Technical Specification Group Services and System Aspects Meeting #23, Phoenix, USA, 15 - 18 March 2004

TSGS#23(04)0036

Source: TSG SA WG2 Title: CRs on 23.221

Agenda Item: 7.2.3

The following Change Requests have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #23. Note: the source of all these CRs is now S2, even if the name of the originating company(ies) is still reflected on the cover page of all the attached CRs.

S2 doc#	Title	Spec	CR#	cat	Version	REL	WI	S2	Affected clauses
					in			meeting	
<u>S2-040431</u>	Interaction between Shared Network in Connected mode, reject	23.221	045	F	5.8.0	5	TEI	S2 #37	New section added
	of Mobility Management procedures and Common Id								6.15.1.6
S2-040432	Interaction between Shared Network in Connected mode, reject	23.221	046	A	6.1.0	6	TEI	S2 #37	New section added
	of Mobility Management procedures and Common Id								6.15.1.6
<u>S2-040433</u>	Include administrative restriction subscription parameter	23.221	044r2	В	6.1.0	6	TEI6	S2 #37	New Clause 6.5.3a
									added and section 2
									new references added

3GPP TSG-SA2 Meeting #37 Innsbruck, Austria, 12th – 16th January, 2004

		CHAN	GE REQ	UES1	-		CR-Form-v7
*	<mark>23.221</mark>	CR <mark>044</mark>	жrev	2 #	Current vers	6.1.0	ж
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Source: #	SA2 (Eric	esson, Telefonica	a)				
Work item code: ₩	TEI6				Date: ℜ	15/01/2004	
	F (cor	the following cate rection) rresponds to a cor		lier releas	2	Rel-6 the following rela (GSM Phase 2) (Release 1996)	
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Clauses affected:	ж <mark>New</mark>	Clause 6.5.3a	added and sec	tion 2 ne	w references a	added	
Other specs affected:	¥ <mark>X </mark>	Other core spe Test specificat	ions	第 23.0	60, 23.008, 23	3.012, 29.002, 2	23.016
Other comments:	¥						

How to create CRs using this form:

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2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]	3GPP TS 23.002: "Network Architecture".
[2]	3GPP TS 23.060: "General Packet Radio Service (GPRS) Service description; Stage 2".
[3]	3GPP TS 23.012: "Location management procedures"
[5]	3GPP TS 25.331: "Radio Resource Control (RRC) Protocol Specification"
[6]	3G TS 25.301: "Radio interface protocol architecture"
[7]	3G TS 25.303: "UE functions and inter-layer procedures in connected mode"
[8]	3GPP TR 21.905: "3G Vocabulary".
[9]	3GPP TS 25.413: "UTRAN Iu interface RANAP signalling"
[10]	3GPP TS 25.410: "UTRAN Iu Interface: General Aspects and Principles"
[11]	3G TS 23.228 "IP Multimedia Subsystem – Stage 2"
[12]	3G TS 43.051 "GERAN Overall Description"
[13]	3G TS 23.153 ,"Out of Band Transcoder Control - Stage 2".
[14]	3G TS 23.205, "Bearer Independent CS Core Network – Stage 2"
[15]	3G TR 25.931: "UTRAN Functions, examples on signalling procedures"
[16]	RFC2766 "Network Address Translation - Protocol Translation (NAT-PT)", G. Tsirtsis, P. Srisuresh. February 2000.
[17]	RFC2893 "Transition Mechanisms for IPv6 Hosts and Routers", R. Gilligan, E. Nordmark, August 2000.
[17a]	RFC 3041: "Privacy Extensions for Stateless Address Autoconfiguration in IPv6", T. Narten, R. Daves, January 2001.
[18]	3G TS 25.401 "UTRAN Overall Description"
[19]	3G TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode"
[20]	3G TS 45.008: "Radio subsystem link control"

[21]	RFC3316 "IPv6 for Some Second and Third Generation Cellular Hosts", June 2002
[22]	3GPP TS 24.007: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface signalling layer 3 General aspects".
[23]	3G TS 24.229 "IP Multimedia Call Control Protocol based on SIP and SDP"
[xx]	3G TS 23.008 "Organisation of subscriber data"
[xx1]	3G TS 24.008 "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3"

6.3.5 Relationship between the different areas

The following area relations exist (see figure 6.3):

- there need not be any relation between URA/GRA and LA respectively between URA/GRA and RA. The URA concept is defined in 3G TS 25.331 [5] and the GRA concept is defined in 3G TS 43.051 [12];
- one RA consists of a number of cells belonging to RNCs that are connected to the same CN node;
- one LA consists of a number of cells belonging to RNCs that are connected to the same CN node;
- one RA is handled by only one CN serving node, i.e. one combined MSC+SGSN or one 3G_SGSN;
- one LA is handled by only one CN serving node, i.e. one combined MSC + SGSN or one 3G_MSC/VLR.

