

**3GPP TSG CN Plenary Meeting #20**  
**4<sup>th</sup> – 6<sup>th</sup> June 2003 Hämeenlinna, FINLAND.**

**NP-030209**

**Source:** TSG CN WG4  
**Title:** Corrections on GTP  
**Agenda item:** 7.3  
**Document for:** APPROVAL

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<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>Doc-2nd-Level</b>	<b>Phase</b>	<b>Subject</b>	<b>Cat</b>	<b>Ver_C</b>
23.003	063		N4-030427	R99	Correction to Annex C.3 – Target ID	F	3.11.0
23.003	064		N4-030428	Rel-4	Correction to Annex C.3 – Target ID	A	4.5.0
23.003	065		N4-030429	Rel-5	Correction to Annex C.3 – Target ID	A	5.5.1
29.060	405	1	N4-030686	R99	Correction for PDP Context Response with no PDP Contexts	F	3.16.0
29.060	406	1	N4-030687	Rel-4	Correction for PDP Context Response with no PDP Contexts	A	4.6.0
29.060	407	1	N4-030688	Rel-5	Correction for PDP Context Response with no PDP Contexts	A	5.5.0
29.060	408	1	N4-030689	Rel-6	Correction for PDP Context Response with no PDP Contexts	A	6.0.0

## CHANGE REQUEST

# **23.003 CR 063** # rev - # Current version: **3.11.0** #

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

<b>Title:</b>	# Correction to Annex C.3 – Target ID		
<b>Source:</b>	# CN4		
<b>Work item code:</b>	# GPRS	<b>Date:</b>	# 30/04/2003
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	# The coding of MCC and MNC in the Target ID is ambiguous. The current definition allows different codings of the logical Target ID name. Example: For MCC=167, MNC=92, the Target ID could be coded as: 1. RNCxxx.MNC92.MCC167.GPRS 2. RNCxxx.MNC0092.MCC0167.GPRS 3. RNCxxx.MNC5C.MCCA7.GPRS 4. RNCxxx.MNC005C.MCC00A7.GPRS A similar ambiguity existed in Annex C1 and C2 and was corrected in 23.003-CR046r2 (Tdoc N4-021064). This change was considered as critical correction.  This is an essential correction
<b>Summary of change:</b>	# The digits in MCC and MNC are coded as single digits and are limited to the range 0-9. If RNC-ID, MCC or MNC consist of less than 4 digits, the 4 digit string shall be filled with zeros. An example is added.
<b>Consequences if not approved:</b>	# Inconsistent implementations in SGSN and DNS are possible. This will lead to a systematic failure of the SRNS Relocation procedure.

<b>Clauses affected:</b>	# Annex C.3				
<b>Other specs Affected:</b>	#				
	<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> </table> Other core specifications #	Y	N	#	X
Y	N				
#	X				
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">X</td> </tr> </table> Test specifications #	#	X		
#	X				
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#	X				
<b>Other comments:</b>	#				

### How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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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.

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## C.3 Target ID

In this sub-section a possible way to support SRNS relocation is described.

In UMTS, when an SRNS relocation is executed, a target ID that consists of MCC, MNC and RNC ID is used as a routing information to route to target RNC via new SGSN. An old SGSN shall resolve a new SGSN IP address by a target ID to send Forward Relocation Request message to the new SGSN.

It shall be possible to refer to a target ID by a logical name that shall be translated into an SGSN IP address for taking the inter-PLMN handover into account. The old SGSN transforms the target ID information to a logical name of the form:

*RNCxxxx.MNCyyyy.MCCzzzz.GPRS*; ~~x, y and z~~ shall be Hex coded digits; y and z shall be encoded as single digits (in the range 0-9). Then, for example a DNS server is used to translate the logical name to an SGSN IP address.

If there are less than 4 significant digits in xxxx, yyyy, zzzz, one or more "0" digit(s) is/are inserted at the left side to fill the 4 digits coding.

As an example, the logical name for RNC 1B34, MCC 167 and MNC 92 shall be coded in the DNS as *RNC1B34.MNC0092.MCC0167.GPRS*.

