Source: **SA5 (Telecom Management)**

Title: **Rel-6 CR 32.421 (Subscriber and equipment trace: Trace concepts and requirements) : Correction of IMS subscriber identification for Trace**

Document for: **Decision**

Agenda Item: **7.5.3**

Doc-1st-Level	Spec	CR	Ph	Subject	Cat	Ver-Cur	Doc-2nd-Level	WI
SP-030612	32.421	002	Rel-6	Correction of IMS subscriber identification for Trace	F	6.1.0	S5-032712	OAM-Trace

CR-Form-v7

CHANGE REQUEST

⌘ 32.421 CR 002 ⌘rev - ⌘ Current version: 6.1.0 ⌘

*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 X

Title: ⌘	Correction of IMS subscriber identification for Trace	
Source: ⌘	SA5 (kari.t.ronka@nokia.com)	
Work item code: ⌘	OAM-Trace	***Date:*** ⌘ 21/11/2003
Category: ⌘	F	***Release:*** ⌘ Rel-6

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

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

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

Reason for change: ⌘	After correspondence with CN1 it was agreed that the subscriber identification used for Trace in IMS should be Private ID instead of Public ID.
Summary of change: ⌘	- Replace Public ID with Private ID throughout the document - Correct an editorial error.
Consequences if not approved: ⌘	Wrong subscriber identification for IMS Trace would stay in the specification.

Clauses affected: ⌘	1, 5.3.1, 5.3.2, B.2.2			
	Y	**N**		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	
Other comments: ⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

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

KEEP the History box of the TS to be changed (see end of the present document), please

Change in Clause 1

1 Scope

The present document describes the requirements for the management of Trace and the reporting of Trace data across UMTS networks as it refers to subscriber tracing (tracing of IMSI or ~~Public~~ Private ID) and MS tracing (tracing of IMEI or IMEISV). It defines the administration of Trace Session activation/deactivation by the Element Manager (EM) or the network itself via signalling, the generation of Trace results in the Network Elements (NEs) and the transfer of these results to one or more Operations Systems, i.e. EM(s) and/or Network Manager(s) (NM(s)).

End of Change in Clause 1

Change in Clause 5.3.1

5.3 Requirements for Trace Activation

5.3.1 Requirements for Trace Session Activation

The high level requirements for Trace Session activation, common to both Management activation and Signalling based activation), are as follows:

- In case of subscriber Trace, the Trace Session will be activated for a certain subscriber whose identification (IMSI in UTRAN/GERAN/CS/PS or ~~Public~~ Private ID in IMS) shall be known in the NEs where subscriber Trace is needed.

End of Change in Clause 5.3.1

Changes in Clause 5.3.2

5.3.2 Requirements for Starting a Trace Recording Session

The high level requirements for starting a Trace Recording Session, common to both Management activation and Signalling based activation), are as follows:

- It is optional for the NE to start a Trace Recording Session if there are insufficient resources available within the NE.
- The Trace Recording Session Reference shall be unique within a Trace Session.
- The Trace Recording Session should be started after appropriate start trigger events are detected.

The high level requirements for starting a Trace Recording Session, specific to Management activation, are as follows:

- Each NE shall generate its own Trace Recording Session Reference (i.e., independent Trace Recording Sessions).
- Each NE shall start the Trace Recording Session based upon the Trace control and configuration parameters received by the NE in the Trace Session activation.
- The correlation of Trace data will be done with a Trace Reference and IMSI / IMEI / IMEISV / ~~public~~ Private ID.
- The Trace Recording Session can start only when the IMSI (in case of subscriber trace), the IMEI / IMEISV (in case of MS trace) or ~~public~~ Private ID (in case of IMS) is made available in the NE. In order to trace the early

phases of the call the IMSI (in case of subscriber trace), the IMEI / IMEISV (in case of MS trace) or ~~public~~ Private ID (in case of IMS) shall be made available to the NE as soon as practically possible.

E.g. the IMSI and IMEI / IMEISV shall be made available to both Serving RNC and Drift RNC.

