONTE ough to link our describ lso be sen is because oposed to	to the REC enable th XT ACTIV these me ed in sec. d if the MS of the us replace th	QUEST PDP CONT ie network to tie this (ATION message, ssages together, 6.1.3.1.5 is read ve 5 is able to compare age of the word "other ie term "otherwise"	EXT s message to the However, the TI in ery correctly, it e the parameters, herwise". In order with the explicit	
Clauses affected	l: 6.1.3.1.	<mark>4, 6.1.3.1.5 , 9.5.</mark>	5				
Other specs affected:	Other 3G core Other GSM co MS test speci BSS test spec O&M specifica	e specifications ore specifications fications ifications ations	$\begin{array}{c} \rightarrow \\ \end{array}$	List of CR List of CR List of CR List of CR List of CR	s: s: s: s: s:		
<u>Other</u> comments:							

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains <u>the same TI as included inall parameters of</u> the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;# 31: activation rejected, unspecified;# 40: feature not supported; or# 95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** Next Modified Section ***

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resend the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resend the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected withinn the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

NOTE: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the

REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. Otherwise-If the MS is not able to compare the PDP type, PDP address, and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message, then the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to <u>0</u>23.060 annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure and proceed with the MS initiated PDP context activation procedure.

*** Next Modified Section ***

9.5.5 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation. See table 9.5.5/GSM 04.08.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.5/GSM 04.08: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	М	V	1/2
	Request PDP context act. Reject message identity	Message type 10.4	М	V	1
	SM cause	SM cause 10.5.6.6	М	V	1
28	Access point name	Access point name 10.5.6.1	Φ	TLV	3-102

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

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		04.08	CR /	A955	Current Versio	on: 7.4.0
GSM (AA.BB) or 3G	(AA.BBB) specifica	ation number \uparrow		↑ CR nur	nber as allocated by MCC s	upport team
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Proposed change (at least one should be n	je affects: narked with an X)	(U)SIM	ME	X UTR	RAN / Radio	Core Network X
Source:	CN1				Date:	04/01/2000
Subject:	Removal of	APN from REQU	EST PDP	CONTEXT	ACTIVATION REJ	IECT message
Work item:	GPRS					
Category:FA(only one categoryshall be markedCwith an X)D	Correction Correspond Addition of Functional Editorial mo	ls to a correction i feature modification of fea odification	n an earlie ature	er release	X X	Phase 2Release 96Release 97Release 98XRelease 99Release 00
<u>Reason for</u> <u>change:</u>	The original ACTIVATIC correspondi each messa If the curren says that a but if they a to clarify this condition "is	reason for adding N REJECT messing REQUEST PD age should be end to collision behavio REJECT should a re not equal. This s ambiguity it is pro- able to compare	g the APN age was to P CONTE ough to linh our describ lso be ser is becaus oposed to	to the REC o enable th EXT ACTIV these me oed in sec. ad if the MS e of the us replace th	QUEST PDP CONT e network to tie this ATION message. I ssages together. 6.1.3.1.5 is read ve is able to compare age of the word "other e term "otherwise" ve	EXT s message to the However, the TI in ery correctly, it the parameters, herwise". In order with the explicit
Clauses affected	<u>d:</u> 6.1.3.1	<mark>.4, 6.1.3.1.5, 9.5.</mark> 5	5			
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<u>Other</u> comments:						

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains <u>the same TI as included inall parameters of</u> the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

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The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** Next Modified Section ***

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On the network side:

On the first expiry of the timer T3385, the network shall resent the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected within the mobile station:

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NOTE: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

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Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to $\frac{20}{3.060}$ annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure.

*** Next Modified Section ***

9.5.5 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation. See table 9.5.5/GSM 04.08.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.5/GSM 04.08: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	М	V	1/2
	Request PDP context act. reject message identity	Message type 10.4	М	V	1
	SM cause	SM cause 10.5.6.6	М	V	1
28	Access point name	Access point name 10.5.6.1	Φ	TLV	3-102

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

			CHANGE I	REQL	JEST	Please see e page for insti	mbedded help fi ructions on how	ile at the bottom of t to fill in this form co	this rrectly.
			24.008	CR	117	Cu	Irrent Versio	on: 3.2.1	
GSM (AA.BB) or 3	3G (/	AA.BBB) specifica	tion number ↑		↑ CF	R number as allo	ocated by MCC s	support team	
For submissio	n to I mee	b: CN#7 eting # here ↑	for a for infor	oproval mation	X	orm is available fr	strate	gic (for S gic use o	SMG only)
Proposed chai	Proposed change affects: (U)SIM ME X UTRAN / Radio Core Network X at least one should be marked with an X)								
Source:		CN1					Date:	04/01/2000	
Subject:		Removal of	APN from REQU	EST PD	<mark>P CONTE</mark>	EXT ACTIV	ATION RE.	JECT messag	je
Work item:		GPRS							
Category: (only one category shall be marked with an X)	F A B C D	Correction Correspond Addition of Functional n Editorial mo	ls to a correction feature modification of fea odification	in an ear ature	lier releas	se X	<u>Release:</u>	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00	X
<u>Reason for</u> <u>change:</u>		The original ACTIVATIO correspondi each messa If the curren says that a l but if they a to clarify this condition "is	reason for adding N REJECT mess ng REQUEST PE ge should be end t collision behavio REJECT should a re not equal. This s ambiguity it is pr able to compare	g the AP age was DP CONT bugh to li bur desc is becau oposed	N to the F to enable FEXT AC nk these ribed in se end if the use of the to replace	REQUEST the netwo TIVATION messages ec. 6.1.3.1. MS is able usage of the the term	PDP CONT rk to tie this message. together. 5 is read ve to compare he word "ot otherwise"	EXT s message to However, the ery correctly, in the paramet herwise". In o with the explice	the TI in t cers, rder cit
Clauses affect	ed:	6.1.3.1	. <mark>4, 6.1.3.1.5, 9.5.</mark> 8	3					
Other specs affected:	C C M B C	Other 3G core Other GSM co 1S test speci SS test speci 0&M specific	e specifications ore specifications fications cifications ations		$ \begin{array}{l} \rightarrow \text{ List of } \\ \rightarrow \text{ List of } \end{array} $	CRs: CRs: CRs: CRs: CRs: CRs:			
<u>Other</u> comments:									

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included inall parameters of the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** Next Modified Section ***

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resend the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resend the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected within the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

Note: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and

APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. Otherwise If the MS is not able to compare the PDP type, PDP address, and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message, then the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

- In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure

*** Next Modified Section ***

9.5.8 Request PDP context activation reject

This message is sent by the MS to the network to reject initiation of a PDP context activation. See table 9.5.8/TS 24.008.

Message type: REQUEST PDP CONTEXT ACTIVATION REJECT

Significance: global

Direction: MS to network

Table 9.5.8/TS 24.008: REQUEST PDP CONTEXT ACTIVATION REJECT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	М	V	1/2
	Request PDP context act. reject message identity	Message type 10.4	М	V	1
	SM cause	SM cause 10.5.6.6	М	V	1
28	Access point name	Access point name 10.5.6.1	Φ	TLV	3 – 102

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 the page for instructions on how to fill in this form con	nis rectly.					
		04.08 CR A959r1 Current Version: 7.4.0						
GSM (AA.BB) or	3G ((AA.BBB) specification number ↑						
For submissic	on to al me	to: CN1 for approval X strategic (for Su seeing # here ↑ for information use of	MG nly)					
	Form	m: 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	n-v2.doc					
Proposed cha (at least one should b	nge ne ma	e affects: (U)SIM ME X UTRAN / Radio Core Network	< <mark>X</mark>					
Source:		CN1 <u>Date:</u> 20-01-2000						
Subject:		Corrections to SN-PDU IE length in GMM messages						
Work item:		GPRS						
Category: (only one category shall be marked with an X)	F A B C D	CorrectionRelease:Phase 2Corresponds to a correction in an earlier releaseXRelease 96Addition of featureRelease 97Release 97Functional modification of featureRelease 98Release 99Editorial modificationRelease 00Release 00	x					
<u>Reason for</u> change:		The Routing Area Update Accept message (section 9.4.15) and Routing Area Update Comp message (section 9.4.16) contain the SN-PDU list IE as part of the messages. The Maximum length of the IE should be changed from 17 to 19 as justified below:	olete					
		1. The SN-PDU list IE is in the TLV format, where T and L together occupy 2 octets.						
		2. In section 10.5.5.11, the description of the IE shall be interpreted this way:	.11, the description of the IE shall be interpreted this way:					
		There are a total of 11 NSAPIs.	total of 11 NSAPIs.					
		Each NSAPI will be represented as a bit string of 12 bits, where 4 bits represent the NSAPI identifier and 8 bits represent the N-PDU number values.	PI will be represented as a bit string of 12 bits, where 4 bits represent the NSAPI and 8 bits represent the N-PDU number values.					
		To represent all the NSAPIs a total of 132 bits (sixteen and a half octets) which will have to rounded to 17 octets.	be					
		So, to represent the case of all NSAPIs active, the maximum length of the IE has to be chan to 19 octets $(T + L + V)$.	ged					
Clauses affect	ted	1: 9.4.15; 9.4.16, and 10.5.5.11.						
Other specs affected:		Other 3G core specifications \rightarrow List of CRs:Other GSM core specifications \rightarrow List of CRs:MS test specifications \rightarrow List of CRs:BSS test specifications \rightarrow List of CRs:O&M specifications \rightarrow List of CRs:						
<u>Other</u> comments:	Т	This CR is of type C1.						

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

9.4.15 Routing area update accept

This message is sent by the network to the MS to provide the MS with GPRS mobility management related data in response to a *routing area update request* message . See table 9.4.15/GSM 04.08.

Message type: ROUTING AREA UPDATE ACCEPT

Significance: dual

Direction: network to MS

Table 9.4.15/GSM 04.08: ROUTING AREA UPDATE ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Skip indicator	Skip indicator 10.3.1	М	V	1/2
	Routing area update accept message identity	Message type 10.4	М	V	1
	Force to standby	Force to standby 10.5.5.7	М	V	1/2
	Update result	Update result 10.5.5.17	М	V	1/2
	Periodic RA update timer	GPRS Timer 10.5.7.3	М	V	1
	Routing area identification	Routing area identification 10.5.5.15	М	V	6
19	P-TMSI signature	P-TMSI signature 10.5.5.8	0	TV	4
18	Allocated P-TMSI	Mobile identity 10.5.1.4	0	TLV	7
23	MS identity	Mobile identity 10.5.1.4	0	TLV	7
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	0	TLV	4 - 1 <u>9</u> 7
17	Negotiated READY timer value	GPRS Timer 10.5.7.3	0	TV	2
25	GMM cause	GMM cause 10.5.5.14	0	TV	2

9.4.15.1 P-TMSI signature

This IE may be included to assign an identity to the MS's GMM context.