## CHANGE REQUEST

# **23.003 CR 064** # rev - # Current version: **4.5.0** #

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

<b>Title:</b>	# Correction to Annex C.3 – Target ID		
<b>Source:</b>	# CN4		
<b>Work item code:</b>	# GPRS	<b>Date:</b>	# 30/04/2003
<b>Category:</b>	# <b>A</b>	<b>Release:</b>	# Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	# The coding of MCC and MNC in the Target ID is ambiguous. The current definition allows different codings of the logical Target ID name. Example: For MCC=167, MNC=92, the Target ID could be coded as: 1. RNCxxx.MNC92.MCC167.GPRS 2. RNCxxx.MNC0092.MCC0167.GPRS 3. RNCxxx.MNC5C.MCCA7.GPRS 4. RNCxxx.MNC005C.MCC00A7.GPRS A similar ambiguity existed in Annex C1 and C2 and was corrected in 23.003-CR047r2 (Tdoc N4-021065). This change was considered as critical correction.  This is an essential correction.
<b>Summary of change:</b>	# The digits in MCC and MNC are coded as single digits and are limited to the range 0-9. If RNC-ID, MCC or MNC consist of less than 4 digits, the 4 digit string shall be filled with zeros. An example is added.
<b>Consequences if not approved:</b>	# Inconsistent implementations in SGSN and DNS are possible. This will lead to a systematic failure of the SRNS Relocation procedure.

<b>Clauses affected:</b>	# Annex C.3				
<b>Other specs Affected:</b>	#				
	<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> </table> Other core specifications #	Y	N	#	X
Y	N				
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#	X				
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It shall be possible to refer to a target ID by a logical name that shall be translated into an SGSN IP address for taking the inter-PLMN handover into account. The old SGSN transforms the target ID information to a logical name of the form:

*RNCxxxx.MNCyyyy.MCCzzzz.GPRS*; ~~x, y and z~~ shall be Hex coded digits; y and z shall be encoded as single digits (in the range 0-9). Then, for example a DNS server is used to translate the logical name to an SGSN IP address.

If there are less than 4 significant digits in xxxx, yyyy, zzzz, one or more "0" digit(s) is/are inserted at the left side to fill the 4 digits coding.

As an example, the logical name for RNC 1B34, MCC 167 and MNC 92 shall be coded in the DNS as *RNC1B34.MNC0092.MCC0167.GPRS*.

## CHANGE REQUEST

# **23.003 CR 065** # rev - # Current version: **5.5.1** #

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

<b>Title:</b>	# Correction to Annex C.3 – Target ID		
<b>Source:</b>	# Alcatel		
<b>Work item code:</b>	# GPRS	<b>Date:</b>	# 30/04/2003
<b>Category:</b>	# <b>A</b>	<b>Release:</b>	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
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<b>Reason for change:</b>	# The coding of MCC and MNC in the Target ID is ambiguous. The current definition allows different codings of the logical Target ID name. Example: For MCC=167, MNC=92, the Target ID could be coded as: 1. RNCxxx.MNC92.MCC167.GPRS 2. RNCxxx.MNC0092.MCC0167.GPRS 3. RNCxxx.MNC5C.MCCA7.GPRS 4. RNCxxx.MNC005C.MCC00A7.GPRS A similar ambiguity existed in Annex C1 and C2 and was corrected in 23.003-CR048r3 (Tdoc N4-021080). This change was considered as critical correction.  This is an essential correction.
<b>Summary of change:</b>	# The digits in MCC and MNC are coded as single digits and are limited to the range 0-9. If RNC-ID, MCC or MNC consist of less than 4 digits, the 4 digit string shall be filled with zeros. An example is added.
<b>Consequences if not approved:</b>	# Inconsistent implementations in SGSN and DNS are possible. This will lead to a systematic failure of the SRNS Relocation procedure.

<b>Clauses affected:</b>	# Annex C.3				
<b>Other specs Affected:</b>	#				
	<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> </table> Other core specifications #	Y	N	#	X
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As an example, the logical name for RNC 1B34, MCC 167 and MNC 92 shall be coded in the DNS as *RNC1B34.MNC0092.MCC0167.GPRS*.

