Source: TSG CN WG 1

Title: CRs to R97 (with mirror CRs) on Work Item GPRS towards 09.18

Agenda item: 7.12

**Document for: APPROVAL** 

### **Introduction**:

This document contains 6 CRs on R97 (with mirror CRs) to Work Item "GPRS", that have been agreed by TSG CN WG1, and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Phas	Subject	Cat	Version-	Version	Doc-2nd-
			е			Current	-New	level
09.18	A046		R97	Clarification of the periodic routing area update procedure	F	6.6.0	6.7.0	N1-011449
09.18	A047		R98	Clarification of the periodic routing area update procedure	Á	7.4.0	7.5.0	N1-011450
09.18	A048	1	R97	Correction of the Reject cause when T6-1 expires	F	6.6.0	6.7.0	N1-011574
09.18	A049		R98	Correction of the Reject cause when T6-1 expires	F	7.4.0	7.5.0	N1-011605
29.018	019		R99	Clarification of the periodic routing area update procedure	А	3.7.0	3.8.0	N1-011451
29.018	020		Rel-4	Clarification of the periodic routing area update procedure	А	4.1.0	4.2.0	N1-011452

# 3GPP TSG-CN1 Meeting #20 Brighton England 15 -19 October 2001

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CHANGE REQUEST										CR-Form-v4			
*	09	9.18	CR	A046		¥	ev	-	ж	Current ve	rsion:	6.6.0	¥
For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>%</b> symbols.													
Proposed change a	ffect	s: #	(U)	SIM	ME	/UE		Rad	io Ac	ccess Netwo	ork	Core Ne	etwork X
Title: #	Cla	rification	on of t	he perio	dic rou	iting	area	upda	ate pr	rocedure			
Source: 第	Sie	mens .	AG										
Work item code: 器	GPI	RS								Date:	<b>£</b> 27	.09.01	
Category: 第	F									Release:	₩ R9	97	
	Use <u>c</u>			owing cat	egorie	s:				Use <u>one</u> (	of the f	ollowing rele	eases:
			rection) respon	) ds to a co	orrectio	n in a	an ea	rlier r	eleas	2 e) R96		M Phase 2) ease 1996)	
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				modification		eatu	re)			R98 R99		ease 1998) ease 1999)	
	Detai	led exp	olanatio	ons of the	above	cate	egorie	s can		REL-4	(Rel	ease 4)	
	be to	una in	3GPP	TR 21.90	<u>0</u> .					REL-5	(Rei	ease 5)	
Reason for change.	. <b>4</b> p	Tho	curron	t descrip	tion of	tho	norio	odic r	outin	g area upda	to ic i	ocomplete	26
Reason for change.										GSN (subcla			
						ıbcla	ause	6.1) s	speci	fy what hap	pens v	with the sta	te of the
		asso	ciation	in the S	GSN.								
Summary of change	e: Ж	It is o	clarifie	d that the	e state	of t	he as	socia	ation	in the SGSI	N is no	ot changed	
Consequences if	ж	Risk	of a w	rong imp	olemer	ntatio	n.						
not approved:	00							s SGS	SN is	moved to G	s-NU	LL when th	e mobile
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Clauses affected:	X	6.1											
Other specs	¥	Ot	ther co	re speci	ficatio	ns	H	3					
affected:		Te	est spe	cificatio	ns								
		O	&M Sp	ecification	ons								
Other comments:	¥												

### How to create CRs using this form:

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

### 4.2.2 States at the SGSN

#### **Gs-NULL**

There is no association with a VLR for the MS and therefore the SGSN considers that the MS is IMSI detached of non-GPRS services. In this state the SGSN accepts BSSAP+-PAGING-REQUEST messages to MSs only if the 'SGSN-Reset' restoration indicator in the SGSN is set to 'true'.

#### LA-UPDATE Requested

The SGSN has sent a BSSAP+-LOCATION-UPDATE-REQUEST message to the VLR. In this state the SGSN waits for the outcome of the Location Update for non-GPRS procedure at the VLR before sending the response to the MS. In this state the SGSN accepts BSSAP+-PAGING-REQUEST messages.