End of Changes in Clause 5.3.2

Changes in Annex B, Clause B.2.2

B.2.2 Example of Required Data for this Use Case

The Trace parameters required to cover the use case #2 are listed below:

- The list of NEs where tracing may be needed depends on the service being complained about by the subscriber. For this use case, tracing should be possible in all network elements, such as: HSS, MSS, BSC, RNC, MGW, SGSN, GGSN, S-CSCF, P-CSCF.
- The identification of the subscriber in a Trace is IMSI in UTRAN/GERAN/CS/PS or ~~public~~ Private ID in IMS. The identification of the MS in a Trace is IMEI or IMEISV.
- The data includes those Information Elements from the signalling messages, which are related to the service(s) being complained about by the subscriber (Medium Level).

Example cases, which can be the basis for subscriber complaint:

1. The subscriber cannot make an IM session.

   Tracing is needed in HSS, S-CSCF, P-CSCF, SGSN, GGSN and UTRAN. The subscriber identification for this case is ~~public~~ Private ID in IMS and IMSI in PS domain. From the HSS Trace the operator can determine whether the service in question or IM session establishment is allowed for the subscriber. From the S-CSCF and P-CSCF Trace the operator can examine the SIP signalling together with the SDP, which contains information on the media, while in the P-CSCF Trace the QoS negotiation with GGSN can be determined so in P-CSCF the COPS messages should be traced. From COPS (see 3GPP TS 29.207 [6] for more information on COPS) those parameters are needed, which show how the QoS Policy control is working, whether the session was dropped due to the QoS negotiation. If the source of the complaint is not found in IMS, tracing in SGSN, GGSN and in UTRAN is needed. From SGSN Trace record the QoS parameters, PDP contexts related information can be known while from UTRAN Trace information on the radio coverage and also some QoS related information can be known.

2. The subscriber's CS call is misrouted

   This illustrates an instance where a subscriber complains that his calls are being cross-connected (or misrouted). Such a complaint involves setting up a Trace at all the 3GPP standardised interfaces being handled by the MSC. However, the Trace functionality shall not cover MSC internal or vendor proprietary interfaces. The Trace record shall need to have the dialled number and connected number.

3. The subscriber's call is dropped

   Tracing data is required from the radio network (UTRAN/GERAN) or from the core network (MSS, SGSN, GGSN). In the radio network the radio coverage shall be checked. See use case #4 (checking radio coverage). Beside the radio coverage, other information can be useful as well, like RLC parameter, power information (OLPC or RRC measurement report), error ratios (BLER / BER, SDU error ratio), etc. Tracing in the core network is needed also, if the problem is not in the radio network. E.g. in case of PS domain the call can be dropped by the application due to the long delays or congestions in TCP layer or due to bad QoS. Thus in SGSN the requested and negotiated QoS parameters should be included in the Trace record.

4. The received QoS level is less than the negotiated level.

   To be able to solve the possible problem Tracing data is required from HSS, SGSN, GGSN, UTRAN, and GERAN. Furthermore in case of problem in CS calls tracing in MGW shall be performed.

From HSS Trace data the operator can monitor whether the subscriber's authentication to the network is successful, and what kind of QoS parameters are allowed to the subscriber. From SGSN Trace data the operator can monitor PDP context creation request from mobile. Request seem to contain legal QoS profile (incl. Maximum bandwidth, guaranteed bandwidth etc) and the local resources in SGSN are available to provide the service as requested by the subscriber. From UTRAN/GERAN Trace data the operator can monitor whether the maximum bandwidth and guaranteed bandwidth, requested by SGSN, acceptable for UTRAN/GERAN. Thus to check whether UTRAN/GERAN can provide and maintain the requested radio access bearer services. From GGSN Trace data the operator can monitor PDP context activation between SGSN and GGSN. If the problem is in the CS domain the MGW Trace can provide the QoS data.

End of Changes in Annex B, Clause B.2.2
End of document

Annex C (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2002	S_16	SP-020330	--	--	Submitted to SA #16 for Information	1.0.0	
Dec 2002	S_18	SP-020755	--	--	Submitted to SA #18 for Approval	2.0.0	6.0.0
Mar 2003	S_19	SP-030147	001	--	Corrections to Trace requirements - alignment with SA2's 23.002	6.0.0	6.1.0