## CHANGE REQUEST

⌘ 29.060 CR 405 ⌘ rev 1 ⌘ Current version: 3.16.0 ⌘

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

<b>Title:</b>	⌘ Correction for PDP Context Response with no PDP Contexts		
<b>Source:</b>	⌘ CN4		
<b>Work item code:</b>	⌘ GTP Enhancements	<b>Date:</b>	⌘ 04/04/03
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:	
<b>F</b> (correction)		2 (GSM Phase 2)	
<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)	
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<b>C</b> (functional modification of feature)		R98 (Release 1998)	
<b>D</b> (editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)	
		Rel-5 (Release 5)	
		Rel-6 (Release 6)	

**Reason for change:** ⌘ At CN4 #09, CRs 239 and 240 (R99 and R4 respectively) against 29.060 were approved to modify the behaviour of the New SGSN when receiving a SGSN Context Response message that identified no contexts were active for the subscriber being handed from Old SGSN to New SGSN. The change made it a requirement that the New SGSN sent the SGSN Context Acknowledge message in the case where no contexts were identified (whereas prior to the change this message was not required). This requirement comes from 23.060 (as detailed in CR 239) since the receipt of the Ack messages at the Old SGSN triggers Mobility Management actions. Without the receipt of the Ack, these actions will not occur and the Old SGSN will believe that something has failed in the message exchange.

However, text within section 7.5.4 of 29.060 (SGSN Context Response) still implies that the SGSN Context Acknowledge message is not required when no contexts are identified in the Response message – there is currently no requirement for the T3-TUNNEL timer to be started when no contexts are included and so no requirement for a retry of the Response message if the Acknowledge is not received. This text has the potential to cause confusion, given that this applies a condition to the sending of the Acknowledge message, and there is no explicit statement in 7.5.5 (SGSN Context Acknowledge) that states when and whether the Ack is sent. That is, the text in 7.5.4 is the only place where any condition exists and so it could be taken that the condition applies since there is no other text to the contrary.

Therefore, this is an essential correction.

**Summary of change:** ⌘ 7.5.4 is modified to align with the intent of CR 239.

**Consequences if not approved:** ⌘ The conditions on the sending of SGSN Context Acknowledge in 7.5.4 could be applied incorrectly, resulting in failed subscriber handovers (the Old SGSN will be waiting for the Acknowledge message, which an incorrectly implemented New SGSN would never send).

**Clauses affected:** ⌘ 7.5.4

	Y	N		⌘
<b>Other specs affected:</b>		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

**Other comments:** ⌘

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## 7.5.4 SGSN Context Response

The old SGSN shall send an SGSN Context Response to the new SGSN as a response to a previous SGSN Context Request.

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

If the Cause contains the value 'Request accepted', all information elements are mandatory, except PDP Context, RAB Context and Private Extension.

If the Cause contains the value 'P-TMSI Signature mismatch' the IMSI information element shall be included in the response, otherwise only the Cause information element shall be included in the response.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SGSN context transfer procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN and related to the PDP context(s) requested.

The IMSI information element contains the IMSI matching the TLLI or P-TMSI (for GSM or UMTS respectively) and RAI in the SGSN Context Request.

The MM Context contains necessary mobility management and security parameters.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements.

If there is at least one active PDP context, the old SGSN shall start the T3-TUNNEL timer and store the address of the new SGSN in the "New SGSN Address" field of the MM context. The old SGSN shall wait for SGSN Context Acknowledge before sending T-PDUs to the new SGSN. If ~~the old SGSN has one or more active PDP contexts for the subscriber and~~ an SGSN Context Acknowledge message is not received within a time defined by T3-RESPONSE, the old SGSN shall retransmit the SGSN Context Response to the new SGSN as long as the total number of attempts is less than N3-REQUESTS. After N3-REQUESTS unsuccessfully attempts, the old SGSN shall proceed as described in section 'Reliable delivery of signalling messages in case the transmission of a control plane message fails N3-REQUESTS times.

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the SGSN Context Response, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

Radio Priority SMS contains the radio priority level for MO SMS transmission, and shall be included if a valid Radio Priority SMS value exists for the MS in the old SGSN.

Radio Priority is the radio priority level that the MS uses when accessing the network for the transmission of uplink user data for a particular PDP context. One Radio Priority IE shall be included per PDP context that has a valid radio priority value assigned to it in the old SGSN.

Packet Flow Id is the packet flow identifier assigned to the PDP context. One Packet Flow Id IE shall be included per PDP context that has a valid packet flow identifier value assigned to it in the old SGSN.

The optional Private Extension contains vendor or operator specific information.