#### **Gs-ASSOCIATED**

The SGSN stores an association for that MS. In this state the SGSN performs the Location Update for non-GPRS services procedure towards the VLR for MSs in class-A and MSs in class-B mode of operation when the MS moves to a new LA.

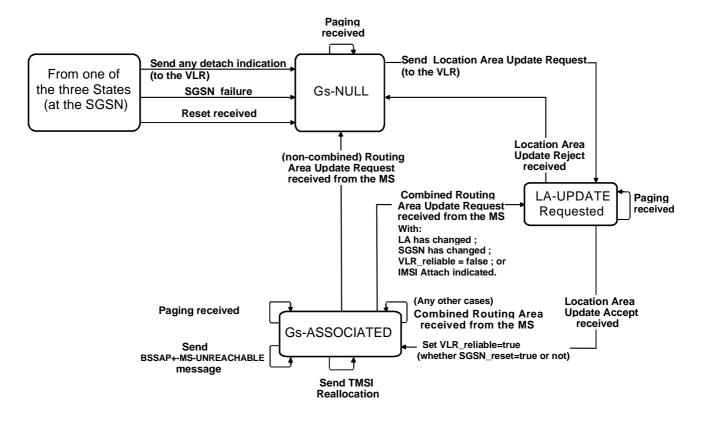


Figure 4.2/GSM 09.18: State diagram at the SGSN

### 6.1 General description

The location update for non-GPRS services procedure is a general procedure used by MSs in class-A mode of operation and MSs in class-B mode of operation. This procedure allows MSs and network to perform:

- Combined IMSI attach for GPRS and non-GPRS services.
- IMSI attach for non-GPRS services if the MS is already IMSI attached for GPRS services.
- IMSI attach for GPRS services indication to the VLR if the MS is already IMSI attached for non-GPRS services
- Normal Location Update procedure to the VLR if the MS is IMSI attached for both GPRS and non-GPRS services.
- Reallocation of TMSI to an MS.

The Location Update for non-GPRS services procedures in the Gs interface is always started as a consequence of a direct action by the MS. The combined routeing area update procedure is further specified in GSM 03.60 and 04.08.

The Location Update for non-GPRS services procedure is used by the SGSN to forward to the VLR those parts of the combined routeing area update or IMSI attach procedure which belong to the non-GPRS services. This means that non-GPRS related requests which are included in the combined request, are sent from the SGSN to the VLR. The procedure is also used by the SGSN to indicate to the VLR when an IMSI attach to GPRS services has been performed by an MS that was already IMSI attached to non-GPRS services. The SGSN may also forward a BSSAP+-TMSI-REALLOCATION-COMPLETE message from the MS to the VLR.

The VLR shall acknowledge the BSSAP+-LOCATION-UPDATE-REQUEST message. When the VLR processes the request it does not perform authentication because it relies on the SGSN's security functions.

When an MS is IMSI attached for GPRS and non-GPRS services, any implicit detach timer in the VLR shall be stopped. Instead the Paging Proceed Flag in the SGSN is used to determine the likely availability of the MS to the network. <u>Upon reception of the periodic Routeing Area Update message Tthe SGSN does not report to the VLR-upon reception of the periodic Routeing Area Update message.</u>, and the state of the association at the SGSN is not changed. When the MS performs a detach only from the GPRS system the GPRS detach indication to the VLR shall cause the VLR's implicit detach timer to be restarted from its initial value.

If the SGSN performs an implicit detach for both GPRS and non-GPRS traffic, then the SGSN shall indicate to the VLR a BSSAP+-IMSI-DETACH-INDICATION message with cause 'Implicit SGSN initiated IMSI detach from non-GPRS service', as further described in section 'Implicit IMSI detach from non-GPRS service procedure' (the implicit IMSI detach message indicates that the MS is unavailable for both GPRS and non-GPRS services).

