
Source: TSG SA WG2
Title: CRs on 23.060 (PS domain Stage 2)
Agenda Item: 7.2.3

The following Change Requests (CRs) have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #24.
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 in | REL | WI | S2 meeting | Clauses affected |
|---------------------------|--|--------|-------|-----|------------|-----|------|------------|-------------------------|
| S2-041483 | Correction of Figure A.4: SDL Diagram 4 | 23.060 | 493r1 | F | 6.4.0 | 6 | TEI6 | S2 #39 | Figure A.4 in Annex A.2 |
| S2-041677 | Automatic Device Detection function and Gs interface | 23.060 | 494r3 | F | 6.4.0 | 6 | TEI6 | S2 #39 | 15.5 |

CHANGE REQUEST

23.060 CR 493 # rev **1** # Current version: **6.4.0**

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: | # Correction of Figure A.4: SDL Diagram 4 | | |
| Source: | # SA2 (Huawei, China Mobile) | | |
| Work item code: | # TEI6 | Date: | # 19/04/2004 |
| Category: | # F | Release: | # REL-6 |
| | 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: | # In Annex A.2 Figure A.4: SDL Diagram 4, current 23.060 has an expression of 'APN-OI in APN(R)' which is used in the APN selection. However in the clause 'APN and GGSN Selection' current 23.060 defines 'APN (R) is the APN Network Identifier requested by the MS' and 'APN-OI: APN Operator Identifier'. According to the definition, APN-OI is not a part of APN(R). Also in the clause 'A.1 Definitions' it states 'In order to derive APN (R) from the APN sent by the MS, the SGSN shall check if the APN sent by the user ends with '.gprs'. If not, then APN (R) is equal to APN sent by the MS. If yes, then APN (R) is the APN sent by the MS without the three last labels'. So according to the usage of APN (R), the expression in Annex A.2 Figure A.4 shall be 'APN-OI sent from MS', but not 'APN-OI in APN(R)'. |
| Summary of change: | # Correcting SDL Diagram 4 to ensure that the SGSN shall select the APN according to the rules in the SDL diagrams in this clause. |
| Consequences if not approved: | # The Figure A.4: SDL Diagram in 23.060 Rel-6 will remain unaligned with 23.060 Rel-99. It also could lead to interworking problems and incorrect operation of APN Selection Rules by SGSN. |

| | | | | | | | | | |
|------------------------------|---|---|---|---|---|--|---|--|---|
| Clauses affected: | # Figure A.4 in Annex A.2 | | | | | | | | |
| Other specs affected: | # | | | | | | | | |
| | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">X</td> </tr> </table> | Y | N | # | X | | X | | X |
| Y | N | | | | | | | | |
| # | X | | | | | | | | |
| | X | | | | | | | | |
| | X | | | | | | | | |
| | Other core specifications # | | | | | | | | |
| | Test specifications # | | | | | | | | |
| | 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.

A.2 Selection Rules

The SGSN shall select the APN to be used to derive the GGSN address, and set the selection mode parameter according to the rules in the SDL diagrams in this clause. The following definitions apply to the SDL diagrams:

AddrMode: Addressing Mode.

APN-OI: APN Operator Identifier.

HPLMN AP: HPLMN Access Point.

HPLMN-OI: HPLMN APN Operator Identifier (derived from IMSI).

Number <condition>: determines the PDP context subscription records that satisfy the given condition.

PDPaddr: PDP address.

SelMode := ChosenBySGSN: Network-provided APN, subscription not verified.

SelMode := SentByMS: MS-provided APN, subscription not verified.

SelMode := Subscribed: MS or Network-provided APN, subscription verified.

SelMode: Selection Mode.

VPLMN AP: VPLMN Access Point.

VPLMN-OI: VPLMN APN Operator Identifier or the APN Operator Identifier of an associated PLMN when the VPLMN is a shared network.

+: concatenation operation.

