

Meeting #20, Hämeenlinna, Finland

09-12 June 2003

Source: TSG SA WG2
Title: CRs on 23.895
Agenda Item: 7.2.3

The following Change Request (CR) has been approved by TSG SA WG2 and is requested to be approved by TSG SA plenary #20.

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.

| Tdoc # | Title | Spec | CR # | cat | Version in | REL | WI | S2 meeting |
|---------------------------|--|-------------|-------------|------------|-------------------|------------|-----------|-------------------|
| S2-031328 | New RANAP message for transfer of UESBI-Iu | 23.895 | 5r1 | C | 6.1.0 | 6 | LATE_UE | S2-31 |

CR-Form-v7

CHANGE REQUEST

⌘ **23.895 CR 5** ⌘ rev **1** ⌘ 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

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|------------------------|--|-----------------|---|
| Title: | ⌘ New RANAP message for transfer of UESBI-lu | | |
| Source: | ⌘ Ericsson | | |
| Work item code: | ⌘ Late_UE | Date: | ⌘ 10/04/2003 |
| Category: | ⌘ C | Release: | ⌘ Rel-6 |
| | Use <u>one</u> 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 <u>one</u> 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) |

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|---------------------------|---|
| Reason for change: | ⌘ In the (U)SIM-less case, the UESBI cannot be transferred to the RNC in the Common ID message since the presence of the IMSI is mandatory in this message (although the criticality of the IMSI for the receiving side, i.e. the RNC, is defined as 'Ignore', the IMSI is mandatory to be included by the sender, i.e. the MSC). Three options exist to address this case: - Include the UESBI to the Direct Transfer message - Define a new RANAP message - Not send the UESBI Obviously, not sending the UESBI is not acceptable as emergency calls would consequently not be protected by the UESBI mechanism. Adding the UESBI to the Direct Transfer message would represent a layer violation and abuse, as it is meant to carry CN – UE signalling. Defining a new message seems to be the cleaner solution and could be used to address any other case that could be identified, where the Common ID cannot be used, or would have to be sent twice. |
| Summary of change: | ⌘ A similar analysis and conclusion is added to section 5.1.3.2, where the (U)SIM-less case is described but without addressing the problem of transferring the UESBI to the RNC. The text and conclusion of section 5.1.10, also suggesting an extension of the Direct Transfer message, are aligned with the general conclusion of this analysis. |
| Consequences if | ⌘ Incomplete description of the problem. |

not approved:

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|---|----------|---|----------|---|---|----------|---|----------|---|----------|---------------------------|--|
| Clauses affected: | ⌘ | | | | | | | | | | | |
| Other specs affected: | ⌘ | <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="padding: 2px;">Y</td><td style="padding: 2px;">N</td></tr><tr><td style="padding: 2px;"></td><td style="padding: 2px; text-align: center;">X</td></tr><tr><td style="padding: 2px;"></td><td style="padding: 2px; text-align: center;">X</td></tr><tr><td style="padding: 2px;"></td><td style="padding: 2px; text-align: center;">X</td></tr></table> | Y | N | | X | | X | | X | Other core specifications | ⌘ |
| | | Y | N | | | | | | | | | |
| | | | X | | | | | | | | | |
| | | | X | | | | | | | | | |
| | X | | | | | | | | | | | |
| Test specifications | | | | | | | | | | | | |
| O&M Specifications | | | | | | | | | | | | |
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| 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.

5.1.3 Emergency Call Handling

5.1.3.1 Attached Mobile with (U)SIM

This poses no problems provided that the IMEISV is stored in the VLR.

5.1.3.2 (U)SIMless mobile

In this case the mobile puts the IMEI into the CM Service Request. This is not the IMEISV, so the MSC could be mandated to assume that the mobile is at revision level zero, and signal this to the RNC. However, a mobile at Software Version = 1 might have different faults to those of a SV=0 mobile. This means that

- For architecture 1: the MSC should send the IMEI (and not the IMEISV) to the RNC, and the RNC uses the IMEI to derive the union of the sets of faults for each SV of that TAC.
- For architecture 2: the MSC would use the IMEI to obtain the BMUEF corresponding to the union of the sets of faults for each SV of that TAC.