The GSM defined relations between LA and RA applies i.e. the following relations between LA and RA are possible:

- RA and LA is equal;
- one RA is a subset of one, and only one, LA, meaning that a RA do not span more than one LA.

The mapping between one LA and RNCs is handled within the MSC/VLR owning this LA. The mapping between one RA and RNCs is handled within the SGSN owning this RA. The mapping between LA and cells respective between RA and cells is handled within RNC.

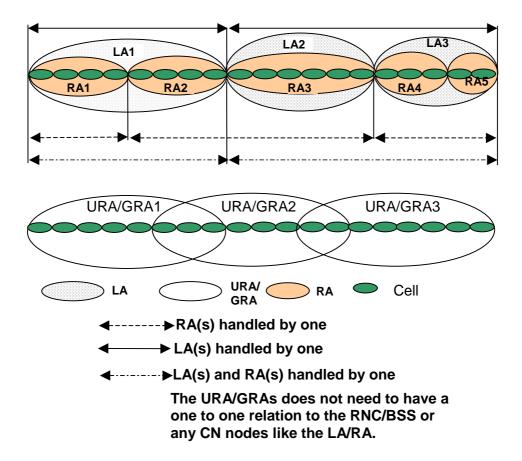


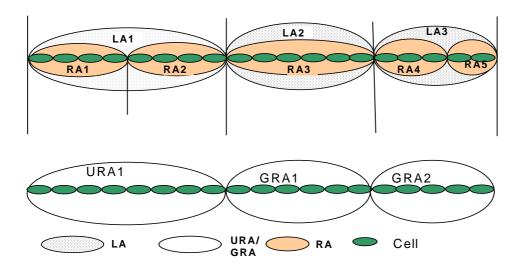
Figure 6.3: Relationship between different areas

6.3.5a Restriction of subscribers' access

Operators shall be able to restrict their subscriber's access between GERAN and UTRAN radio access, via administrative procedures based on subscription information.

In order for the restriction to apply, the network cells shall be organized so that each LA and RA contains either UTRAN or GERAN cells only. Based on the subscription information and the LA/RA information available in the VLR/SGSN, subscriber's access may be rejected during LA/RA update procedure.

NOTE: In order for this feature to work, both serving and home network operators need to have configured the feature.



Access restriction can be applied for the above scenario

Figure 6.3a: Example scenario between different areas for restriction

The HSS shall provide the MSC/MSC server/VLR and SGSN with the following information about the subscriber's access restriction set by the operator, as specified in TS 23.008 [xx]:

- Subscriber GERAN only
- Subscriber UTRAN only

For Subscriber GERAN only or Subscriber UTRAN only, the UE shall be notified of the access restriction using the existing procedures for network rejection of Location Update and Attachment, as defined in TS 24.008 [xx1] and the existing cause values for these procedures.

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6.15 Signalling procedures

6.15.1 Idle mode procedures

The signalling procedures shown in the following clauses do not represent the complete set of possibilities, nor do they mandate this kind of operation. This document specifies a set of elementary procedures for each interface, which can be combined in different ways in an implementation. Therefore these sequences are merely examples of a typical implementation. By default the combined procedures as defined in TS 23.060 [2] are also applicable when using Gs.

The list of parameters should be regarded as examples of possible information carried by the messages and not as a complete list.

6.15.1.1 Location Area update

Figure 6.8 shows location registration when changing LA including change of 3G-MSC/VLR and when the UE is in MM idle state towards the 3G_MSC/VLR.

The illustrated transfer of MM signalling to/from the UE uses an established RRC connection. This RRC connection can have been established beforehand due to ongoing interwork between UE and 3G-SGSN or be established only for this location registration procedure towards the 3G_MSC/VLR.

For each indicated MM message sent in this case to/from UE, the CN discriminator indicates 3G_MSC/VLR.