9.4.15.2 Allocated P-TMSI

This IE may be included to assign a P-TMSI to an MS in case of a GPRS or combined routing area updating procedure.

9.4.15.3 MS identity

This IE may be included to assign or unassign a TMSI to a MS in case of a combined routing area updating procedure.

9.4.15.4 List of Receive N-PDU Numbers

This IE shall be included in case of an inter SGSN routing area updating, if there are PDP contexts that have been activated in acknowledged transfer mode.

9.4.15.5 Negotiated READY timer value

This IE may be included to indicate a value for the READY timer.

9.4.15.6 GMM cause

This IE shall be included if IMSI attach was not successful for non-GPRS services during a combined GPRS routing area updating procedure.

9.4.16 Routing area update complete

This message shall be sent by the MS to the network in response to a *routing area update accept message* if a P-TMSI and/or a TMSI has been assigned and/or if there are established LLC connections. See table 9.4.16/GSM 04.08.

Message type: ROUTING AREA UPDATE COMPLETE

Significance: dual

1

Direction: MS to network

Table 9.4.16/GSM 04.08: ROUTING AREA UPDATE COMPLETE message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator	М	V	1/2
	Skip indicator	Skip indicator 10.3.1	М	V	1/2
	Routing area update complete message identity	Message type 10.4	М	V	1
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	0	TLV	4 - 1 <u>9</u> 7

9.4.16.1 List of Receive N-PDU Numbers

This IE shall be included if the routing area update accept message contained this IE.

10.5.5.11 Receive N-PDU Number list

The purpose of the *Receive N-PDU Number list* information element is to specify the current SNDCP Receive N-PDU Number values.

The *Receive N-PDU Number list* is a type 4 information element with a length of 4 to 197 octets.

The value part of an *Receive N-PDU Number list* information element is coded as shown in figure 10.5.127/GSM 04.08 and table 10.5.144/GSM 04.08.

	8	7	6		5		
_		4	3	2	1		
		Receive N-	PDU Number	list I	EI	octet	1
		Length of Rec	eive N-PDU contents	Number	list	octet	2
						octet	3
		Receive 1	N-PDU Numbe	r -list		octet	4
						octet	n

Figure 10.5.127/GSM 04.08: Receive N-PDU Number list information element

Table 10.5.144/GSM 04.08: Receive N-PDU Number list information element

```
Receive N-PDU Number-list value ::=
{
 < Receive N-PDU Number list >
 < Padding bits >
};
< Receive N-PDU Number list > ::= < nsapi : bit-string(4) >
< Receive N-PDU Number value : bit-string(8) >
{ < Receive N-PDU Number list> | < null > };
< nsapi > ::=
{ 0101 } |
            -- NSAPI 5
{ 0110 } |
            -- NSAPI 6
{ 0111 } |
            -- NSAPI 7
            -- NSAPI 8
{ 1000 };|
{ 1001 };
             -- NSAPI 9
{ 1010 };
             -- NSAPI 10
{ 1011 };
             -- NSAPI 11
{ 1100 };
             -- NSAPI 12
{ 1101 };
             -- NSAPI 13
             -- NSAPI 14
{ 1110 };|
{ 1111 };
             -- NSAPI 15
< Receive N-PDU Number value > ::= \{ 0 | 1 \} (8) ;
-- Contains the binary coded representation of the receive N-PDU Number value.
-- The first bit in transmission order is the most significant bit.
<Padding bits> ::= null | 0000;
```

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

			CHANC	GE R	EQU	EST pa	llease see e age for inst	embedded help fi ructions on how	ile at the bottom of th to fill in this form corr	is rectly.
			24.0	800	CR 🥤	19r1	Cı	urrent Versio	on: <mark>3.2.1</mark>	
GSM (AA.BB) or	3G (/	AA.BBB) specifica	tion number \uparrow			↑ CR nur	nber as allo	ocated by MCC s	support team	
For submissio	on to	D: TSGN#7 eting # here ↑	fo	for app or inform	oroval 2 nation	K		strate non-strate	gic (for SI gic use of	MG nly)
Proposed cha	Form. nge e ma	CR cover sheet, ve affects: rked with an X)	rsion 2 for 3GPP al (U)SIM	nd SMG	The latest ver	sion of this form is	is available fro RAN / Ra	om: ftp://ftp.3gpp.o.	rg/Information/CR-Form	x X
Source:		CN1						Date:	20-01-2000	
Subject:		Corrections	to SN-PDU	IE leng	<mark>th in GM</mark>	<mark>M messag</mark>	jes			
<u>Work item:</u>		GPRS								
Category: (only one category shall be marked with an X)	F A B C D	Correction Correspond Addition of f Functional r Editorial mo	s to a corre eature nodification dification	ection in 1 of featu	an earlie ure	er release	X	<u>Release:</u>	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00	X
Reason for change:The Routing a message (sector)			Area Update tion 9.4.16)	Accept	message he SN-PE	(section 9.4) OU list IE as	(15) and s part of	Routing Are the messages	a Update Comp	lete
		The Maximu	m length of t	he IE sh	ould be cl	nanged from	n 17 to 1	9 as justified	below:	
		1. The SN-PI	DU list IE is	in the TI	LV forma	t, where T a	and L tog	ether occupy	2 octets.	
		2. In section	10.5.5.11, th	e descrip	otion of th	e IE shall b	e interpr	eted this way	/:	
		There are a to	otal of 11 NS	SAPIs.		6101				
		identifier and	8 bits repres	sented a sent the l	s a bit str N-PDU ni	ing of 12 bi umber value	ts, where es.	e 4 bits repre	sent the NSAPI	
		To represent rounded to 17	all the NSAI 7 octets.	PIs a tota	ıl of 132 t	oits (sixteen	and a ha	alf octets) wh	ich will have to	be
		So, to represe to 19 octets (ent the case of $\Gamma + L + V$).	of all NS.	APIs activ	ve, the maxi	imum ler	ngth of the IE	E has to be chan	ged
Clauses affect	ed:	9.4.15;	9.4.16, and	<mark>l 10.5.5.</mark>	.11.					
Other specs affected:		Other 3G core Other GSM co 1S test speci SS test speci 0&M specific	e specificati pre specifica fications cifications ations	ons ations	$\begin{array}{c} \rightarrow \\ \rightarrow \\ \rightarrow \\ \rightarrow \\ \rightarrow \\ \rightarrow \\ \end{array}$	List of CR List of CR List of CR List of CR List of CR	S: S: S: S: S:			
<u>Other</u> comments:	Т	his CR is of	type C1.							

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

9.4.15 Routing area update accept

This message is sent by the network to the MS to provide the MS with GPRS mobility management related data in response to a *routing area update request* message . See table 9.4.15/TS 24.008.

Message type: ROUTING AREA UPDATE ACCEPT

Significance: dual

Direction: network to MS

Table 9.4.15/TS 24.008: ROUTING AREA UPDATE ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Skip indicator	Skip indicator 10.3.1	М	V	1/2
	Routing area update accept message identity	Message type 10.4	М	V	1
	Force to standby	Force to standby 10.5.5.7	М	V	1/2
	Update result	Update result 10.5.5.17	М	V	1/2
	Periodic RA update timer	GPRS Timer 10.5.7.3	М	V	1
	Routing area identification	Routing area identification 10.5.5.15	М	V	6
19	P-TMSI signature	P-TMSI signature 10.5.5.8	0	TV	4
18	Allocated P-TMSI	Mobile identity 10.5.1.4	0	TLV	7
23	MS identity	Mobile identity 10.5.1.4	0	TLV	7
26	List of Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	0	TLV	4 - 1 <u>9</u> 7
17	Negotiated READY timer value	GPRS Timer 10.5.7.3	0	TV	2
25	GMM cause	GMM cause 10.5.5.14	0	TV	2

9.4.15.1 P-TMSI signature

This IE may be included to assign an identity to the MS's GMM context.

9.4.15.2 Allocated P-TMSI

This IE may be included to assign a P-TMSI to an MS in case of a GPRS or combined routing area updating procedure.

9.4.15.3 MS identity

This IE may be included to assign or unassign a TMSI to a MS in case of a combined routing area updating procedure.

9.4.15.4 List of Receive N-PDU Numbers

This IE shall be included in case of an inter SGSN routing area updating, if there are PDP contexts that have been activated in acknowledged transfer mode.

9.4.15.5 Negotiated READY timer value

This IE may be included to indicate a value for the READY timer.

9.4.15.6 GMM cause

This IE shall be included if IMSI attach was not successful for non-GPRS services during a combined GPRS routing area updating procedure.

9.4.16 Routing area update complete

This message shall be sent by the MS to the network in response to a *routing area update accept message* if a P-TMSI and/or a TMSI has been assigned and/or if there are established LLC connections. See table 9.4.16/TS 24.008.

Message type: ROUTING AREA UPDATE COMPLETE

Significance: dual

Direction: MS to network

Table 9.4.16/TS 24.008: ROUTING AREA UPDATE COMPLETE message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Skip indicator	Skip indicator 10.3.1	М	V	1/2
	Routing area update complete message identity	Message type 10.4	М	V	1
26	List of Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	0	TLV	4 - 1 <u>9</u> 7

9.4.16.1 List of Receive N-PDU Numbers

This IE shall be included if the routing area update accept message contained this IE.

10.5.5.11 Receive N-PDU Numbers list

The purpose of the *Receive N-PDU Numbers list* information element is to specify the current SNDCP Receive N-PDU Number values.

The *Receive N-PDU Number list* is a type 4 information element with a length of 4 to 197 octets.

The value part of a *Receive N-PDU Number list* information element is coded as shown in figure 10.5.127/TS 24.008 and table 10.5.144/TS 24.008.