A simpler alternative is that the MSC could request the full IMEISV from the mobile. Typically this would add a couple of hundred ms of delay.

In the (U)SIM-less case, the UESBI cannot be transferred to the RNC in the Common ID message since the presence of the IMSI is mandatory in this message (although the criticality of the IMSI for the receiving side, i.e. the RNC, is defined as 'Ignore', the IMSI is mandatory to be included by the sender, i.e. the MSC). There seem to be three possibilities:

- a) Include the UESBI in the next possible Iu interface message. Direct Transfer seems to be a logical choice.
- b) Define a new RANAP message to carry the UESBI
- c) Not send the UESBI

Comparison of the options:

Adding the UESBI to the Direct Transfer message does not appear to be a clean solution, as the Direct Transfer message is meant to carry signalling from CN to UE while the UESBI is destined to the RNC.

Defining a new RANAP message to carry the UESBI, though at first sight heavier than adding an IE to an existing message, could potentially simplify implementations by providing a clear layer separation and offering more flexibility. In particular, such message could be sent as soon as the UESBI is available, rather than waiting for the normal occurrence of a Direct Transfer message.

Not sending the UESBI in case of (U)SIM-less emergency calls seems not to be acceptable as it would mean that emergency calls cannot be protected by the UESBI mechanism.

Conclusion:

A new RANAP message seems to be preferable as the long-term solution, as it offers a clean layer separation and a high flexibility (other cases may appear where timing of existing messages may be a problem).

5.1.3.3 Non-attached Mobile with (U)SIM

The MSC interrogates the mobile for the IMEISV. Such a pair of messages (Identity Request, Identity Response) is anticipated to take about 200ms.

Alternatively, information on the superset of all faults for all mobiles could be sent to the RNC.

Next change

5.1.10 Handling of UESBI during the Attach Procedures

In the CS domain it is possible to signal that the mobile wants to make “a follow on call” after the Location Updating procedure is completed. This avoids delay caused by the release and re-establishment of the RR connection.

To avoid problems with ‘follow on calls’, there needs to be a method for getting the UESBI to the RNC during the attach/first location update procedure.

CS domain - no Gs interface

There seems to be about 5 possibilities:

- a) delay sending the common ID message until both IMSI and UESBI are available to the MSC,
- b) send the common ID twice, once with IMSI and a second time with both IMSI and UESBI.
- c) create a new Iu interface message to carry the UESBI for this specific situation.
- d) add the UESBI to another Iu interface message that will be sent during the Location Update procedure. The best choice of message seems to be Direct Transfer.
- e) not send the UESBI.

CS domain - Gs interface in use

In this situation, any follow on call will appear as a new SCCP connection at the MSC. The UESBI is then sent in the Common ID message along with the IMSI.

PS domain

The same 5 possibilities as for the CS domain exist.

Comparison of the techniques

Receipt of multiple Common ID messages at the RNC ought not to be a serious problem because the RNC frequently receives two of them: one from the MSC and one from the SGSN. However, sending a second Common ID message from the MSC/SGSN is a new MSC/SGSN procedure.

Delaying sending the Common ID message until the UESBI is available, requires changes to the MSC and SGSN procedures and may have negative impacts on ‘class A’ performance.

Adding the UESBI to the Direct Transfer messages requires some new RNC, MSC and SGSN behaviour and represents a misuse of the message since it is meant to carry signalling from CN to UE.

Defining a new RANAP message to carry the UESBI, though at first sight heavier than adding an IE to an existing message, could potentially simplify implementations by providing a clear layer separation and offering more flexibility. Adding a new Iu interface message seems to be a too heavyweight a solution.

Not sending the UESBI is sub-optimal, but might be acceptable for, say, one RNC software release cycle.

Conclusion

Overall, adding the UESBI to the Direct Transfer defining a new RANAP message seems to be slightly preferable as the long-term solution, as it offers a clean layer separation and a high flexibility.