The IMSI attach for GPRS services to the VLR, when the MS is already IMSI attached for non-GPRS services, is requested by the MS sending a combined IMSI attach for GPRS and non-GPRS services message to the SGSN, as further specified in GSM 03.60 and 04.08.

# 3GPP TSG-CN1 Meeting #20 Brighton England 15 -19 October 2001

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Title: 第	Clar	ification	of the perio	dic rout	ing ar	ea ı	upda	te pi	rocedure			
Source: #	Sien	nens AG	ì									
Work item code: ₩	GPF	RS							Date	第 27	7.09.01	
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			al modification		catego	ries	can		R99 REL-		lease 1999 <sub>,</sub> lease 4)	)
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- IMSI attach for non-GPRS services if the MS is already IMSI attached for GPRS services.
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## Tdoc N1-011574

## 3GPP TSG-CN1 Meeting #20 Brighton, England, 15-19 October 2001

revised N1-011463

CR-Form-v4 CHANGE REQUEST									
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For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>ℜ</b> symbols.									
Proposed chang	Proposed change affects:								
Title:	₩ Co	rrection	of the Reject	cause used	d when <del>T1</del>	<del>-6</del> <u>T6</u> -	-1 expires		
Source:	₩ Mc	otorola							
Work item code:	°₩ GF	PRS					Date: ♯	Sep. 14 <u>Oct</u>	<u>. 16,</u> 2001
Category:	Deta	F (corre A (corre B (addit C (funct D (edito ailed expl:	ne following cates ction) esponds to a colicion of feature), rional modification anations of the second category.	rrection in a on of feature n) above categ	e)		Use <u>one</u> of 2 R96 R97 R98 R99 REL-4	R97 the following re (GSM Phase 2 (Release 1996 (Release 1997 (Release 1998 (Release 1999 (Release 4) (Release 5)	?) 5) 7) 8)
Reason for chan	ge: Ж	problem o o o	misalignment n can arise in The MS initia In response, services process BSSAP+-LOOTHE VLR does According to Update for not the Reject cathis r	GPRS networks a Community of the SGSN cedure on the CATION-Upes not response on the CATION conformation of the CATION conformatio	works ope bined atta initiates the Gs inter PDATE-R ond in due use 6.2.4, service pro 'Service of 'Service of O4.08, clar herefore, 'GPRS and	rating characteristics and ron	in NMO I: GPRS and cation Upda and, therefore EST messag and timer T GGSN shall a re and indicatemporarily 7.3.2.3.2, the ombined att -GPRS serv	non-GPRS s te for non-GP ore, it sends a ge to the VLR 6-1 expires. abort the Loc ate this to the out of order'. ne MS does n ach procedur	ervices. PRS a . ation MS with ot expect
Summary of cha Consequences inot approved:	•	when specif	R provides an T1-6-T6-T6-1 expied in 04.08. Temper between then:	oires will be This is alrea	e <u>'MSC ten</u> ady specifi	nporai ied in i	rily not reac 29.018.	hable'. the or	<del>le</del>
		03.10,	When a con	ervices, the	e mobile w	ill con		services but s ocedure as fa	
Clauses affected		621							

Other specs affected:	*	Other core specifications Test specifications O&M Specifications
Other comment	s: #	Identical revisions have already been made to 29.018 (see N1-000911).

### 6.2.4 Abnormal cases

If timer T6-1 expires, the SGSN shall abort the Location Update for non-GPRS service procedure and indicate this to the MS with the Reject cause value <u>'MSC temporarily not reachable'</u>. <u>'Service option temporarily out of order'</u>. The state of the association to the VLR shall be Gs-NULL.

If the SGSN receives a BSSAP+LOCATION-UPDATE-ACCEPT message and timer T6-1 is not running then:

- If timer T8 is running (see section 8), the message shall be ignored;
- If timer T9 is running (see section 9), the message shall be ignored; or
- If timers T8 and T9 are not running:
  - If the state of the association to the VLR is GS-ASSOCIATED, the message shall be ignored; or
  - If the state of the association to the VLR is different than GS-ASSOCIATED, the message shall be treated as a message incompatible with the protocol state of the SGSN (see section 16.3).

