

TSG RAN Meeting #18
New Orleans, Louisiana, USA, 3 - 6 December, 2002

RP-020764

Title CRs (Rel-5 only) to 25.401 and 25.410 on Corrections to the SNA Access Control Function and Introduction of the Access Control Function
Source TSG RAN WG3
Agenda Item 7.3.5

RAN3 Tdoc	Spec	curr. Vers.	new Vers.	REL	CR	Rev	Cat	Title	Work item
R3-022586	25.401	5.4.0	5.5.0	REL-5	064	1	F	Corrections to the SNA Access Control	NETSHARE
R3-022590	25.410	5.2.0	5.3.0	REL-5	043	2	F	Introduction of the Access Control	NETSHARE

CR-Form-v7

CHANGE REQUEST

25.401 CR **064** # rev **1** # Current version: **5.4.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	#	Corrections to the SNA Access Control Function	
Source:	#	RAN WG3	
Work item code:	#	NETSHARE	Date: # 11/11/2002
Category:	#	F	Release: # Rel-5
		Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
		F (correction)	2 (GSM Phase 2)
		A (corresponds to a correction in an earlier release)	R96 (Release 1996)
		B (addition of feature),	R97 (Release 1997)
		C (functional modification of feature)	R98 (Release 1998)
		D (editorial modification)	R99 (Release 1999)
		Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	#	The name of the SNA Access Control function needs to be corrected as it currently is limited to part of the scope of the function. The text describing the function needs also to be enhanced to cover all the possibilities offered for Shared Networks (like allowing access on a PLMN basis and not an SNA basis).
Summary of change:	#	The name of the function is changed to "Shared Networks Access Control". The text is corrected to cover the possibility of allowing access on a PLMN basis and not only on an SNA basis.
		<u>Impact assessment towards the previous version of the specification (same release):</u>
		This CR has isolated impact towards the previous version of the specification (same release) because a node not implementing the CR would not fulfil correctly an access control request based on PLMN.
		The impact is under functional and protocol point of view.
		The impact can be considered isolated because it only affects the access control function.
		This CR has no impact towards previous release because it affects a new release 5 function.
Consequences if not approved:	#	Part of the possibilities offered by the RANAP Signalling will be overlooked in the Stage 2 specifications, thus providing an incomplete description of the function.

Clauses affected:	#	3.2, 7.2.3.6
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Other specs	⌘	Y	N	Other core specifications	⌘	CR043 on TS 25.410 v 5.2.0
		X				
			X			
affected:			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>.

Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAL	ATM Adaptation Layer
AAL2	ATM Adaptation Layer 2
ALCAP	Access Link Control Application Part
ATM	Asynchronous Transfer Mode
BM-IWF	Broadcast Multicast Interworking Function
BMC	Broadcast/Multicast Control
BSS	Base Station Subsystem
CBC	Cell Broadcast Centre
CBS	Cell Broadcast Service
CN	Core Network
CPCH	Common Packet Channel
CRNC	Controlling Radio Network Controller
DCH	Dedicated Channel
DL	Downlink
DRNS	Drift RNS
EDGE	Enhanced Data rates for Global Evolution
FACH	Forward Access Channel
FFS	For Further Study
GERAN	GSM EDGE Radio Access Network
GSM	Global System for Mobile Communications
GTP	GPRS Tunnelling Protocol
IPv4	Internet Protocol, version 4
IPv6	Internet Protocol, version 6
LA	Location Area
MAC	Medium Access Control
NAS	Non Access Stratum
NBAP	Node B Application Part
NNSF	NAS Node Selection Function
NSAP	Network Service Access Point
PCH	Paging Channel
<u>PLMN</u>	<u>Public Land Mobile Network</u>
QoS	Quality of Service
RAB	Radio Access Bearer
RACH	Random Access Channel
RANAP	Radio Access Network Application Part
RNC	Radio Network Controller
RNL	Radio Network Layer
RNS	Radio Network Subsystem
RNSAP	Radio Network Subsystem Application Part
RNTI	Radio Network Temporary Identity
SAB	Service Area Broadcast
SAS	Standalone A-GPS SMLC
SMLC	Serving Mobile Location Centre
SNA	Shared Network Area
SRNC	Serving Radio Network Controller
SRNS	Serving RNS
TEID	Tunnel Endpoint Identifier
TNL	Transport Network Layer
TTI	Transmission Time Interval
UDP	User Datagram Protocol
UE	User Equipment
UL	Uplink
UMTS	Universal Mobile Telecommunication System
USIM	UMTS Subscriber Identity Module
UTRAN	Universal Terrestrial Radio Access Network

7.2.3.6 Shared NetworksA Access Control

The Shared NetworksA aAccess eControl function allows the CN to request the UTRAN to apply UE specific access control to LAs of the UTRAN and LAs of neighbouring networks.