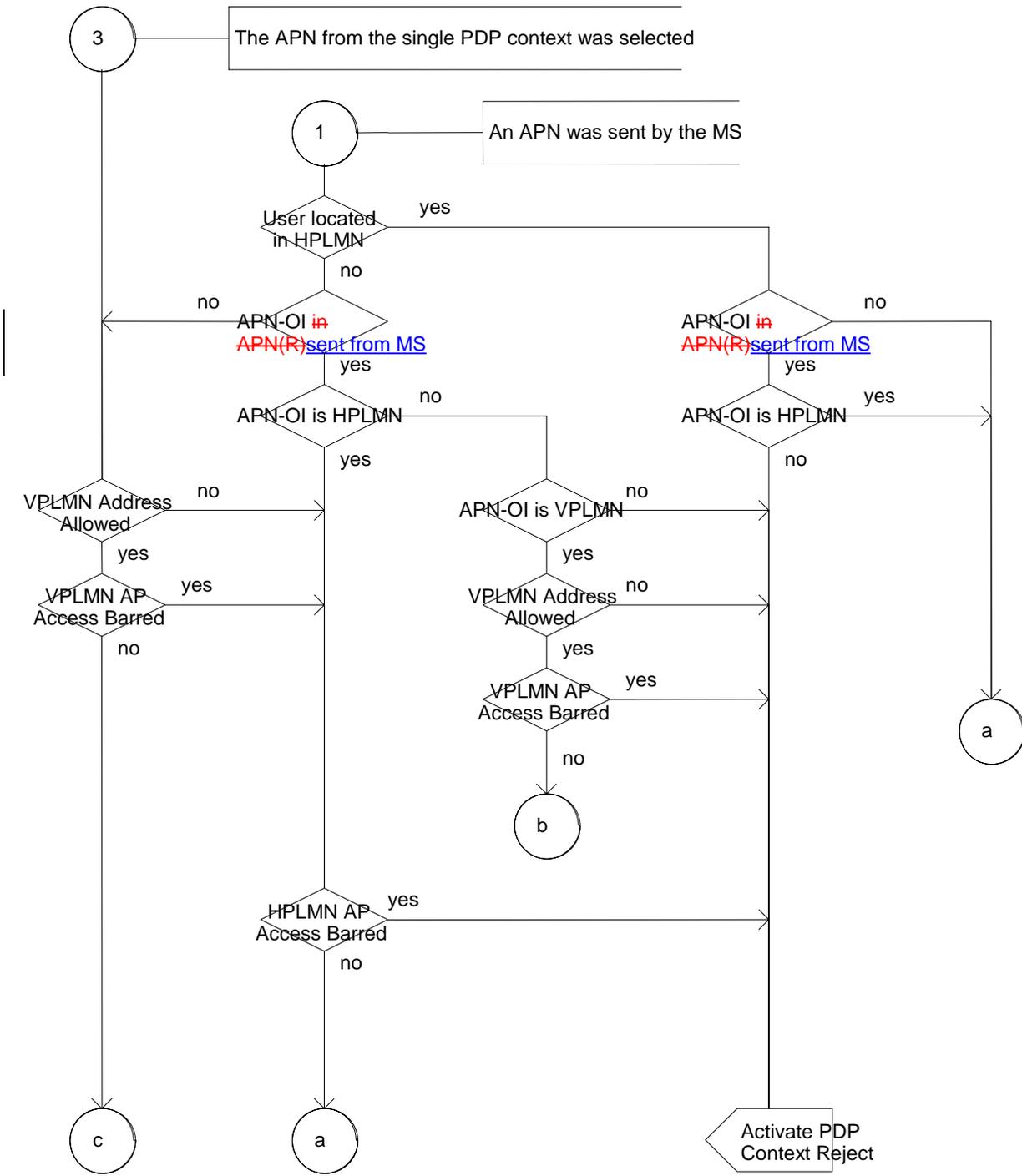


Figure A.4: SDL Diagram 4

CHANGE REQUEST

⌘ **23.060 CR 494** ⌘ rev **2** ⌘ Current version: **6.4.0** ⌘

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: | ⌘ Automatic Device Detection function and Gs interface | | |
| Source: | ⌘ SA2 (Ericsson) | | |
| Work item code: | ⌘ TEI6 | Date: | ⌘ 22/04/2004 |
| Category: | ⌘ F | 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) |

Reason for change: ⌘ Automatic Device Detection function in general works independent in CS and PS domains. The only exception to this is when a network is configured to use Gs. Then an issue may arise as described in the scenario below.

The scenario is this:

NOM I, i.e. Gs active

- Class A terminals (non-GPRS) will register to VLR, which will update HLR
- Class B & C terminals (GPRS) will register to SGSN, which will update HLR

A user has a class A (non-GPRS) terminal, changes to a class B (GPRS) terminal, and then back to the class A (non-GPRS) terminal. The HLR will then first be updated from the VLR with the "old" IMEISV from the class A terminal (old IMEISV stored in VLR). The new class B terminal will then register to the SGSN and hence HLR will be updated with the "new" IMEISV from SGSN ("new" IMEISV stored in SGSN, "old" IMEISV still stored in VLR). When changed back to class A terminal, it will register to VLR again. VLR will compare the IMEISV from the class A terminal with its stored "old" IMEISV and find no difference. Result: "new" IMEISV in HLR, and "old" IMEISV in VLR and terminal, that is, *wrong* IMEISV in HLR.

