

Source: TSG CN WG 1
Title: CRs to R98 and R99 (with respective mirror CRs) on Work Item GPRS towards 09.18 and 29.018
Agenda item: 7.12
Document for: APPROVAL

Introduction:

This document contains 5 CRs on **R98 and R99 (with respective mirror CRs)** to Work Item "GPRS", that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #13 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Version-Current	Workitem
09.18	A045	1	N1-011268	R98	TMSI status indication	F	7.3.0	GPRS
29.018	013		N1-011169	R99	Clarify that no acknowledgement is made for TMSI deallocation	F	3.6.0	GPRS
29.018	014		N1-011170	Rel-4	Clarify that no acknowledgement is made for TMSI deallocation	A	4.0.0	GPRS
29.018	015		N1-011171	R99	Explicit IMSI detach, abnormal case SGSN side	F	3.6.0	GPRS
29.018	016		N1-011172	Rel-4	Explicit IMSI detach, abnormal case SGSN side	A	4.0.0	GPRS

CR-Form-v4

CHANGE REQUEST

⌘ **09.18 CR A045** ⌘ ev **1** ⌘ Current version: **7.3.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ TMSI status indication		
Source:	⌘ Siemens AG		
Work item code:	⌘ GPRS	Date:	⌘ 11.07.01
Category:	⌘ F	Release:	⌘ R98
	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)

Reason for change:	⌘ CR 09.18-A041 was implemented incorrectly, and as a consequence the IEI of the TMSI Status IE in R98 is different from the IEI in R97, R99 and Rel-4. (The R97 and R99 versions of CR 09.18-A41 were implemented correctly.)
Summary of change:	⌘ The IEI in R98 is corrected.
Consequences if not approved:	⌘ Interworking problem between a R98 implementation of the Gs interface and all other releases: the IE TMSI Status will be ignored by the VLR, and the VLR is not informed if the MS has deleted its TMSI locally.

Clauses affected:	⌘ 18.3		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> 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.

18.3 Information Element Identifiers

The next list shows the coding of the Information Element Identifiers used in the present document.

Table 18.3/GSM 09.18: Information Element Identifier coding

8 7 6 5 4 3 2 1	Information element	<i>Reference</i>
0 0 0 0 0 0 0 1	IMSI	18.4.9
0 0 0 0 0 0 1 0	VLR number	18.4.24
0 0 0 0 0 0 1 1	TMSI	18.4.22
0 0 0 0 0 1 0 0	Location area identifier	18.4.13
0 0 0 0 0 1 0 1	Channel Needed	18.4.2
0 0 0 0 0 1 1 0	eMLPP Priority	18.4.3
0 0 0 0 0 1 1 1	TMSI status <i>Unassigned: treated as an unknown IEI.</i>	<u>18.4.23</u> 18&16
0 0 0 0 1 0 0 0	Gs cause	18.4.6
0 0 0 0 1 0 0 1	SGSN number	18.4.21
0 0 0 0 1 0 1 0	GPRS location update type	18.4.5
0 0 0 0 1 0 1 1	<i>Unassigned: treated as an unknown IEI.</i> TMSI status	<u>18&16</u> 18.4.23
0 0 0 0 1 1 0 0	<i>Unassigned: treated as an unknown IEI.</i>	18&16
0 0 0 0 1 1 0 1	Mobile station classmark 1	18.4.17
0 0 0 0 1 1 1 0	Mobile identity	18.4.16
0 0 0 0 1 1 1 1	Reject cause	18.4.20
0 0 0 1 0 0 0 0	IMSI detach from GPRS service type	18.4.10
0 0 0 1 0 0 0 1	IMSI detach from non-GPRS service type	18.4.11
0 0 0 1 0 0 1 0	Information requested	18.4.12
0 0 0 1 0 0 1 1	PTMSI	18.4.19
0 0 0 1 0 1 0 0	IMEI	18.4.7
0 0 0 1 0 1 0 1	IMEISV	18.4.8
0 0 0 1 0 1 1 0	<i>Unassigned: treated as an unknown IEI.</i>	18&16
0 0 0 1 0 1 1 1	MM information	18.4.15
0 0 0 1 1 0 0 0	Cell Global Identity	18.4.1
0 0 0 1 1 0 0 1	Location information age	18.4.14
0 0 0 1 1 0 1 0	Mobile station state	18.4.18
0 0 0 1 1 0 1 1	Erroneous message	18.4.4
0 0 0 1 1 1 0 0 to 1 1 1 1 1 1 1 1	<i>Unassigned: treated as an unknown IEI.</i>	18&16