### 3GPP TSG-CN1 Meeting #20 Brighton, England, 15-19 October 2001

Clauses affected: # 6.2.4

		CR-Form-v4							
	CHANGE REQUEST								
*	09.18 CR A049 # rev # Curre	nt version: <b>7.4.0</b> #							
For <u><b>HELP</b></u> on using this form, see bottom of this page or look at the pop-up text over the <b>%</b> symbols.									
Proposed change affects: # (U)SIM ME/UE Radio Access Network Core Network X									
Title: # (	Correction of the Reject cause when T6-1 expires								
Source: # 1	Motorola								
Work item code: 第 (	GPRS D	ate: 第 Oct. 16, 2001							
De be	Ise one of the following categories:  F (correction)  A (corresponds to a correction in an earlier release)  B (addition of feature),  C (functional modification of feature)  D (editorial modification)  Retailed explanations of the above categories can  e found in 3GPP TR 21.900.	R98  2 one of the following releases:  2 (GSM Phase 2)  R96 (Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  REL-4 (Release 4)  REL-5 (Release 5)							
Reason for Change.	<ul> <li>Due to misalignment between TS 04.08 and TS 09.7 problem can arise in GPRS networks operating in N         <ul> <li>The MS initiates a Combined attach for GPR</li> <li>In response, the SGSN initiates the Location services procedure on the Gs interface and, BSSAP+-LOCATION-UPDATE-REQUEST</li> <li>The VLR does not respond in due time and</li> <li>According to 09.18, clause 6.2.4, "the SGSN Update for non-GPRS service procedure and the Reject cause value 'Service option temp</li> <li>However, according to 04.08, clause 4.7.3.2 this Reject cause and, therefore, "the combined considered as failed for GPRS and non-GPR</li> </ul> </li> <li>Similar scenarios can arise in other combined process.</li> </ul>	MO I: RS and non-GPRS services. In Update for non-GPRS In therefore, it sends a message to the VLR. Itimer T6-1 expires. In Shall abort the Location and indicate this to the MS with corarily out of order'."  2.3.2, the MS does not expect fined attach procedure shall be RS services."							
Summary of change:	The CR provides an essential correction: It specifies when T6-1 expires will be 'MSC temporarily not reaspecified in 29.018.								
Consequences if not approved:	<ul> <li>Misalignmet between 04.08 and 09.18. If the SGSN 09.18, then:</li> <li>When a combined procedure fails for non-for GPRS services, the mobile will conside both GPRS and non-GPRS services.</li> </ul>	GPRS services but succeeds							

Other specs affected:	æ	Other core specifications # Test specifications O&M Specifications
Other comments:	ж	Identical revisions have already been made to 29.018 (see N1-000911).

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CR-Form-v4

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# 3GPP TSG-CN1 Meeting #20 Brighton England 15 -19 October 2001

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Source: #	Sie	mens	AG											
Work item code: ₩	GP	RS								Date:	<b>光</b> 27	7.09.01	l	
Category: #		ono of	tha fall	owing cat	ogorio	o <i>-</i>				<b>Release:</b> Use <u>one</u>			a rok	2000:
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#### **How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at: <a href="http://www.3gpp.org/3G">http://www.3gpp.org/3G</a> Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked **%** contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <a href="ftp://ftp.3gpp.org/specs/">ftp://ftp.3gpp.org/specs/</a> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

### 4.2.2 States at the SGSN

#### Gs-NULL

There is no association with a VLR for the MS and therefore the SGSN considers that the MS is IMSI detached of non-GPRS services. In this state the SGSN accepts BSSAP+-PAGING-REQUEST messages to MSs only if the 'SGSN-Reset' restoration indicator in the SGSN is set to 'true'.

#### LA-UPDATE Requested

The SGSN has sent a BSSAP+-LOCATION-UPDATE-REQUEST message to the VLR. In this state the SGSN waits for the outcome of the Location Update for non-GPRS procedure at the VLR before sending the response to the MS. In this state the SGSN accepts BSSAP+-PAGING-REQUEST messages.