The Shared NetworksA aAccess eControl function is based on either whole PLMNs or Shared Network Areas (SNAs). An SNA is an area corresponding to one or more LAs within a single PLMN, to which UE access can be controlled.

In order to apply Shared NetworksA aAccess eControl for the UTRAN or for a neighbouring system, the UTRAN shall be aware of whether the concerned LA belongs to one (or several) SNA(s) or not.

If SNA access for a specific UE needs to be restricted, the CN shall provide SNA Access Information for that UE. The SNA Access Information indicates which PLMNs and/or which SNAs the UE is allowed to access.

Based on whether the LA belongs to the PLMNs or SNAs the UE is allowed to access, the UTRAN determines if access to a certain LA for a certain UE shall be allowed.

If access is not allowed, the UTRAN shall prevent the UE to obtain new resources in the concerned LA.

CHANGE REQUEST

25.410 CR 043 # rev **2** # Current version: **5.2.0**

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

Proposed change affects: UICC apps# ME Radio Access Network Core Network

Title:	# Introduction of the Access Control Function		
Source:	# RAN WG3		
Work item code:	# NETSHARE	Date:	# 11/11/2002
Category:	# F	Release:	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
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	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	# Alignment of TS25.410 in order to support the shared network access control in connected mode. It is required to define the access control function to be able to differentiate LA access rights for different UEs and the information transfer function to allow the CN to provide the SNA to LA mapping to the UTRAN. This contribution proposes to introduce the required mechanism in 25.410. Detailed consequences for the different protocols are described in the corresponding 25.413 and 25.423 specifications.
Summary of change:	# Rev 2: "RAN" corrected to "UTRAN" Rev 1: The SNA Access Control function is renamed "Shared Networks Access Control" and the text describing this function presents the two options of allowing access to whole PLMNs or selected SNAs within a PLMN to a given UE. The Information Transfer is changed to more reflect what the function actually allows to do and to what purpose it should be used. Rev 0: - Introduction of SNA abbreviation - Introduction of SNA Access Control Function - Introduction of Information Transfer Function
Consequences if not approved:	# Misalignment between 25.413 and 25.410. Discrepancy between support of certain functions.

Clauses affected:	# 3.2, 5.6.4 (new), 5.9.3 (new)
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Other specs affected:		Y	N	Other core specifications	⌘ TS 25.401 v 5.4.0 CR064
	⌘	X			
			X		
			X	O&M Specifications	
Other comments:	⌘				

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

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in [1] apply.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3G-MSC	3 rd Generation Mobile Switching Centre
3G-SGSN	3 rd Generation Serving GPRS Support Node
AAL	ATM Adaptation Layer
ATM	Asynchronous Transfer Mode
BC	Broadcast
BSSMAP	Base Station Subsystem Management Application Part
CBS	Cell Broadcast Service
CC	Connection Confirm
CN	Core Network
CR	Connection Release
CREF	Connection Refusal
CS	Circuit Switched
GT	Global Title
GTP-U	GPRS Tunnelling Protocol
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LA	Location Area
M3UA	MTP3 User Adaptation Layer
NAS	Non Access Stratum
NNSF	NAS Node Selection Function
O&M	Operation and Maintenance
<u>PLMN</u>	<u>Public Land Mobile Network</u>
PS	Packet Switched
PSTN	Public Switched Telephone Network
PVC	Permanent Virtual Circuit
QoS	Quality of Service
RA	Routing Area
RAB	Radio Access Bearer
RANAP	Radio Access Network Application Part
RLP	Radio Link Protocol
RNC	Radio Network Controller
RNL	Radio Network Layer
RRC	Radio Resource Control
RTCP	Real Time Control Protocol
RTP	Real Time Protocol
SA	Service Area
SABP	Service Area Broadcast Protocol
SAP	Service Access Point
SCCP	Signalling Connection Control Part
SCTP	Stream Control Transmission Protocol
<u>SNA</u>	<u>Shared Network Area</u>
SPC	Signalling Point Code
SRNS	Serving Radio Network Subsystem
SSN	Sub-System Number
SVC	Switched Virtual Circuit
TCP	Transmission Control Protocol
UE	User Equipment