For NOM II networks the issue does not exist:

NOM II, i.e. Gs not active.

- All terminals (except class C) will register to VLR
- VLR will retrieve and store IMEISV and update HLR when it changes

A user has a class A (non-GPRS) terminal, changes to a class B (GPRS) terminal, and then back to the class A (non-GPRS) terminal. The HLR will be updated from the VLR both from the class A terminal *and* from the new class B terminal. The VLR will therefore be aware of all changes, and

| | |
|--|---|
| | <p>hence the HLR will be always be updated with the <i>correct</i> IMEISV. If the SGSN is also ADD capable, the HLR will be updated with the same IMEISV from both the VLR and the SGSN for the class B terminal.</p> <p>Updating VLR with IMEISV over Gs interface will handle the situation in NOM I networks. The IMEISV is already today sent over Gs for the purposes of Early UE, hence the protocol is already in place.</p> |
| Summary of change: ⌘ | A sentence in 15.5 is changed to state that IMEISV shall be sent over Gs. |
| Consequences if not approved: ⌘ | Automatic Device Detection function not complete |

| | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|--|----------|---------------------------|----------|--|--|---|----------|--|---------------------------|----------|--|--|----------|---------------------|--|--|--|----------|--------------------|--|
| Clauses affected: ⌘ | 15.5 | | | | | | | | | | | | | | | | | | | | |
| Other specs Affected: | <table border="1"> <tr> <td></td> <td>Y</td> <td>N</td> <td></td> <td></td> </tr> <tr> <td>⌘</td> <td>X</td> <td></td> <td>Other core specifications</td> <td>⌘ 29.018</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td>Test specifications</td> <td></td> </tr> <tr> <td></td> <td></td> <td>X</td> <td>O&M Specifications</td> <td></td> </tr> </table> | | Y | N | | | ⌘ | X | | Other core specifications | ⌘ 29.018 | | | X | Test specifications | | | | X | O&M Specifications | |
| | Y | N | | | | | | | | | | | | | | | | | | | |
| ⌘ | X | | Other core specifications | ⌘ 29.018 | | | | | | | | | | | | | | | | | |
| | | X | Test specifications | | | | | | | | | | | | | | | | | | |
| | | X | O&M Specifications | | | | | | | | | | | | | | | | | | |
| Other comments: ⌘ | This correction does not cover the similar issue that may arise with class C terminals. However "data only" terminals that are implemented as class B terminals (major part of terminals on market today) are covered by the correction. | | | | | | | | | | | | | | | | | | | | |

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.

| |
|--------------------|
| First modification |
|--------------------|

15.5 Automatic Device Detection

The Automatic Device Detection (ADD) function is an optional feature that allows the network to be updated with the current User Equipment identity (IMEISV). This, for example, enables the network to configure the subscriber's equipment. A device management system can retrieve the IMEISV either from SGSN or from HLR, or be triggered by a changed IMEISV in either SGSN or HLR. However, the device management system and the mechanism to send the configuration to the terminal are outside the scope of 3GPP specifications.

When the ADD function is supported, the SGSN obtains and stores the IMEISV from the MS at GPRS Attach and at Inter-SGSN Routing Area Update procedures when the old SGSN does not provide the IMEISV. The SGSN uses either the GMM Identification procedure or the GMM Authentication and Ciphering procedure to obtain the IMEISV (TS 24.008 [13]). Equipment checking is independent from IMEISV retrieval for ADD. If the IMSI was not previously registered in the SGSN, the SGSN includes the IMEISV in the Update Location message to the HLR. If the IMSI was already registered, the SGSN compares the IMEISV retrieved from the UE with the one stored in SGSN MM context and sends the IMEISV in the Update Location to the HLR if these are different.

~~The ADD function is independent of any network operation mode, i.e. independent from if combined procedures are used or not. For the purposes of ADD the IMEISV is transferred on the Gs interface as part of the combined GPRS/IMSI attach procedure. There is no transfer of the IMEISV on the Gs interface for the purposes of ADD.~~

For further information on the Automatic Device Detection function, please refer to 3GPP TS 22.101 [81] and 3GPP TS 23.012 [80].

| |
|------------------|
| Modification end |
|------------------|