#### **Gs-ASSOCIATED**

The SGSN stores an association for that MS. In this state the SGSN performs the Location Update for non-GPRS services procedure towards the VLR for MSs in class-A and MSs in class-B mode of operation when the MS moves to a new LA.

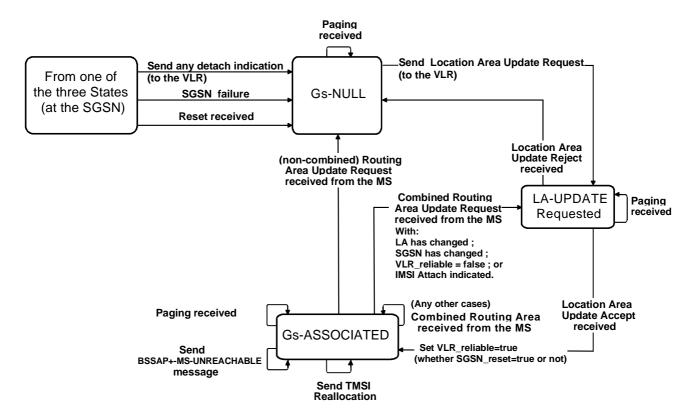


Figure 4.2/3GPP TS 29.018: State diagram at the SGSN

### 6.1 General description

The location update for non-GPRS services procedure is a general procedure used by MSs in class-A mode of operation and MSs in class-B mode of operation. This procedure allows MSs and network to perform:

- Combined IMSI attach for GPRS and non-GPRS services;
- IMSI attach for non-GPRS services if the MS is already IMSI attached for GPRS services;
- IMSI attach for GPRS services indication to the VLR if the MS is already IMSI attached for non-GPRS services;
- Normal Location Update procedure to the VLR if the MS is IMSI attached for both GPRS and non-GPRS services;
- Reallocation of TMSI to an MS.

The Location Update for non-GPRS services procedures in the Gs interface is always started as a consequence of a direct action by the MS. The combined routeing area update procedure is further specified in 3GPP TS 23.060 and 24.008.

The Location Update for non-GPRS services procedure is used by the SGSN to forward to the VLR those parts of the combined routeing area update or IMSI attach procedure which belong to the non-GPRS services. This means that non-GPRS related requests which are included in the combined request, are sent from the SGSN to the VLR. The procedure is also used by the SGSN to indicate to the VLR when an IMSI attach to GPRS services has been performed by an MS that was already IMSI attached to non-GPRS services. The SGSN may also forward a BSSAP+-TMSI-REALLOCATION-COMPLETE message from the MS to the VLR.

The VLR shall acknowledge the BSSAP+-LOCATION-UPDATE-REQUEST message. When the VLR processes the request it does not perform authentication because it relies on the SGSN's security functions.

When an MS is IMSI attached for GPRS and non-GPRS services, any implicit detach timer in the VLR shall be stopped. Instead the Paging Proceed Flag in the SGSN is used to determine the likely availability of the MS to the network. Upon reception of the periodic Routeing Area Update message Tthe SGSN does not report to the VLR-upon reception of the periodic Routeing Area Update message., and the state of the association at the SGSN is not changed. When the MS performs a detach only from the GPRS system the GPRS detach indication to the VLR shall cause the VLR's implicit detach timer to be restarted from its initial value.

If the SGSN performs an implicit detach for both GPRS and non-GPRS traffic, then the SGSN shall indicate to the VLR a BSSAP+-IMSI-DETACH-INDICATION message with cause 'Implicit SGSN initiated IMSI detach from non-GPRS service', as further described in clause 'Implicit IMSI detach from non-GPRS service procedure' (the implicit IMSI detach message indicates that the MS is unavailable for both GPRS and non-GPRS services).

The IMSI attach for GPRS services to the VLR, when the MS is already IMSI attached for non-GPRS services, is requested by the MS sending a combined IMSI attach for GPRS and non-GPRS services message to the SGSN, as further specified in 3GPP TS 23.060 and 24.008.