UDP	User Datagram Protocol
UP	User Plane
URA	UTRAN Registration Area
UTRAN	UMTS Terrestrial Radio Access Network
VC	Virtual Circuit

3.3 Specification Notations

For the purposes of the present document, the following notations apply:

Procedure	When referring to a procedure in the specification the Procedure Name is written with the first letters in each word in upper case characters followed by the word "procedure", e.g. Radio Network Layer procedures.
Message	When referring to a message in the specification the MESSAGE NAME is written with all letters in upper case characters followed by the word "message", e.g. RADIO LINK SETUP REQUEST message.
Frame	When referring to a control or data frame in the specification the CONTROL/DATA FRAME NAME is written with all letters in upper case characters followed by the words "control/data frame", e.g. DCH transport frame.

5.6 Mobility Management Functions

5.6.1 Location information update function

Some functionality within the CN, needs information about the present location of an active UE, i.e. a UE with established signalling connection. The Location information update function is used to transfer this information from the UTRAN to the CN. It is the UTRAN responsibility to send this information initially at the signalling connection establishment for a UE and at any change of the UE location as long as the signalling connection exists. For this function, the location information shall be at Location and Routing Area level.

5.6.2 Handover and Relocation functions

5.6.2.1 Inter RNC hard HO function, Iur not used or not available

This functionality includes procedures for handover from one RNC to another RNC when Iur interface is not used or is not available, i.e. soft handover is not possible. The connection is switched in the CN, so both UTRAN and CN are involved. Both intra and inter CN entity cases are applicable. This functionality includes also the moving of the Serving RNS functionality from one RNC to another RNC.

5.6.2.2 Serving RNS Relocation function

This functionality allows moving the Serving RNS functionality from one RNC to another RNC, e.g. closer to where the UE has moved during the communication. The Serving RNS Relocation procedure may be applied when active cell management functionality has created a suitable situation for it. Both UTRAN and CN are involved.

5.6.2.3 Inter system Handover (e.g. UMTS-GSM) function

Inter system handover is performed when a mobile hands over between cells belonging to different systems such as GSM and UMTS. For intersystem handover between UMTS and GSM, the GSM procedures are used within the GSM network. Both UTRAN and CN are involved.

NOTE: The GSM BSSMAP procedures are outside the scope of the present document.

5.6.2A Inter System Change (e.g. UMTS-GSM) function

Inter system change is performed when a GPRS attached mobile moves from cells belonging to different systems such as GSM and UMTS. For intersystem change between UMTS and GSM, the GPRS procedures are used within the GPRS network. Both UTRAN and CN are involved.

5.6.3 Paging Triggering

The Core Network shall, when considered necessary, trigger the Location/Routing/RNC Area paging in the UTRAN system.

5.6.4 Shared Networks Access Control

The Shared Networks Access Control function allows the CN to request the UTRAN to apply UE specific access control to the UTRAN and the neighbouring networks on a PLMN or an SNA basis. The Shared Networks Access Control function is further described in [1].

5.9 Co-ordination Functions

5.9.1 Paging Co-ordination function

The two CN domain architecture implies need for a page co-ordination, i.e. handling of page triggered by one CN node when UE has a signalling connection to the other CN node. The paging co-ordination is performed by UTRAN and/or optionally by CN. The Common ID is used for UTRAN paging co-ordination. The CN provides the UTRAN with the Common ID.

The paging co-ordination is a UTRAN function. Optionally the paging co-ordination may be performed in the CN.

5.9.2 NAS Node Selection Function

The optional NAS Node Selection Function enables the RNC to initially assign CN resources to serve a UE and subsequently setup a signalling connection to the assigned CN resource.

The method by which the RNC initially assigns CN resources is implementation dependent.

The NNSF is described in detail in [25].

5.9.3 Information Transfer Function

The Information Transfer function allows configuration data to be passed from the CN to the RNC upon CN trigger. This function is operated in acknowledged mode. It should be used by the CN to maintain alignment between the data as configured in the CN and the configuration data provided to the UTRAN. This may be used e.g. to coordinate the SNA geographical definition (LA to SNA mapping) between CN and UTRAN in order to apply access control on an SNA basis.