Table 10.5.144/TS 24.008: Receive N-PDU Number list information element

```
Receive N-PDU Number -list value ::=
{
 < Receive N-PDU Number -list >
 < Padding bits>
};
< Receive N-PDU Number-list > ::= < sapi : bit-string(4) > < Receive N-PDU
Number-value : bit-string(8) > { < Receive N-PDU Number-list> | < null > };
< nsapi > ::=
{ 0101 }; | -- NSAPI 5
{ 0110 }; | -- NSAPI 6
{ 0111 }; | -- NSAPI 7
{ 1000 }; | -- NSAPI 8
{ 1001 }; | -- NSAPI 9
{ 1010 }; | -- NSAPI 10
{ 1011 }; | -- NSAPI 11
{ 1100 }; | -- NSAPI 12
{ 1101 }; | -- NSAPI 13
{ 1110 }; | -- NSAPI 14
{ 1111 }; -- NSAPI 15
< Receive N-PDU Number-value > ::= \{ 0 | 1 \} (8) ;
-- Contains the binary coded representation of the receive N-PDU Number value.
-- The first bit in transmission order is the most significant bit.
<Padding bits> ::= null | 0000;
```

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.						
		04.08 CR	A963r1	Current Versio	on: 7.4.0		
GSM (AA.BB) or 3G ((AA.BBB) specification numb	per↑	↑ CR numbe	er as allocated by MCC s	upport team		
For submission to	0: CN#7 beting # here ↑	for approva for information	st version of this form is av	strate(non-strate(gic (for SMG use only)		
Proposed change (at least one should be ma	e affects: (U) arked with an X))SIM ME	X UTRA	N / Radio	Core Network		
<u>Source:</u>	CN1			Date:	19-01-2000		
Subject:	Interpretation of CN	<mark>A service reject ir</mark>	MS supporting	GPRS services			
Work item:	GPRS						
Category:F A(only one categoryBshall be markedCwith an X)DReason for change:	Correction Corresponds to a of Addition of feature Functional modific Editorial modificati In section 4.5.1.1 Update procedu the network with An MS operatin procedures as lo proposed change	correction in an e ation of feature on I, it is stated th re if a CM serv h cause IMSI U g in operation ong as the netwo e is in consister	arlier release at the MS show ice request ma inknown in VI modes A or B ork is operation it with the stat	Release: x	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00 mal Location was rejected by t combined mode I. The on 4.1.1.2.1 and		
	4.2.3.1.4.						
Clauses affected	4.7.5.2.1						
Other specs affected:Other 3G core specificationsOther GSM core specifications MS test specifications BSS test specifications O&M specifications			$\begin{array}{l} \rightarrow \mbox{ List of CRs:} \\ \rightarrow \mbox{ List of CRs:} \end{array}$				
Other comments:	This CR is of type C	1.					

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

4.7.5.2 Combined routing area updating procedure

Within a combined routing area updating procedure the messages ROUTING AREA UPDATE ACCEPT and ROUTING AREA UPDATE COMPLETE carry information for the routing area updating and the location area updating.

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE; or
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services; or
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the LA during that non-GPRS service transaction-; or
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1), in which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach".

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.							
		24.008	CR	120r1	Currer	nt Versio	on: 3.2.1	
GSM (AA.BB) or 3G ((AA.BBB) specifica	tion number \uparrow		↑ CR n	umber as allocated	l by MCC s	support team	
For submission to	0: TSGN#7	for a for infor	pproval mation	X version of this form	NOI	strateg	gic (for SM gic use on	IG ly)
Proposed change (at least one should be ma	e affects: arked with an X)	(U)SIM	ME [X UT	RAN / Radio		Core Network	X
<u>Source:</u>	CN1					Date:	19-01-2000	
Subject:	Interpretatio	<mark>n of CM service r</mark>	eject in N	AS support	ing GPRS se	rvices		
Work item:	GPRS							
Category:FA(only one categoryshall be markedCwith an X)	Correction Correspond Addition of Functional n Editorial mo	ls to a correction i feature modification of fea odification	in an ear ature	lier release		ease:	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00	X
<u>Reason for</u> <u>change:</u>	Reason for change:In section 4.5.1.1, it is stated that the MS should start a Normal Location Update procedure if a CM service request made by the MS was rejected by the network with cause IMSI Unknown in VLR (cause #4).An MS operating in operation modes A or B should attempt combined procedures as long as the network is operating in operation mode I. The proposed change is consistent with the statement in section 4.1.1.2.1 and 4.2.5.1.4.					by		
Clauses affected	<u>4.7.5.2</u>	.1						
Other specs (affected: (M E	Other 3G core Other GSM co MS test speci 3SS test spec D&M specific	e specifications ore specifications fications cifications ations		 List of CI 	Rs: Rs: Rs: Rs: Rs:			
Other comments:	This CR is of	type C1.						

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

4.7.5.2 Combined routing area updating procedure

Within a combined routing area updating procedure the messages ROUTING AREA UPDATE ACCEPT and ROUTING AREA UPDATE COMPLETE carry information for the routing area updating and the location area updating.

2

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE; or
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services; or
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the LA during that non-GPRS service transaction-; or
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1), in which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach".

In GSM, the routing and location area identification are broadcast on the broadcast channel(s). A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures shall be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first message sent from the MS in the new routing area after routing area change.

In UMTS, the routing and location area identification are broadcast on the broadcast channel(s) or sent to the MS via the PS signaling connection. A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures may be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first GMM message sent from the MS in the new routing area after routing area change.

To initiate a combined routing area updating procedure the MS sends the message ROUTING AREA UPDATE REQUEST to the network, starts timer T3330 and changes to state GMM-ROUTING-UPDATING-INITIATED and MM LOCATION UPDATING PENDING. The value of the update type IE in the message shall indicate "combined RA/LA updating". If for the last attempt to update the registration of the location area a MM specific procedure was performed, the value of the update type IE in the ROUTING AREA UPDATE REQUEST message shall indicate "combined RA/LA updating with IMSI attach". Furthermore the MS shall include the TMSI status IE if no valid TMSI is available.

A GPRS MS in MS operation modes A or B that is in an ongoing circuit-switched transaction, shall initiate the combined routing area updating procedure after the circuit-switched transaction has been released, if the MS has changed the RA during the circuit-switched transaction and if the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall initiate the combined routing area updating procedure with IMSI attach after the circuit-switched transaction has been released if a GPRS attach was performed during the circuit-switched transaction and provided that the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall perform the normal routing area update procedure during an ongoing circuit-switched transaction.

In UMTS, if the MS wishes to prolong the established RR connection after the normal routing area updating procedure when it is served under UMTS area, it may set a follow-on request pending indicator on.

3GPP TSG CN Oslo, Norway	1 GPRS Ad-HocDocumentN1-00024819 - 20 Jan 2000Revised N1-000233e.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.
GSM (AA.BB) or 3G	04.08 CR A957r2 Current Version: 6.7.0 (AA.BBB) specification number ↑ ↑ CR number as allocated by MCC support team
For submission t list expected approval me Form	O: CN#7 for approval for approval for information X strategic non-strategic (for SMG use only) we ting # here ↑ for information The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc (for SMG use only)
Proposed chang (at least one should be m	e affects: (U)SIM ME X UTRAN / Radio Core Network X
Source:	CN1 <u>Date:</u> 20-01-2000
Subject:	Corrections to SN-PDU IE length in GMM messages
Work item:	GPRS
Category:FA(only one categoryshall be markedCwith an X)D	CorrectionXRelease:Phase 2Corresponds to a correction in an earlier releaseRelease 96Release 96Addition of featureRelease 97XFunctional modification of featureRelease 98Release 99Editorial modificationRelease 00Release 00
<u>Reason for</u> <u>change:</u>	The Routing Area Update Accept message (section 9.4.15) and Routing Area Update Complete message (section 9.4.16) contain the SN-PDU list IE as part of the messages. The Maximum length of the IE should be changed from 17 to 19 as justified below:
	 The SN-PDU list IE is in the TLV format, where T and L together occupy 2 octets. In section 10.5.5.11, the description of the IE shall be interpreted this way: There are a total of 11 NSAPIs.

Each NSAPI will be represented as a bit string of 12 bits, where 4 bits represent the NSAPI identifier and 8 bits represent the N-PDU number values.

To represent all the NSAPIs a total of 132 bits (sixteen and a half octets) which will have to be rounded to 17 octets.

So, to represent the case of all NSAPIs active, the maximum length of the IE has to be changed to 19 octets (T + L + V).

Clauses affected: 9.4.15; 9.4.16, and 10.5.5.11.

Other specs affected:	Other 3G core specifications Other GSM core specifications MS test specifications BSS test specifications O&M specifications	$\begin{array}{l} \rightarrow \mbox{ List of CRs:} \\ \rightarrow \mbox{ List of CRs:} \end{array}$		
<u>Other</u> comments:	This CR is of type C1.			

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

9.4.15 Routing area update accept

This message is sent by the network to the MS to provide the MS with GPRS mobility management related data in response to a *routing area update request* message . See table 9.4.15/GSM 04.08.

Message type: ROUTING AREA UPDATE ACCEPT

Significance: dual

Direction: network to MS

Table 9.4.15/GSM 04.08: ROUTING AREA UPDATE ACCEPT message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	М	V	1/2
	Skip indicator	Skip indicator 10.3.1	М	V	1/2
	Routing area update accept message identity	Message type 10.4	М	V	1
	Force to standby	Force to standby 10.5.5.7	М	V	1/2
	Update result	Update result 10.5.5.17	М	V	1/2
	Periodic RA update timer	GPRS Timer 10.5.7.3	М	V	1
	Routing area identification	Routing area identification 10.5.5.15	М	V	6
19	P-TMSI signature	P-TMSI signature 10.5.5.8	0	TV	4
18	Allocated P-TMSI	Mobile identity 10.5.1.4	0	TLV	7
23	MS identity	Mobile identity 10.5.1.4	0	TLV	7
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	0	TLV	4 - 1 <u>9</u> 7
17	Negotiated READY timer value	GPRS Timer 10.5.7.3	0	TV	2
25	GMM cause	GMM cause 10.5.5.14	0	TV	2

9.4.15.1 P-TMSI signature

This IE may be included to assign an identity to the MS's GMM context.

9.4.15.2 Allocated P-TMSI

This IE may be included to assign a P-TMSI to an MS in case of a GPRS or combined routing area updating procedure.

9.4.15.3 MS identity

This IE may be included to assign or unassign a TMSI to a MS in case of a combined routing area updating procedure.

9.4.15.4 List of Receive N-PDU Numbers

This IE shall be included in case of an inter SGSN routing area updating, if there are PDP contexts that have been activated in acknowledged transfer mode.

9.4.15.5 Negotiated READY timer value

This IE may be included to indicate a value for the READY timer.

9.4.15.6 GMM cause

This IE shall be included if IMSI attach was not successful for non-GPRS services during a combined GPRS routing area updating procedure.

9.4.16 Routing area update complete

This message shall be sent by the MS to the network in response to a *routing area update accept message* if a P-TMSI and/or a TMSI has been assigned and/or if there are established LLC connections. See table 9.4.16/GSM 04.08.

Message type: ROUTING AREA UPDATE COMPLETE

Significance: dual

1

Direction: MS to network

Table 9.4.16/GSM 04.08: ROUTING AREA UPDATE COMPLETE message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator	М	V	1/2
	Skip indicator	Skip indicator 10.3.1	М	V	1/2
	Routing area update complete message identity	Message type 10.4	М	V	1
26	Receive N-PDU Numbers	Receive N-PDU Number list 10.5.5.11	0	TLV	4 - 1 <u>9</u> 7

9.4.16.1 List of Receive N-PDU Numbers

This IE shall be included if the routing area update accept message contained this IE.