CR-Form-v4
CHANGE REQUEST
⌘ 29.018 CR 013 ⌘ ev - ⌘ Current version: 3.6.0 ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Clarify that no acknowledgement is made for TMSI deallocation
Source:	⌘ Siemens AG
Work item code:	⌘ GPRS Date: ⌘ 11.07.01
Category:	⌘ F Release: ⌘ R99 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 REL-4 (Release 4) be found in 3GPP TR 21.900 . REL-5 (Release 5)

Reason for change:	⌘ CR 29.018-004 was not implemented in the R99 version of 29.018, although it should be, according to Annex A, Change history.
Summary of change:	⌘ Implement CR 29.018-004.
Consequences if not approved:	⌘

Clauses affected:	⌘ 6.2.2, 6.3.3, 17.1.22
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> 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.

6.2.2 Location Update Response

If the SGSN receives a BSSAP+-LOCATION-UPDATE-ACCEPT message from the VLR, the SGSN shall:

stop timer T6-1; and

- Move the state of the association to Gs-ASSOCIATED;
- Set the the MM context variable 'VLR-Reliable' to 'true'; and
- Indicate to the MS the acceptance of the VLR to the Location Update procedure. The message to the MS includes the Routing Area Identity, from which the MS is able to extract the location area identity for which the location update procedure succeeded (see 3GPP TS 24.008).

The SGSN shall wait for the outcome of the Location Update for non-GPRS service procedure towards the VLR before sending a response to location update procedure to the MS. Any Reject cause that needs to be reported to the MS is specified in 3GPP TS 24.008

If the VLR included the Mobile Identity IE in the BSSAP+-LOCATION-UPDATE-ACCEPT message, the SGSN shall forward the information received to the MS. If the Mobile Identity IE contains a new TMSI it This will cause the MS to perform a TMSI reallocation procedure, while an IMSI causes the MS to deallocate its TMSI. In case a new TMSI was allocated for the MS Tthe SGSN shall send to the VLR the BSSAP+-TMSI-REALLOCATION-COMPLETE message when the SGSN receives the Attach Complete or the Routing Area Complete message from the MS.

***** NEXT MODIFIED SECTION *****

6.3.3 TMSI reallocation procedure

If the VLR decides to reallocate the TMSI to the MS it shall include the new TMSI in the BSSAP+-LOCATION-UPDATE-ACCEPT message. If the VLR decides to deallocate the TMSI of the MS it shall include the IMSI of the MS in the BSSAP+-LOCATION-UPDATE-ACCEPT message. After sending the BSSAP+-LOCATION-UPDATE-ACCEPT message with a new TMSI the VLR starts timer T6-2.

NOTE: In the BSSAP+-LOCATION-UPDATE-REQUEST the SGSN may indicate, that there is no valid TMSI available in the MS. This information may be used by the VLR to decide whether to reallocate a new TMSI to the MS.

Upon receipt of the BSSAP+-TMSI-REALLOCATION-COMPLETE message, the VLR stops the timer T6-2 and either considers the new TMSI as valid.

or, if an IMSI was sent to the MS, the VLR considers the old TMSI as deleted.

If no BSSAP+-TMSI-REALLOCATION-COMPLETE message is received by the VLR before the timer T6-2 expires, the VLR aborts the TMSI reallocation procedure. The VLR may still perform the TMSI reallocation procedure via the A interface. The outcome of the TMSI reallocation procedure does not change the state of the association. The VLR uses the IMSI or the new TMSI for paging.

***** NEXT MODIFIED SECTION *****

17.1.22 BSSAP+-TMSI-REALLOCATION-COMPLETE message

This message is sent by the SGSN to the VLR to indicate that TMSI reallocation or deletion on the MS has been successfully completed.

Table 17.1.22/3GPP TS 29.018: BSSAP+-TMSI-REALLOCATION-COMPLETE message content

Information Element	Type/Reference	Presence	Format	Length
Message type	Message type 18.2	M	V	1
IMSI	IMSI 18.4.10	M	TLV	6-10
Cell global identity	Cell global identity 18.4.1	O	TLV	10
Service area identification	Service area identification 18.4.21b	O	TLV	10

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CHANGE REQUEST
⌘ 29.018 CR 014 ⌘ ev - ⌘ Current version: 4.0.0 ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Clarify that no acknowledgement is made for TMSI deallocation
Source:	⌘ Siemens AG
Work item code:	⌘ GPRS Date: ⌘ 11.07.01
Category:	⌘ A Release: ⌘ REL-4 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 REL-4 (Release 4) be found in 3GPP TR 21.900 . REL-5 (Release 5)

Reason for change:	⌘ CR 29.018-004 was not implemented in the R99 version of 29.018, although it should be, according to Annex A, Change history.
Summary of change:	⌘ Implement CR 29.018-004.
Consequences if not approved:	⌘