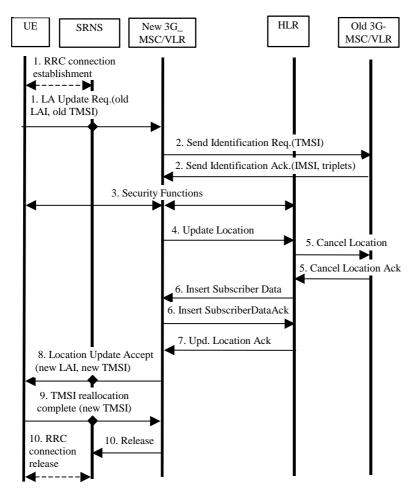


Figure 6.8: Interface information transfer for location update when changing VLR area

- The RRC connection is established, if not already done. The UE sends the initial message LA Update Request (old TMSI, old LAI, etc.) to the new 3G_MSC/VLR. The old TMSI and LAI are those that were assigned to the UE. The SRNS transfers the message to the 3G_MSC/VLR
- NOTE: The sending of this message to 3G_MSC/VLR also implies establishment of a signalling connection between SRNS and 3G_MSC/VLR for the concerned UE.
 - The RAN shall add the RAC and the LAC of the cell where the message was received before passing the message to the MSC.
- 2. The new 3G_MSC/VLR sends an Send Identification Request (old TMSI) to the old 3G_MSC/VLR to get the IMSI for the UE. (The old LAI received from UE is used to derive the old 3G_MSC/VLR identity/address.) The old 3G_MSC/VLR responds with Send Identification Ack. (IMSI and Authentication triplets).
- 3. Security functions may be executed.
- 4. The new 3G_MSC/VLR inform the HLR of the change of 3G_MSC/VLR by sending Update Location (IMSI, MSC address, VLR number) to the HLR.
- 5. The HLR cancels the context in the old 3G_MSC/VLR by sending Cancel Location (IMSI). The old 3G_MSC/VLR removes the context and acknowledges with Cancel Location Ack.
- 6. The HLR sends Insert Subscriber Data (IMSI, subscription data) to the new 3G_MSC/VLR. The new 3G_MSC/VLR acknowledges with Insert Subscriber Data Ack.
- 7. The HLR acknowledges the Update Location by sending Update Location Ack. to the new 3G_MSC/VLR.
 - 8. The new 3G_MSC/VLR validates the UE presence in the new LA. If due to regional, national or international restrictions the UE is not allowed to attach in the LA or subscription checking fails, then the new 3G_MSC/VLR rejects the LA update with an appropriate cause. If all checks are successful, then the new 3G_MSC/VLR responds to the UE with LA Update Accept (new TMSI, new LAI).
- 9. The UE acknowledges the new TMSI with a TMSI reallocation Complete. (TMSI can optionally be reallocated with the TMSI reallocation procedure).
- 10. When the location registration procedure is finished, the 3G_MSC/VLR can release the signalling connection towards the SRNS for the concerned UE. The SRNS shall then release the RRC connection if there is no signalling connection between 3G_SGSN and SRNS for the UE.

6.15.1.2 Routing Area Update

The routing area update procedure is detailed in 3G TS 23.060[2].

6.15.1.3 Periodic registration towards both CN nodes without use of Gs

Periodic registration for the CS domain is specified in 3G TS 23.012 [3]. Periodic registration for the PS domain is covered in 3G TS 23.060 [2]. In the case of a combined node, this procedure does not apply.

6.15.1.4 Periodic registration with use of Gs or combined MSC+SGSN node

Periodic registration for the PS domain is covered in 3G TS 23.060 [2]. Only RA Update req. registration is required from the UE to the 3G-3G-SGSN. This procedure applies for a combined 3G-MSC/3G-SGSN.

6.15.1.5 UE initiated combined detach procedure when using Gs or combined MSC+SGSN node

UE initiated Combined Detach Procedure when using Gs or combined MSC+SGSN node is specified in 3G 23.060 [2]. The UE specifies which form of detach is required, i.e., PS Detach only, CS Detach only or combined Detach..

6.15.1.6 Forbidden LA/RA

The CN (SGSN and MSC/VLR) shall not send the COMMON Id message with SNA information to the UTRAN when the Attach Request, LA Update, or RA update are rejected.

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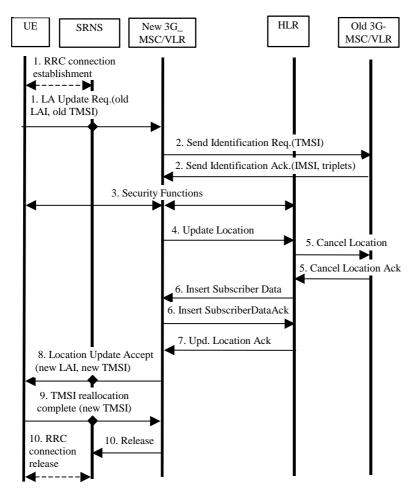


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