10.5.5.11 Receive N-PDU Number list

The purpose of the *Receive N-PDU Number list* information element is to specify the current SNDCP Receive N-PDU Number values.

The *Receive N-PDU Number list* is a type 4 information element with a length of 4 to 197 octets.

The value part of an *Receive N-PDU Number list* information element is coded as shown in figure 10.5.127/GSM 04.08 and table 10.5.144/GSM 04.08.

	8	7	6		5			
_		4	3	2	1			
	Receive N-PDU Number list IEI							
	Length of Receive N-PDU Number list contents							
		Receive 1	N-PDU Numbe	r -list		octet	4	
						octet	n	

Figure 10.5.127/GSM 04.08: Receive N-PDU Number list information element

Table 10.5.144/GSM 04.08: Receive N-PDU Number list information element

```
Receive N-PDU Number-list value ::=
{
 < Receive N-PDU Number list >
 < Padding bits >
};
< Receive N-PDU Number list > ::= < nsapi : bit-string(4) >
< Receive N-PDU Number value : bit-string(8) >
{ < Receive N-PDU Number list> | < null > };
< nsapi > ::=
{ 0101 } |
            -- NSAPI 5
{ 0110 } |
            -- NSAPI 6
{ 0111 } |
            -- NSAPI 7
            -- NSAPI 8
{ 1000 };|
{ 1001 };
             -- NSAPI 9
{ 1010 };
             -- NSAPI 10
{ 1011 };
             -- NSAPI 11
{ 1100 };
             -- NSAPI 12
{ 1101 };
             -- NSAPI 13
             -- NSAPI 14
{ 1110 };|
{ 1111 };
             -- NSAPI 15
< Receive N-PDU Number value > ::= \{ 0 | 1 \} (8) ;
-- Contains the binary coded representation of the receive N-PDU Number value.
-- The first bit in transmission order is the most significant bit.
<Padding bits> ::= null | 0000;
```

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Category:(only one categoryshall be markedwith an X)	 F Correction A Correspon B Addition of C Functional D Editorial m 	ds to a correction feature modification of fea odification	in an ea ature	rlier rel	ease	<u>Keleas</u>	<u>se:</u> F F F F	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00	x
<u>Reason for</u> <u>change:</u>	Reason for change:In section 4.5.1.1, It is stated that the MS should start a Normal Location Update procedure If a CM service request made by the MS was rejected by the network with cause IMSI Unknown in VLR (cause #4).An MS operating in operation modes A or B should attempt combined procedures as long as the network is operating in operation mode I. The proposed change is in consistent with the statement in section 4.1.1.2.1 and 4.2.5.1.4.						on d by e and		
Clauses affecte	ed: 4.7.5.2	2.1							
Other specs affected:	Other 3G co Other GSM o MS test spec BSS test spec O&M specific	re specifications core specifications cifications ecifications cations		$\begin{array}{l} \rightarrow \ \text{List} \\ \rightarrow \ \text{List} \end{array}$	of CRs: of CRs: of CRs: of CRs: of CRs: of CRs:				
<u>Other</u> comments:	This CR is o	f type C1.							

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4.7.5.2 Combined routing area updating procedure

Within a combined routing area updating procedure the messages ROUTING AREA UPDATE ACCEPT and ROUTING AREA UPDATE COMPLETE carry information for the routing area updating and the location area updating.

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE; or
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services; or
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the LA during that non-GPRS service transaction-; or
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1), in which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach".

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Other comments:	This CR is a	category C1						

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

4.7.4.2 Network initiated GPRS detach procedure

4.7.4.2.1 Network initiated GPRS detach procedure initiation

The network initiates the GPRS detach procedure by sending a DETACH REQUEST message to the MS. <u>The</u> <u>DETACH REQUEST message shall include a detach type IE. In addition, the network may include a cause IE to</u> <u>specify the reason for the detach request.</u> The network shall start timer T3322<u>. If the detach type IE indicates "re-attach not required" or "re-attach required", the network shall deactivate the PDP contexts and deactivate the logical link(s), if any, and shall change to state GMM-DEREGISTERED-INITIATED. The DETACH REQUEST message shall include a detach type IE In addition, the network may include a cause IE to specify the reason for the detach request.</u>

If the detach type IE indicates "re attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" or "reattach required, the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure if indicated by the network in the detach type IE.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", <u>the MS shall not</u> <u>deactivate the PDP contexts. the An MS in operation mode A or B in network operation mode I shallmay</u> send a DETACH ACCEPT message to the network, <u>and shall re-attach to non-GPRS service by performing the combined</u> <u>routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE</u> indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode I or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates "IMSI detach", then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

If the detach type IE indicates "re-attach required" or "re-attach not required", then, dDepending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed. A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

- # 3 (Illegal MS); or
- # 6 (Illegal ME)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence

number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

- # 11 (PLMN not allowed);
- #12 (Location area not allowed); or
- # 13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.

4.7.4.2.3 Network initiated GPRS detach procedure completion by the network

The network shall, upon receipt of the DETACH ACCEPT message, stop timer T3322 and shall change state to GMM-DEREGISTERED.

4.7.4.2.4 Abnormal cases on the network side

The following abnormal cases can be identified:

a) T3322 time-out

On the first expiry of the timer, the network shall retransmit the DETACH REQUEST message and shall start timer T3322. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3322, the GPRS detach procedure shall be aborted and the network changes to state GMM-DEREGISTERED.

b) Low layer failure

The GPRS detach procedure is aborted and the network changes to state GMM-DEREGISTERED.

- c) GPRS detach procedure collision
- If the network receives a DETACH REQUEST message with "switching off" indicated, before the network initiated GPRS detach procedure has been completed, both procedures shall be considered completed.
- If the network receives a DETACH REQUEST message without "switching off" indicated, before the network initiated GPRS detach procedure has been completed, the network shall send a DETACH ACCEPT message to the MS.
- d) GPRS detach and GPRS attach procedure collision
- If the network receives an ATTACH REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall ignore the ATTACH REQUEST message, except when the detach type IE value, sent in the DETACH REQUEST message, indicated that the MS shall perform a GPRS attach procedure. In this case, the detach procedure is aborted and the GPRS attach procedure shall be progressed after the PDP contexts have been deleted.
- e) GPRS detach and routing area updating procedure collision

GPRS detach containing detach type "re-attach required" or "re-attach not required":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the detach procedure shall be progressed, i.e. the ROUTING AREA UPDATE REQUEST message shall be ignored.

GPRS detach containing detach type "IMSI detach":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall abort the detach procedure, shall stop T3322 and shall progress the routing area update procedure.



Figure 4.7.4/2 GSM 04.08: Network initiated GPRS detach procedure

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CHANGE REQUEST Please see embedded help file at the box page for instructions on how to fill in this								ile at the bottom of to fill in this form co	this prrectly.		
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Category: (only one category shall be marked with an X) Reason for change:	F A B C D	Correction Correspon Addition of Functional Editorial m In the curre the deactive GPRS deta IMSI detacl	Correction Corresponds to a correction in an earlier release Addition of feature Functional modification of feature Editorial modification In the current version of 04.08 the network-initiated GPRS detach procedure results in the deactivation of all PDP contexts and release of all LLC links. The network-initiated GPRS detach procedure is however also used to indicate to the MS that it has become								x x s in ated come attinue
		to use the activated PDP contexts. The PDP contexts should therefore not be deactivated in the IMSI detach case. Furthermore, 04.08 fails to describe the MS behaviour after a Detach Request message with detach type "IMSI Detach" is received. This CR proposes to define the MS behaviour in the IMSI Detach case in accordance with 03.60 (13.6.4) and 09.18 (4.2.1 and 11.3), and that the PDP contexts are not deactivated, and that the LLC links are not released, in this case.							nce		
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4.7.4.2 Network initiated GPRS detach procedure

4.7.4.2.1 Network initiated GPRS detach procedure initiation

The network initiates the GPRS detach procedure by sending a DETACH REQUEST message to the MS. <u>The</u> <u>DETACH REQUEST message shall include a detach type IE. In addition, the network may include a cause IE to</u> <u>specify the reason for the detach request.</u> The network shall start timer T3322<u>. If the detach type IE indicates "re-attach not required" or "re-attach required", the network shall deactivate the PDP contexts and deactivate the logical link(s), if any, and shall change to state GMM-DEREGISTERED-INITIATED. The DETACH REQUEST message shall include a detach type IE In addition, the network may include a cause IE to specify the reason for the detach request.</u>

If the detach type IE indicates "re attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" or "reattach required, the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure if indicated by the network in the detach type IE.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", <u>the MS shall not</u> <u>deactivate the PDP contexts. the An MS in operation mode A or B in network operation mode I shallmay</u> send a DETACH ACCEPT message to the network, <u>and shall re-attach to non-GPRS service by performing the combined</u> <u>routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE</u> indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode I or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates "IMSI detach", then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

If the detach type IE indicates "re-attach required" or "re-attach not required", then, dDepending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed. A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

- # 3 (Illegal MS); or
- # 6 (Illegal ME)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence

number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

- # 11 (PLMN not allowed);
- #12 (Location area not allowed); or
- # 13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.

4.7.4.2.3 Network initiated GPRS detach procedure completion by the network

The network shall, upon receipt of the DETACH ACCEPT message, stop timer T3322 and shall change state to GMM-DEREGISTERED.

4.7.4.2.4 Abnormal cases on the network side

The following abnormal cases can be identified:

a) T3322 time-out

On the first expiry of the timer, the network shall retransmit the DETACH REQUEST message and shall start timer T3322. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3322, the GPRS detach procedure shall be aborted and the network changes to state GMM-DEREGISTERED.

b) Low layer failure

The GPRS detach procedure is aborted and the network changes to state GMM-DEREGISTERED.

- c) GPRS detach procedure collision
- If the network receives a DETACH REQUEST message with "switching off" indicated, before the network initiated GPRS detach procedure has been completed, both procedures shall be considered completed.
- If the network receives a DETACH REQUEST message without "switching off" indicated, before the network initiated GPRS detach procedure has been completed, the network shall send a DETACH ACCEPT message to the MS.
- d) GPRS detach and GPRS attach procedure collision
- If the network receives an ATTACH REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall ignore the ATTACH REQUEST message, except when the detach type IE value, sent in the DETACH REQUEST message, indicated that the MS shall perform a GPRS attach procedure. In this case, the detach procedure is aborted and the GPRS attach procedure shall be progressed after the PDP contexts have been deleted.
- e) GPRS detach and routing area updating procedure collision

GPRS detach containing detach type "re-attach required" or "re-attach not required":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the detach procedure shall be progressed, i.e. the ROUTING AREA UPDATE REQUEST message shall be ignored.

GPRS detach containing detach type "IMSI detach":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall abort the detach procedure, shall stop T3322 and shall progress the routing area update procedure.