Clauses affected:	⌘ 6.2.2, 6.3.3, 17.1.22
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘

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6.2.2 Location Update Response

If the SGSN receives a BSSAP+-LOCATION-UPDATE-ACCEPT message from the VLR, the SGSN shall:

stop timer T6-1; and

- Move the state of the association to Gs-ASSOCIATED;
- Set the the MM context variable 'VLR-Reliable' to 'true'; and
- Indicate to the MS the acceptance of the VLR to the Location Update procedure. The message to the MS includes the Routing Area Identity, from which the MS is able to extract the location area identity for which the location update procedure succeeded (see 3GPP TS 24.008).

The SGSN shall wait for the outcome of the Location Update for non-GPRS service procedure towards the VLR before sending a response to location update procedure to the MS. Any Reject cause that needs to be reported to the MS is specified in 3GPP TS 24.008

If the VLR included the Mobile Identity IE in the BSSAP+-LOCATION-UPDATE-ACCEPT message, the SGSN shall forward the information received to the MS. ~~If the Mobile Identity IE contains a new TMSI it~~This will cause the MS to perform a TMSI reallocation procedure~~-, while an IMSI causes the MS to deallocate its TMSI. In case a new TMSI was allocated for the MS~~ the SGSN shall send to the VLR the BSSAP+-TMSI-REALLOCATION-COMPLETE message when the SGSN receives the Attach Complete or the Routing Area Complete message from the MS.

***** NEXT MODIFIED SECTION *****

6.3.3 TMSI reallocation procedure

If the VLR decides to reallocate the TMSI to the MS it shall include the new TMSI in the BSSAP+-LOCATION-UPDATE-ACCEPT message. If the VLR decides to deallocate the TMSI of the MS it shall include the IMSI of the MS in the BSSAP+-LOCATION-UPDATE-ACCEPT message. After sending the BSSAP+-LOCATION-UPDATE-ACCEPT message with a new TMSI the VLR starts timer T6-2.

NOTE: In the BSSAP+-LOCATION-UPDATE-REQUEST the SGSN may indicate, that there is no valid TMSI available in the MS. This information may be used by the VLR to decide whether to reallocate a new TMSI to the MS.

Upon receipt of the BSSAP+-TMSI-REALLOCATION-COMPLETE message, the VLR stops the timer T6-2 and ~~either~~ considers the new TMSI as valid.

~~or, if~~ if an IMSI was sent to the MS, the VLR considers the old TMSI as deleted.

If no BSSAP+-TMSI-REALLOCATION-COMPLETE message is received by the VLR before the timer T6-2 expires, the VLR aborts the TMSI reallocation procedure. The VLR may still perform the TMSI reallocation procedure via the A interface. The outcome of the TMSI reallocation procedure does not change the state of the association. The VLR uses the IMSI or the new TMSI for paging.

***** NEXT MODIFIED SECTION *****

17.1.22 BSSAP+-TMSI-REALLOCATION-COMPLETE message

This message is sent by the SGSN to the VLR to indicate that TMSI reallocation ~~or deletion~~ on the MS has been successfully completed.

Table 17.1.22/3GPP TS 29.018: BSSAP+-TMSI-REALLOCATION-COMPLETE message content

Information Element	Type/Reference	Presence	Format	Length
Message type	Message type 18.2	M	V	1
IMSI	IMSI 18.4.10	M	TLV	6-10
Cell global identity	Cell global identity 18.4.1	O	TLV	10
Service area identification	Service area identification 18.4.21b	O	TLV	10

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CHANGE REQUEST
⌘ 29.018 CR 015 ⌘ ev - ⌘ Current version: 3.6.0 ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Explicit IMSI detach, abnormal case SGSN side
Source:	⌘ Siemens AG
Work item code:	⌘ GPRS Date: ⌘ 11.07.01
Category:	⌘ F Release: ⌘ R99 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 REL-4 (Release 4) be found in 3GPP TR 21.900 . REL-5 (Release 5)

Reason for change:	⌘ CR 29.018-006 was not implemented in the R99 version of 29.018, although it should be, according to Annex A, Change history.
Summary of change:	⌘ Implement CR 29.018-006.
Consequences if not approved:	⌘

Clauses affected:	⌘ 9.2.3
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘

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9.2 Procedures in the SGSN

9.2.1 Explicit IMSI detach initiation

When an SGSN receives a Detach Request from an MS which is not in the Gs-NULL state, it shall check the detach type indicated. If the MS is indicating IMSI detach or combined IMSI and GPRS detach the SGSN shall send an BSSAP+-IMSI-DETACH-INDICATION message to the VLR indicating 'Explicit MS initiated IMSI detach from non-GPRS service' or 'Combined explicit MS initiated IMSI detach from GPRS and non-GPRS services'.