Figure 4.7.4/2 GSM 04.08: Network initiated GPRS detach procedure

Please see embedded help file at the bottom of this CHANGE REQUEST page for instructions on how to fill in this form correctly. Current Version: 3.2.1 24.008 CR 140 GSM (AA.BB) or 3G (AA.BBB) specification number ↑ \uparrow CR number as allocated by MCC support team For submission to: CN#7 for approval strategic Х (for SMG list expected approval meeting # here 1 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 (U)SIM ME X UTRAN / Radio Core Network Proposed change affects: (at least one should be marked with an X) CN1 14.02.00 Source: Date: Conditions when to start the GMM timer T3321 Subject: Work item: GPRS Correction Phase 2 Category: F **Release:** A Corresponds to a correction in an earlier release Х Release 96 (only one category Release 97 В Addition of feature shall be marked С Functional modification of feature Release 98 with an X) D Editorial modification Release 99 Х Release 00 According to the current specification, the DETACH REQUEST message needs also to Reason for be retransmitted in the case the MS is not attached for GPRS services. As it is not very change: sure whether the network responds to a DETACH REQUEST if the MS is not attached, there is the risk that the MS is blocked for a new attach attempt for 5*T3321 = 75 sec. In order to avoid this, it is proposed not to start the retransmission timer T3321 if the MS is not already attached for GPRS service and to transmit the DETACH REQUEST message only once. **Clauses affected:** 4.7.4.1.1 Other specs Other 3G core specifications \rightarrow List of CRs: Other GSM core specifications affected: \rightarrow List of CRs: MS test specifications \rightarrow List of CRs: BSS test specifications \rightarrow List of CRs: **O&M** specifications List of CRs: \rightarrow Other comments:

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4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off". If the MS is not switched off and the MS is in the state GMM_REGISTERED, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates "IMSI Detach" the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates "IMSI Detach" or "GPRS/IMSI Detach", state MM IMSI DETACH PENDING is entered.

If the detach type information element value indicates "GPRS detach without switching off" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

NOTE: When the DETACH REQUEST message is received by the network, and if the detach cause IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:

GPRS/IMSI detach:

The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

IMSI detach:

The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.4.1.4 Abnormal cases in the MS

The following abnormal cases can be identified:

- a) T3321 time-out
- On the first expiry of the timer, the MS shall retransmit the DETACH REQUEST message and shall reset and restart timer T3321. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3321, the GPRS detach procedure shall be aborted, the MS shall change to state:
 - MM-NULL if "IMSI detach" was requested;
 - GMM-REGISTERED.NORMAL-SERVICE if "IMSI Detach" was requested
 - GMM-DEREGISTERED if "GPRS detach" was requested;
 - GMM-DEREGISTERED and MM-NULL if "GPRS/IMSI" detach was requested.

b) Lower layer failure before reception of DETACH ACCEPT message

The detach procedure is aborted and the MS shall change to state:

- MM-NULL if "IMSI detach" was requested;
- GMM-REGISTERED.NORMAL-SERVICE if "IMSI Detach" was requested
- GMM-DEREGISTERED if "GPRS detach" was requested;
- GMM-DEREGISTERED and MM-NULL if "IMSI/GPRS" detach was requested.
- c) Detach procedure collision

If the MS receives a DETACH REQUEST message before the MS initiated GPRS detach procedure has been completed, a DETACH ACCEPT message shall be sent to the network.

d) Detach and GMM common procedure collision

GPRS detach containing cause "power off":

- If the MS receives a message used in a GMM common procedure before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.

GPRS detach containing other causes than "power off"

- If the MS receives a P-TMSI REALLOCATION COMMAND, a GMM STATUS, or a GMM INFORMATION message before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.
- If the MS receives an AUTHENTICATION AND CIPHERING REQUEST or IDENTITY REQUEST message, before the GPRS detach procedure has been completed, the MS shall respond to it as described in section 4.7.7 and 4.7.8 respectively.
- e) Change of cell within the same RA

If a cell change occurs within the same RA before a DETACH ACCEPT message has been received, then the cell update procedure shall be performed before completion of the detach procedure.

- f) Change of cell into a new routing area
- If a cell change into a new routing area occurs before a DETACH ACCEPT message has been received, the GPRS detach procedure shall be aborted and re-initiated after successfully performing a routing area updating procedure.



Figure 4.7.4/1 GSM 04.08: MS initiated GPRS detach procedure

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<u>change:</u>		'false'(i.e. the VLR has indicated a VLR failure) upon reception of a RAU from the MS the SGSN shall request the MS to reattach to non-GPRS services. This could be done by performing a network initiated detach procedure with the detach type indicating "IMSI detach". As in the case of a VLR failure, the GMM/MM context data is still available in the SGSN, but only the VLR has lost the association to the SGSN, it is also possible that the SGSN immediately performs a location update towards the VLR in the case the MS which is still attached for non-GPRS services request a combined RAU, irrespectively whether the MS has changed the LA or only the RA within the LA, and in the case the MS performs a periodic RAU.							
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4.2 Association at the SGSN

The states and MM context variables associated to the Gs interface in the SGSN are specified in this subsection. The state diagram at the SGSN is shown in figure 4.2. The state diagram does not include the message error handling specified in section 16.

4.2.1 MM context variables at the SGSN

VLR-Reliable: Boolean

Set to 'false' when the SGSN has received a reset indication from the VLR. The SGSN shallmay request to the MS, upon reception of the next routeing area update (either <u>periodic</u> routeing area update <u>only</u> or combined routeing and location area update) procedure, to re-attach to non-GPRS services if the MS is still IMSI attached to non-GPRS services. <u>Alternatively the SGSN may upon reception of a combined routeing and location area</u> update request or a periodic routeing area update from a MS that is still attached for non-GPRS service, perform immediately the location update for non-GPRS services procedure.

SGSN-Reset: Boolean

Set to 'true' when the SGSN restarts after a failure. The 'SGSN-Reset' variable is unique within an SGSN and it applies to all the MM context stored in the SGSN.

11 VLR failure procedure

11.1 General description

This procedure is used by the VLR to inform to the associated SGSNs about the recovery from an internal failure that has affected the association with the SGSNs.

The VLR recovery procedure shall be handled in such a way that the signalling load on the VLR and SGSN does not create any overload problem.

11.2 Procedures in the VLR

11.2.1 VLR Reset Initiation

In the event of a failure at the VLR which has resulted in the loss of SGSN association information on some MSs, the VLR shall move from any state to the Gs-NULL state for all the associations with SGSNs per MS. The VLR shall also set the 'Confirmed by Radio Contact' restoration indicator to 'false' (see GSM 03.07). The VLR shall not send any BSSAP+- MS-INFORMATION-REQUEST or BSSAP+-MM-INFORMATION-REQUEST messages to MSs with the SGSN association in the Gs-NULL state.

When the VLR restarts a BSSAP+-RESET-INDICATION message shall be sent to all the SGSNs connected to the VLR by the Gs interface. This message indicates to the SGSN that for the MSs with an association to that VLR, the associations are no longer reliable. The VLR shall also start timer T11.

11.2.2 VLR Reset Response

Upon receipt of a BSSAP+-RESET-ACK message, the VLR shall stop the timer T11.

11.2.3 Abnormal cases

If the VLR does not receive a BSSAP+-RESET-ACK message from that SGSN before the T11 timer expires, the VLR shall retransmit the BSSAP+-RESET-INDICATION message. The retransmission is repeated a maximum of N11 times. If no BSSAP+-RESET-ACK is received after that a report shall be made to the O&M system.

11.3 Procedures in the SGSN

Upon receipt of a BSSAP+-RESET-INDICATION message from the VLR, the SGSN is informed that all the associations with that VLR for all the MSs registered in the SGSN are no longer reliable because the VLR may have lost information about the state of the MSs and during the failure the VLR may have missed signalling messages. The SGSN shall set the 'VLR-Reliable' MM context variable to 'false' and shall move all the associations containing the restarted VLR to the Gs-NULL state. The detach procedures for deleting the association are still applicable (sections 'Explicit IMSI detach from GPRS services procedure', 'Explicit IMSI detach from non-GPRS services procedure' and 'Implicit IMSI detach from non-GPRS services procedure'). If the 'VLR-Reliable' MM context variable is set to 'false', upon reception of any Routeing Area Update or Combined Routeing and Location Area update request or a periodic Routeing Area Update from the MS that is attached for non-GPRS service, the SGSN may request the reattach to non-GPRS services, or may alternatively immediately perform the Location Update for non-GPRS services procedure towards the VLR.

The SGSN sends a BSSAP+-RESET-ACK message to the VLR. This indicates to the VLR that all the associations for the MSs which have an association with that VLR will be moved to the Gs-NULL state.

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18.4.6 Gs cause

The purpose of the value part of the Gs Cause information element is to indicate an error to the receiving entity. This could be a protocol data error or to indicate to the VLR the reason why a paging procedure could not be performed.



Figure 18.4.6/GSM 09.18: Gs Cause IE

Table 18.4.6/GSM 09.1	18: Gs	Cause IE	E value	part
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Gs Cause value	(octet 3)
Bits	
87654321	
$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \$	Normal, unspecified in this version of the
protocol.	
00000001	IMSI detached for GPRS services
0000010	IMSI detached for GPRS and non-GPRS services
$0\ 0\ 0\ 0\ 0\ 1\ 1$	IMSI unknown
$0\ 0\ 0\ 0\ 0\ 1\ 0\ 0$	IMSI detached for non-GPRS services
$0\ 0\ 0\ 0\ 0\ 1\ 0\ 1$	IMSI implicitly detached for non-GPRS services
$0\ 0\ 0\ 0\ 0\ 1\ 1\ 0$	MS unreachable
$0\ 0\ 0\ 0\ 0\ 1\ 1\ 1$	Message not compatible with the protocol state
00001000	Missing mandatory information element
$0\ 0\ 0\ 0\ 1\ 0\ 0\ 1$	Invalid mandatory information
$0\ 0\ 0\ 0\ 1\ 0\ 1\ 0$	Conditional IE error
$0\ 0\ 0\ 0\ 1\ 0\ 1\ 1$	Semantically incorrect message
$0\ 0\ 0\ 0\ 1\ 1\ 0\ 0$	Message unknown
$0\ 0\ 0\ 0\ 1\ 1\ 0\ 1$	Address error
00001110	TOM functionality not supported
00001111	Ciphering request cannot be accommodated 0 0 0
10000	
00001110	
to	Normal, unspecified in this version of the protocol
11111111	

NOTE: *Normal*, unspecified' has the same meaning than in GSM 04.08, informative Annex H (GSM specific cause values for call control). It is used to report a normal event, and should not be interpreted as syntactically incorrect nor unknown if received.

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18.4.6 Gs cause

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The purpose of the value part of the Gs Cause information element is to indicate an error to the receiving entity. This could be a protocol data error or to indicate to the VLR the reason why a paging procedure could not be performed.

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Octet 1		IEI									
Octet 2	Length indicator										
Octet 3	Gs Cause value										
Figure 18.4.6/GSM 09.18: Gs Cause IE											

Table 18.4.6/GSM 09.18: Gs Cause IE value part

Gs Cause value Bits	(octet 3)					
87654321						
00000000	Normal, unspecified in this version of the					
protocol.						
00000001	IMSI detached for GPRS services					
00000010	IMSI detached for GPRS and non-GPRS services					
00000011	IMSI unknown					
00000100	IMSI detached for non-GPRS services					
00000101	IMSI implicitly detached for non-GPRS services					
00000110	MS unreachable					
00000111	Message not compatible with the protocol state					
00001000	Missing mandatory information element					
$0\ 0\ 0\ 0\ 1\ 0\ 0\ 1$	Invalid mandatory information					
00001010	Conditional IE error					
00001011	Semantically incorrect message					
00001100	Message unknown					
00001101	Address error					
00001110	TOM functionality not supported					
00001111	Ciphering request cannot be accommodated					
0001000						
00001110						
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NOTE: *'Normal,* unspecified' has the same meaning than in GSM 04.08, informative Annex H (GSM specific cause values for call control). It is used to report a normal event, and should not be interpreted as syntactically incorrect nor unknown if received.

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Work item:	GPRS									
Category:FA(only one categoryShall be markedCWith an X)D	CorrectionXRelease:Phase 2Corresponds to a correction in an earlier releaseRelease 96Release 96Addition of featureRelease 97Release 97Functional modification of featureRelease 98Release 98Editorial modificationRelease 00X									
<u>Reason for</u> <u>change:</u>	 During a combined RAU, the SGSN has to send the information element Mobile Station Classmark (i.e. Mobile Station Classmark 1) in the BSSAP+-LOCATION-UPDATE-REQUEST to the VLR. However, the SGSN does not receive the necessary information from the MS, or at least it is not supposed to read this information, because ES IND, A5/1 and RF power capability are contained only in the MS Radio Access Capability, an IE which the SGSN shall not analyse but only forward to the BSC. In GSM R97/98 the SGSN could set the values of the parameters revision level, support of early classmark sending and support of A5/1 using some 'background knowledge' from the standard, but in R99 this would be possible only for the revision level. As the information contained in Mobile Station Classmark 1 is not needed by the VLR, and the VLR deletes MS Classmark 1 as soon as the Location Update procedure has been terminated, it is proposed to define a fixed encoding for MS Classmark 1 to ensure interoperability with old VLR implementations, but not to enhance the GPRS signalling via the Gb or Iu interface. (Note that according to GSM 03.60 and 04.08, the MS shall perform only normal RAU, but no combined updates as long as a CS connection exists. So there is no possibility of an inconsistency in the VLR between Classmark information received via the A or Iu interface and the GS interface.). 									
Clauses affected: 17.1.11										
Other specs	Other 3G core specifications \rightarrow List of CRs:									







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

17.1.11 BSSAP+-LOCATION-UPDATE-REQUEST message

This message is sent by the SGSN to the VLR either to request update of its location file (normal update) or to request IMSI attach.

Information Element	Type/Reference	Presence	Format	Length
Message type	Message type 18.2	М	V	1
IMSI	IMSI 18.4.10	М	TLV	6-10
SGSN number	SGSN number 18.4.22	М	TLV	5-11
Update type	GPRS location update type 18.4.6	М	TLV	3
New Cell global identity	Cell global identity 18.4.1	М	TLV	10
Mobile station classmark	Moblile station classmark 1 18.4.18	М	TLV	3
Old location area identifier	Location area identifier 18.4.14	0	TLV	7
TMSI status	TMSI status 18.4.24	0	TLV	3

Table 17.1.11/GSM 29.018: BSSAP+-LOCATION-UPDATE-REQUEST message content

17.1.11.1 Old location area identifier

This information element should be included. It is derived from the old routing area identification received in the ROUTING AREA UPDATING REQUEST message defined in GSM 04.08.

17.1.11.2 New cell global identity

The cell global identity which shall be included is the one where the MS is in the current radio contact.

17.1.11.3 TMSI status

This information element shall be included if the TMSI status received in the ATTACH REQUEST or ROUTING AREA UPDATING REQUEST message from the MS indicates, that no valid TMSI is available in the MS.

17.1.11.4 Mobile station classmark

This information element does not serve any useful purpose, but shall be included for reasons of compatibility with earlier versions of the protocol. To ease interworking with old VLR equipment, the SGSN shall encode the contents of this information element as: revision level 'GSM phase 2', 'early classmark sending supported', 'encryption algorithm A5/1 supported', and RF power capability 'class 1'.

18.4.18 Mobile station classmark 1

The purpose of the *Mobile Station Classmark 1* information element is to provide the network with information concerning aspects of high priority of the mobile station equipment.

	8	7	6	5	4	3	2	1				
Octet 1		IEI										
Octet 2	Length indicator											
Octet 3	The rest of the information element is coded as the value part of the mobile station classmark 1 IE defined in GSM 04.08 (not including GSM 04.08 IEI)											
Figure 18.4.18/GSM 29.018: Mobile station classmark 1 IE												

CHANGE REQUEST Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.									
			24.008	CR	139	r1	Current Versi	on: 3.2.1	
GSM (AA.BB) or	3G (AA.BBB) specifica	ation number \uparrow		↑ c	CR number a	as allocated by MCC s	support team	
For submissic	on to	D: CN#7 heeting # here ↑	for ap for infor	pproval mation	X	s form is avail	strate non-strate	gic (for S gic use c	SMG only)
Proposed change affects: (U)SIM ME X UTRAN / Radio Core Network (at least one should be marked with an X) (U)SIM ME X UTRAN / Radio Core Network						k X			
Source:		CN1					Date:	28.02.00	
Subject:		Collision of	network initiated [Detach w	with the a	attach an	d RAU proced	ure	
Work item:		GPRS							
Category: (only one category shall be marked with an X)	F A B C D	Correction Correspond Addition of Functional Editorial mo	ls to a correction i feature modification of fea odification	in an ea ature	rlier relea	ase	<u>Release:</u>	Phase 2 Release 96 Release 97 Release 98 Release 99 Release 00	x
<u>Reason for</u> change:		In the curre and receive 'IMSI detact type "IMSI of proposed to	nt version of GSM s a DETACH REC n' the MS shall ab letach" triggers a continue the atta	4.08 wl QUEST ort the a MS initia ch proce	hen the I message attach pro ated com edure.	MS is in a from the ocedure, abined R	state REGISTE e network with which makes r AU after a VLR	RED-INITIAT type of detach no sense. As t failure, it is	ED າ he
		In the defini detach type are MS initia Furthermore use the corr not defined	tion for the collisions s "GPRS detach" ated detach types e in the description rect name "detach in 04.08.	on of a n and "co , n of the n type IE	etwork in mbined (MS initia " instead	nitiated c GPRS/IN Ited deta I of the te	detach during a ASI detach" are ach procedure, i erm "detach ca	ongoing RAU wrong, as the it is proposed use IE" which	the ese to is
Clauses affect	ted	4.7.3.1	<mark>.5; 4.7.4.1.2; 4.7.</mark> 4	4 <mark>.1.3; 4.</mark>	7.5.1.5				
Other specs affected:	C C N E C	Other 3G cor Other GSM c specificat /S test spec 3SS test spe 0&M specific	e specifications ore ions ifications cifications ations		$\begin{array}{l} \rightarrow \ \text{List o} \\ \rightarrow \ \text{List o} \end{array}$	f CRs: f CRs: f CRs: f CRs: f CRs: f CRs:			
<u>Other</u> comments:									

4.7.3.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

- a) Access barred because of access class control
- The GPRS attach procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The GPRS attach procedure is started as soon as possible, i.e. when access is granted or because of a cell change.
- b) Lower layer failure before the ATTACH ACCEPT or ATTACH REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

- c) T3310 time-out
 - On the first expiry of the timer, the MS reset and restart timer T3310 and shall retransmit the ATTACH REQUEST message. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3310, the GPRS attach procedure shall be aborted and the MS shall proceed as described below.
- d) ATTACH REJECT, other causes than those treated in section 4.7.3.1.4 The MS shall proceed as described below.
- e) Change of cell within the same RA (GSM only)
 - If a cell change occurs within the same RA when the MS is in state GMM-REGISTERED-INITIATED, then the cell update procedure shall be performed before completion of the attach procedure.
- f) Change of cell into a new routing area
 - If a cell change into a new routing area occurs before an ATTACH ACCEPT or ATTACH REJECT message has been received, the GPRS attach procedure shall be aborted and re-initiated immediately. If a routing area border is crossed when the ATTACH ACCEPT message is received but before an ATTACH COMPLETE message is sent, the GPRS attach procedure shall be aborted and the routing area updating procedure shall be initiated. If a P-TMSI was allocated during the GPRS attach procedure, this P-TMSI shall be used in the routing area updating procedure. If a P-TMSI signature was allocated together with the P-TMSI during the GPRS attach procedure, this P-TMSI signature shall be used in the routing area updating procedure.
- g) Mobile originated detach required
 - If the MS is in state GMM-REGISTERED-INITIATED, the GPRS attach procedure shall be aborted and the GPRS detach procedure shall be performed (see 4.7.4.1).
- h) Procedure collision
 - If the MS receives a DETACH REQUEST message from the network in state GMM-REGISTERED-INITIATED with type of detach 're-attach not required', the GPRS detach procedure shall be progressed and the GPRS attach procedure shall be aborted. <u>Otherwise If the cause IE</u>, in the <u>DETACH REQUEST message</u>, indicated a "reattach request", the GPRS attach procedure shall be progressed and the DETACH REQUEST message shall be ignored.

In cases b, c and d the MS shall proceed as follows. Timer T3310 shall be stopped if still running. The GPRS attach attempt counter shall be incremented.

If the GPRS attach attempt counter is less than 5:

- timer T3311 is started and the state is changed to GMM-DEREGISTERED.ATTEMPTING-TO-ATTACH.

If the GPRS attach attempt counter is greater than or equal to 5:

- the MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number, shall set the GPRS update status to GU2 NOT UPDATED, shall start timer T3302. The state is changed to GMM-DEREGISTERED..ATTEMPTING-TO-ATTACH or optionally to GMM-DEREGISTERED.PLMN-SEARCH (see 4.2.4.1.2).
- In UMTS, in case c the MS shall release the PS signaling connection and in case d the network shall release the PS signaling connection for this MS (see TS 25.331).

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off". The MS shall include the P-TMSI in the DETACH REQUEST message. The MS shall also include a valid P-

TMSI signature, if available.