After the sending of the BSSAP+-IMSI-DETACH-INDICATION message to the VLR, the SGSN shall move the state of the association to Gs-NULL. The SGSN shall start timer T9 upon transmission of the BSSAP+-IMSI-DETACH-INDICATION message and if timer T6-1 is running, timer T6-1 shall be stopped and reset..

9.2.2 Explicit IMSI detach Response

If the detach type received from the MS indicated IMSI only detach or combined IMSI and GPRS detach not due to switch off, the SGSN shall wait for the reception of the BSSAP+-IMSI-DETACH-ACK message before sending the confirmation of the detach to the MS.

9.2.3 Abnormal cases

i) with switch off

If the SGSN sent a BSSAP+-IMSI-DETACH-INDICATION message for a combined IMSI and GPRS detach due to switch off and timer T9 expires, the SGSN shall repeat the BSSAP+-IMSI-DETACH-INDICATION message a maximum of N9 times.

ii) with no switch off

If the SGSN sent a BSSAP+-IMSI-DETACH-INDICATION message for a IMSI only detach or a combined IMSI and GPRS detach not due to switch off and timer T9 expires, the SGSN shall repeat the BSSAP+-IMSI-DETACH-INDICATION message a maximum of N9 times. If no BSSAP+-IMSI-DETACH-ACK is received after that the SGSN shall send ~~the confirmation of the detach to the MS. a detach message to the mobile indicating that the VLR has not responded to the Detach indication. The mobile may, after a determined period of time, try again the detach indication to the VLR.~~

9.3 Procedures in the VLR

When a VLR receives an BSSAP+-IMSI-DETACH-INDICATION message , the VLR shall send an BSSAP+-IMSI-DETACH-ACK message to the sending SGSN. The state of the association for the MS shall be moved from any state to Gs-NULL. If the BSSAP+-IMSI-DETACH-INDICATION message indicated 'Explicit MS initiated IMSI detach from non-GPRS service', the VLR marks the association as 'IMSI detached for non-GPRS services'. If the BSSAP+-IMSI-DETACH-INDICATION message indicated 'Combined explicit MS initiated IMSI detach from GPRS and non-GPRS services', the VLR marks the association as 'IMSI detached for GPRS and non-GPRS services'.

CR-Form-v4
CHANGE REQUEST
⌘ 29.018 CR 016 ⌘ ev - ⌘ Current version: 4.0.0 ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Explicit IMSI detach, abnormal case SGSN side
Source:	⌘ Siemens AG
Work item code:	⌘ GPRS Date: ⌘ 11.07.01
Category:	⌘ A Release: ⌘ REL-4 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 REL-4 (Release 4) be found in 3GPP TR 21.900 . REL-5 (Release 5)

Reason for change:	⌘ CR 29.018-006 was not implemented in the R99 version of 29.018, although it should be, according to Annex A, Change history.
Summary of change:	⌘ Implement CR 29.018-006.
Consequences if not approved:	⌘

Clauses affected:	⌘ 9.2.3
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
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9.2 Procedures in the SGSN

9.2.1 Explicit IMSI detach initiation

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9.2.2 Explicit IMSI detach Response

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9.2.3 Abnormal cases

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ii) with no switch off

If the SGSN sent a BSSAP+-IMSI-DETACH-INDICATION message for a IMSI only detach or a combined IMSI and GPRS detach not due to switch off and timer T9 expires, the SGSN shall repeat the BSSAP+-IMSI-DETACH-INDICATION message a maximum of N9 times. If no BSSAP+-IMSI-DETACH-ACK is received after that the SGSN shall send ~~the confirmation of the detach to the MS. a detach message to the mobile indicating that the VLR has not responded to the Detach indication. The mobile may, after a determined period of time, try again the detach indication to the VLR.~~

9.3 Procedures in the VLR

When a VLR receives an BSSAP+-IMSI-DETACH-INDICATION message , the VLR shall send an BSSAP+-IMSI-DETACH-ACK message to the sending SGSN. The state of the association for the MS shall be moved from any state to Gs-NULL. If the BSSAP+-IMSI-DETACH-INDICATION message indicated 'Explicit MS initiated IMSI detach from non-GPRS service', the VLR marks the association as 'IMSI detached for non-GPRS services'. If the BSSAP+-IMSI-DETACH-INDICATION message indicated 'Combined explicit MS initiated IMSI detach from GPRS and non-GPRS services', the VLR marks the association as 'IMSI detached for GPRS and non-GPRS services'.