If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates "IMSI Detach" the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates "IMSI Detach" or "GPRS/IMSI Detach", state MM IMSI DETACH PENDING is entered

If the detach type information element value indicates "GPRS detach without switching off" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach <u>type</u>cause IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

NOTE: When the DETACH REQUEST message is received by the network, and if the detach <u>type</u>cause IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach <u>typecause</u> IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies: GPRS/IMSI detach:

The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

IMSI detach:

The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.4.2.4 Abnormal cases on the network side

The following abnormal cases can be identified:

- a) T3322 time-out
- On the first expiry of the timer, the network shall retransmit the DETACH REQUEST message and shall start timer T3322. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3322, the GPRS detach procedure shall be aborted and the network changes to state GMM-DEREGISTERED.
- b) Low layer failure
- The GPRS detach procedure is aborted and the network changes to state GMM-DEREGISTERED.
- c) GPRS detach procedure collision
- If the network receives a DETACH REQUEST message with "switching off" indicated, before the network initiated GPRS detach procedure has been completed, both procedures shall be considered completed.
- If the network receives a DETACH REQUEST message without "switching off" indicated, before the network initiated GPRS detach procedure has been completed, the network shall send a DETACH ACCEPT message to the MS.
- d) GPRS detach and GPRS attach procedure collision
- If the network receives an ATTACH REQUEST message before the network initiated GPRS detach procedure with type of detach 're-attach not required' has been completed, the network shall ignore the ATTACH REQUEST message, except when If the detach type IE value, sent in the DETACH REQUEST message, indicates <u>d</u> <u>"re-attach required"</u> that the MS shall perform a GPRS attach procedure. In this case, the detach procedure is aborted and the GPRS attach procedure shall be progressed after the PDP contexts have been deleted. If the detach type IE value, sent in the DETACH REQUEST message, indicates "re-attach not required" the detach procedure is aborted and the GPRS attach procedure shall be progressed.
- e) GPRS detach and routing area updating procedure collision

GPRS detach containing detach type "re-attach required" or "re-attach not required":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the detach procedure shall be progressed, i.e. the ROUTING AREA UPDATE REQUEST message shall be ignored.

GPRS detach containing detach type "IMSI detach":

If the network receives a ROUTING AREA UPDATE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall abort the detach procedure and shall progress the routing area update procedure.

f) GPRS detach and service request procedure collision

If the network receives a SERVICE REQUEST message before the network initiated GPRS detach procedure has been completed, the network shall ignore the SERVICE REQUEST message.

4.7.5.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The routing area updating procedure shall not be started. The MS stays in the current serving cell and applies the normal cell reselection process. The procedure is started as soon as possible and if still necessary, i.e. when the barred state is removed or because of a cell change.

b) Lower layer failure before the ROUTING AREA UPDATE ACCEPT or ROUTING AREA UPDATE REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3330 time-out

The procedure is restarted four times, i.e. on the fifth expiry of timer T3330, the MS shall abort the procedure. The MS shall proceed as described below.

- d) ROUTING AREA UPDATE REJECT, other causes than those treated in section 4.7.5.1.4 The MS shall proceed as described below.
- e) If a routing area border is crossed, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the routing area updating procedure shall be aborted and re-initiated immediately. The MS shall set the GPRS update status to GU2 NOT UPDATED.
- f) In GSM, if a cell change occurs within the same RA, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the cell update procedure is performed, before completion of the routing area updating procedure.
- g) Routing area updating and detach procedure collision

GPRS detach containing detach type "GPRS detach" or "combined GPRS/IMSI detach"<u>"re-attach</u> required" or "re-attach not required":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be aborted and the GPRS detach procedure shall be progressed.

GPRS detach containing detach type "IMSI detach":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be progressed, i.e. the DETACH REQUEST message shall be ignored.

h) Routing area updating and P-TMSI reallocation procedure collision

If the MS receives a P-TMSI REALLOCATION REQUEST message before the routing area updating procedure has been completed, the P-TMSI reallocation procedure shall be aborted and the routing area updating procedure shall be progressed.

In cases b, c and d the MS shall proceed as follows:

Timer T3330 shall be stopped if still running. The routing area updating attempt counter shall be incremented. If the routing area updating attempt counter is less than 5, and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:

 the MS shall keep the GMM update status to GU1 UPDATED and changes state to GMM-REGISTERED.NORMAL-SERVICE. The MS shall start timer T3311. When timer T3311 expires the routing area updating procedure is triggered again.

If the routing area updating attempt counter is less than 5, and the stored RAI is different to the RAI of the current serving cell or the GMM update status is different to GU1 UPDATED:

- the MS shall start timer T3311, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE.

If the routing area updating attempt counter is greater than or equal to 5:

 the MS shall start timer T3302, shall set the GPRS update status to GU2 NOT UPDATED and shall change to state GMM-REGISTERED.ATTEMPTING-TO-UPDATE or optionally to GMM-REGISTERED.PLMN-SEARCH(see 4.2.4.1.2). 3GPP N1/SMG3 WPA Meeting #11 Umeå/Sweden, 28th Feb. - 3rd March, 2000

		CHANGE F	REQU		ease see embeddeo ge for instructions o	d help file at th on how to fill in	ne bottom of this In this form corre	s ectly.
		24.008	CR	091 r1	Current	Version:	3.2.1	
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For submission	to: CN#7 meeting # here ↑	for ap for infor	oproval mation	X	s non-s	strategic strategic	(for SM use on	IG Iy)
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Work item:	GPRS							
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Clauses affecte	<u>d: 4.7.4.1</u>	.1						
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4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off".

The MS shall include the P-TMSI in the DETACH REQUEST message. The MS shall also include a valid P-TMSI signature, if available.

If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates "IMSI Detach" the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates "IMSI Detach" or "GPRS/IMSI Detach", state MM IMSI DETACH PENDING is entered. If the MS is to be switched off, the MS shall try for a period of 5 seconds to send the DETACH REQUEST message. If the MS is able to send the DETACH REQUEST message during this time the MS may be switched off.

If the detach type information element value indicates "GPRS detach without switching off" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

NOTE: When the DETACH REQUEST message is received by the network, and if the detach cause IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach cause IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies:

GPRS/IMSI detach:

The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

In UMTS, if the detach has been sent due to switching off, then the network shall release the resources in the lower layers for this MS (see TS 25.331).

IMSI detach:

The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.4.1.4 Abnormal cases in the MS

The following abnormal cases can be identified:

a) T3321 time-out

- On the first expiry of the timer, the MS shall retransmit the DETACH REQUEST message and shall reset and restart timer T3321. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3321, the GPRS detach procedure shall be aborted, the MS shall change to state:
 - MM-NULL if "IMSI detach" was requested;
 - GMM-REGISTERED.NORMAL-SERVICE if "IMSI Detach" was requested- GMM-DEREGISTERED if "GPRS detach" was requested;
 - GMM-DEREGISTERED and MM-NULL if "GPRS/IMSI" detach was requested.
- b) Lower layer failure before reception of DETACH ACCEPT message

The detach procedure is aborted and the MS shall change to state:

- MM-NULL if "IMSI detach" was requested;
- GMM-REGISTERED.NORMAL-SERVICE if "IMSI Detach" was requested
- GMM-DEREGISTERED if "GPRS detach" was requested;
- GMM-DEREGISTERED and MM-NULL if "IMSI/GPRS" detach was requested.
- c) Detach procedure collision
- If the MS receives a DETACH REQUEST message before the MS initiated GPRS detach procedure has been completed, a DETACH ACCEPT message shall be sent to the network.
- d) Detach and GMM common procedure collision

GPRS detach containing cause "power off":

- If the MS receives a message used in a GMM common procedure before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.

GPRS detach containing other causes than "power off"

- If the MS receives a P-TMSI REALLOCATION COMMAND, a GMM STATUS, or a GMM INFORMATION message before the GPRS detach procedure has been completed, this message shall be ignored and the GPRS detach procedure shall continue.
- If the MS receives an AUTHENTICATION AND CIPHERING REQUEST or IDENTITY REQUEST message, before the GPRS detach procedure has been completed, the MS shall respond to it as described in section 4.7.7 and 4.7.8 respectively.
- e) Change of cell within the same RA (GSM only)
 - If a cell change occurs within the same RA before a DETACH ACCEPT message has been received, then the cell update procedure shall be performed before completion of the detach procedure.
- f) Change of cell into a new routing area.
- If a cell change into a new routing area occurs before a DETACH ACCEPT message has been received, the GPRS detach procedure shall be aborted and re-initiated after successfully performing a routing area updating procedure.

	MS	Network	
Start T3321	DETACH RE	QUEST	
Stop T3321	DETACH AC	CEPT	
	or at MS power swite	h off	
	DETACH RI	EQUEST	

Figure 4.7.4/1 TS 24.008: MS initiated GPRS detach procedure

3GPP N1/SMG3 WPA Meeting #11 Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document

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<u>change:</u>	detach type are MS initia Furthermore use the corr not defined	s "GPRS detach" ated detach types a in the descriptio ect name "detach in 04.08.	and "co n of the type IE	mbined MS initia " instead	GPRS/IM ated detac d of the te	ISI detac ch proce erm "deta	ch" are dure, i ach cau	wrong, as the t is proposed t use IE" which i	se o is
Clauses affected	<u>l:</u> 4.7.4.1	<mark>.2; 4.7.4.1.3; 4.7.</mark>	5.1.5						
Other specs affected:	Other 3G corr Other GSM c specificati MS test spec BSS test spec O&M specific	e specifications ore ons fications cifications ations		$\begin{array}{l} \rightarrow \ \text{List c} \\ \rightarrow \ \text{List c} \end{array}$	of CRs: of CRs: of CRs: of CRs: of CRs: of CRs:				
<u>Other</u> comments:									

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off". If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates "IMSI Detach" the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-INITIATED. If the detach type information element value indicates "IMSI Detach" or "GPRS/IMSI Detach", state MM IMSI DETACH PENDING is entered.

If the detach type information element value indicates "GPRS detach without switching off" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach <u>typecause</u> IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

NOTE: When the DETACH REQUEST message is received by the network, and if the detach <u>typecause</u> IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach <u>type-eause</u> IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies: GPRS/IMSI detach:

The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The states GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.5.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The routing area updating procedure shall not be started. The MS stays in the current serving cell and applies the normal cell reselection process. The procedure is started as soon as possible and if still necessary, i.e. when the barred state is removed or because of a cell change.

b) Lower layer failure before the ROUTING AREA UPDATE ACCEPT or ROUTING AREA UPDATE REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3330 time-out

The procedure is restarted four times, i.e. on the fifth expiry of timer T3330, the MS shall abort the procedure. The MS shall proceed as described below.

- d) ROUTING AREA UPDATE REJECT, other causes than those treated in section 4.7.5.1.4 The MS shall proceed as described below.
- e) If a routing area border is crossed, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the routing area updating procedure shall be aborted and re-initiated immediately. The MS shall set the GPRS update status to GU2 NOT UPDATED.
- f) If a cell change occurs within the same RA, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the cell update procedure is performed, before completion of the routing area updating procedure.
- g) Routing area updating and detach procedure collision

GPRS detach containing detach type "GPRS detach" or "combined GPRS/IMSI detach" re-attach required" or "re-attach not required":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be aborted and the GPRS detach procedure shall be progressed.

GPRS detach containing detach type "IMSI detach":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be progressed, i.e. the DETACH REQUEST message shall be ignored.

h) Routing area updating and P-TMSI reallocation procedure collision

If the MS receives a P-TMSI REALLOCATION REQUEST message before the routing area updating procedure has been completed, the P-TMSI reallocation procedure shall be aborted and the routing area updating procedure shall be progressed.

In cases b, c and d the MS shall proceed as follows:

- Timer T3330 shall be stopped if still running. The routing area updating attempt counter shall be incremented. If the routing area updating attempt counter is less than 5, and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:
 - the MS shall keep the GMM update status to GU1 UPDATED and changes state to GMM-REGISTERED.NORMAL-SERVICE. The MS shall start timer T3311. When timer T3311 expires the routing area updating procedure is triggered again.
 - If the routing area updating attempt counter is less than 5, and the stored RAI is different to the RAI of the current serving cell or the GMM update status is different to GU1 UPDATED:
 - the MS shall start timer T3311, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE.

If the routing area updating attempt counter is greater than or equal to 5:

 the MS shall start timer T3302, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE or optionally to GMM-REGISTERED.PLMN-SEARCH(see 4.2.4.1.2). 3GPP N1/SMG3 WPA Meeting #11 Umeå/Sweden, 28th Feb. - 3rd March, 2000

Document

N1-00 0495

CHANGE REQUEST Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.						
	04.08 CR A1007 Current Version: 7.4.0					
GSM (AA.BB) or 3G	(AA.BBB) specification number ↑					
For submission t	to: CN#7 for approval X strategic (for SMG use only) for information for information for information for information for information (for SMG use only)					
Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ttp://ttp.3gpp.org/Information/CR-Form-v2.doc Proposed change affects: (U)SIM ME X UTRAN / Radio Core Network X (at least one should be marked with an X) (U)SIM ME X UTRAN / Radio Core Network X						
Source:	CN1 <u>Date:</u> 02.03.00					
Subject:	GPRS detach type corrections					
Work item:	GPRS					
Category:FA(only one categoryshall be markedCwith an X)D	CorrectionRelease:Phase 2Corresponds to a correction in an earlier releaseXRelease 96Addition of featureRelease 97Release 97Functional modification of featureRelease 98XEditorial modificationRelease 90Release 90Release 00Release 00Release 00					
<u>Reason for</u> <u>change:</u>	In the definition for the collision of a network initiated detach during a ongoing RAU the detach types "GPRS detach" and "combined GPRS/IMSI detach" are wrong, as these are MS initiated detach types. Furthermore in the description of the MS initiated detach procedure, it is proposed to use the correct name "detach type IE" instead of the term "detach cause IE" which is not defined in 04.08.					
Clauses affected	<u>1:</u> 4.7.4.1.2; 4.7.4.1.3; 4.7.5.1.5					
Other specs	Other 3G core specifications \rightarrow List of CRs:Other GSM core specifications \rightarrow List of CRs:MS test specifications \rightarrow List of CRs:BSS test specifications \rightarrow List of CRs:O&M specifications \rightarrow List of CRs:					
<u>Other</u> comments:						

4.7.4.1 MS initiated GPRS detach procedure

4.7.4.1.1 MS initiated GPRS detach procedure initiation

The GPRS detach procedure is initiated by the MS by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off". If the MS is not switched off, timer T3321 shall be started after the DETACH REQUEST message has been sent. If the detach type information element value indicates "IMSI Detach" the MS shall enter GMM-REGISTERED.IMSI-DETACH_INITIATED, otherwise the MS shall enter the state GMM-DEREGISTERED-

INITIATED. If the detach type information element value indicates "IMSI Detach" or "GPRS/IMSI Detach", state MM IMSI DETACH PENDING is entered.

If the detach type information element value indicates "GPRS detach without switching off" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted after the DETACH REQUEST message has been sent.

4.7.4.1.2 MS initiated GPRS detach procedure completion for GPRS services only

When the DETACH REQUEST message is received by the network, the network shall send a DETACH ACCEPT message to the MS, if the detach <u>typecause</u> IE value indicates that the detach request has not been sent due to switching off. If switching off was indicated, the procedure is completed when the network receives the DETACH REQUEST message. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any.

The MS is marked as inactive in the network for GPRS services; state GMM-DEREGISTERED is entered in the MS and the network.

NOTE: When the DETACH REQUEST message is received by the network, and if the detach <u>typecause</u> IE value indicates that the detach is not due to power off, the authentication and ciphering procedure as well as the identification procedure may be performed.

4.7.4.1.3 MS initiated combined GPRS detach procedure completion

When the DETACH REQUEST message is received by the network, a DETACH ACCEPT message shall be sent to the MS, if the detach <u>type-eause</u> IE value indicates that the detach request has not been sent due to switching off. Depending on the value of the detach type IE the following applies: GPRS/IMSI detach:

The MS is marked as inactive in the network for GPRS and for non-GPRS services. The network and the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The States GMM-DEREGISTERED and MM NULL are entered in both the MS and the network.

The MS is marked as inactive in the network for non-GPRS services. State MM NULL is entered in the MS and the network.

4.7.5.1.5 Abnormal cases in the MS

The following abnormal cases can be identified:

a) Access barred because of access class control

The routing area updating procedure shall not be started. The MS stays in the current serving cell and applies the normal cell reselection process. The procedure is started as soon as possible and if still necessary, i.e. when the barred state is removed or because of a cell change.

b) Lower layer failure before the ROUTING AREA UPDATE ACCEPT or ROUTING AREA UPDATE REJECT message is received

The procedure shall be aborted. The MS shall proceed as described below.

c) T3330 time-out

The procedure is restarted four times, i.e. on the fifth expiry of timer T3330, the MS shall abort the procedure. The MS shall proceed as described below.

d) ROUTING AREA UPDATE REJECT, other causes than those treated in section 4.7.5.1.4

The MS shall proceed as described below.

- e) If a routing area border is crossed, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the routing area updating procedure shall be aborted and re-initiated immediately. The MS shall set the GPRS update status to GU2 NOT UPDATED.
- f) If a cell change occurs within the same RA, when the MS is in state GMM-ROUTING-AREA-UPDATE-INITIATED, the cell update procedure is performed, before completion of the routing area updating procedure.
- g) Routing area updating and detach procedure collision

GPRS detach containing detach type "GPRS detach" or "combined GPRS/IMSI detach"<u>"re-attach</u> required" or "re-attach not required":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be aborted and the GPRS detach procedure shall be progressed.

GPRS detach containing detach type "IMSI detach":

If the MS receives a DETACH REQUEST message before the routing area updating procedure has been completed, the routing area updating procedure shall be progressed, i.e. the DETACH REQUEST message shall be ignored.

h) Routing area updating and P-TMSI reallocation procedure collision

If the MS receives a P-TMSI REALLOCATION REQUEST message before the routing area updating procedure has been completed, the P-TMSI reallocation procedure shall be aborted and the routing area updating procedure shall be progressed.

In cases b, c and d the MS shall proceed as follows:

- Timer T3330 shall be stopped if still running. The routing area updating attempt counter shall be incremented. If the routing area updating attempt counter is less than 5, and the stored RAI is equal to the RAI of the current serving cell and the GMM update status is equal to GU1 UPDATED:
 - the MS shall keep the GMM update status to GU1 UPDATED and changes state to GMM-REGISTERED.NORMAL-SERVICE. The MS shall start timer T3311. When timer T3311 expires the routing area updating procedure is triggered again.

If the routing area updating attempt counter is less than 5, and the stored RAI is different to the RAI of the current serving cell or the GMM update status is different to GU1 UPDATED:

- the MS shall start timer T3311, shall set the GPRS update status to GU2 NOT UPDATED and changes state to GMM-REGISTERED.ATTEMPTING-TO-UPDATE.

If the routing area updating attempt counter is greater than or equal to 5:

 the MS shall start timer T3302, shall set the GPRS update status to GU2 NOT UPDATED and shall change to state GMM-REGISTERED.ATTEMPTING-TO-UPDATE or optionally to GMM-REGISTERED.PLMN-SEARCH(see 4.2.4.1.2).

3GPP/SMG Meeting #11 Umea, Sweden, 28 February - 03 March.2000

Document

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<u>Reason for</u> <u>change:</u>		In the curre if the detac procedure. network ad As all expline where a reac cause code	nt version of 24.00 h type IE indicates It is not clear how ditionally includes citly listed cause of attach is not allowe if the detach type	08 the n , re-atta ever wh a cause odes for ed, this (IE is , re	etwork-i ach requ at is the code in the det CR prop e-attach	nitiated (ired" the correct of the DET ach proc oses tha required	GPRS detach pr MS shall perfor reaction of the N TACH REQUES redure results in at the network sh " and that the N	ocedure says m a new attac /S is in case t T message. a MS behavic ould not inclu IS shall ignore	that the he our de a e it.

4.7.4.2.2 Clauses affected: Other 3G core specifications \rightarrow List of CRs: Other specs affected: Other GSM core specifications \rightarrow List of CRs: MS test specifications \rightarrow List of CRs: **BSS** test specifications \rightarrow List of CRs: **O&M** specifications $\rightarrow\,$ List of CRs: The CR number of the two previous versions of this CR have the wrong CR number 139 <u>Other</u> but the correct number is 182.

comments:

4.7.4.2 Network initiated GPRS detach procedure

4.7.4.2.1 Network initiated GPRS detach procedure initiation

The network initiates the GPRS detach procedure by sending a DETACH REQUEST message to the MS. The DETACH REQUEST message shall include a detach type IE. In addition, the network may include a cause IE to specify the reason for the detach request. The network shall start timer T3322. If the detach type IE indicates "re-attach not required" or "re-attach required", the network shall deactivate the PDP contexts and deactivate the logical link(s), if any, and shall change to state GMM-DEREGISTERED-INITIATED.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" or "reattach required", the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure if indicated by the network in the detach type IE.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", the MS shall not deactivate the PDP contexts. An MS in operation mode A or B in network operation mode I may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

-If the detach type IE indicates "IMSI detach" or "re-attach required", then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

If the detach type IE indicates "re attach required" or "re-attach not required", then, depending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

- # 3 (Illegal MS); or
- # 6 (Illegal ME)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM

idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

- #11 (PLMN not allowed);
- # 12 (Location area not allowed); or
- #13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.