**Table 27: Information Elements in a SGSN Context Response**

<b>Information element</b>	<b>Presence requirement</b>	<b>Reference</b>
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
RAB Context	Conditional	7.7.19
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
Private Extension	Optional	7.7.44

## CHANGE REQUEST

# **29.060 CR 406** # rev **1** # Current version: **4.7.0** #

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

<b>Title:</b>	# Correction for PDP Context Response with no PDP Contexts		
<b>Source:</b>	# CN4		
<b>Work item code:</b>	# GTP Enhancements	<b>Date:</b>	# 04/04/03
<b>Category:</b>	# <b>A</b>	<b>Release:</b>	# Rel-4
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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)

<b>Reason for change:</b>	<p># At CN4 #09, CRs 239 and 240 (R99 and R4 respectively) against 29.060 were approved to modify the behaviour of the New SGSN when receiving a SGSN Context Response message that identified no contexts were active for the subscriber being handed from Old SGSN to New SGSN. The change made it a requirement that the New SGSN sent the SGSN Context Acknowledge message in the case where no contexts were identified (whereas prior to the change this message was not required). This requirement comes from 23.060 (as detailed in CR 239) since the receipt of the Ack messages at the Old SGSN triggers Mobility Management actions. Without the receipt of the Ack, these actions will not occur and the Old SGSN will believe that something has failed in the message exchange.</p> <p>However, text within section 7.5.4 of 29.060 (SGSN Context Response) still implies that the SGSN Context Acknowledge message is not required when no contexts are identified in the Response message – there is currently no requirement for the T3-TUNNEL timer to be started when no contexts are included and so no requirement for a retry of the Response message if the Acknowledge is not received. This text has the potential to cause confusion, given that this applies a condition to the sending of the Acknowledge message, and there is no explicit statement in 7.5.5 (SGSN Context Acknowledge) that states when and whether the Ack is sent. That is, the text in 7.5.4 is the only place where any condition exists and so it could be taken that the condition applies since there is no other text to the contrary.</p> <p>Therefore, this is an essential correction.</p>
<b>Summary of change:</b>	# 7.5.4 is modified to align with the intent of CR 239.

**Consequences if not approved:** ⌘ The conditions on the sending of SGSN Context Acknowledge in 7.5.4 could be applied incorrectly, resulting in failed subscriber handovers (the Old SGSN will be waiting for the Acknowledge message, which an incorrectly implemented New SGSN would never send).

**Clauses affected:** ⌘ 7.5.4

	Y	N		⌘
<b>Other specs affected:</b>		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

**Other comments:** ⌘

**How to create CRs using this form:**

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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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.



## 7.5.4 SGSN Context Response

The old SGSN shall send an SGSN Context Response to the new SGSN as a response to a previous SGSN Context Request.

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

If the Cause contains the value 'Request accepted', all information elements are mandatory, except PDP Context, RAB Context and Private Extension.

If the Cause contains the value 'P-TMSI Signature mismatch' the IMSI information element shall be included in the response, otherwise only the Cause information element shall be included in the response.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SGSN context transfer procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN and related to the PDP context(s) requested.

The IMSI information element contains the IMSI matching the TLLI or P-TMSI (for GSM or UMTS respectively) and RAI in the SGSN Context Request.

The MM Context contains necessary mobility management and security parameters.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements.

If there is at least one active PDP context, the old SGSN shall start the T3-TUNNEL timer and store the address of the new SGSN in the "New SGSN Address" field of the MM context. The old SGSN shall wait for SGSN Context Acknowledge before sending T-PDUs to the new SGSN. If ~~the old SGSN has one or more active PDP contexts for the subscriber and~~ an SGSN Context Acknowledge message is not received within a time defined by T3-RESPONSE, the old SGSN shall retransmit the SGSN Context Response to the new SGSN as long as the total number of attempts is less than N3-REQUESTS. After N3-REQUESTS unsuccessfully attempts, the old SGSN shall proceed as described in section 'Reliable delivery of signalling messages in case the transmission of a control plane message fails N3-REQUESTS times.

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the SGSN Context Response, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

Radio Priority SMS contains the radio priority level for MO SMS transmission, and shall be included if a valid Radio Priority SMS value exists for the MS in the old SGSN.

Radio Priority is the radio priority level that the MS uses when accessing the network for the transmission of uplink user data for a particular PDP context. One Radio Priority IE shall be included per PDP context that has a valid radio priority value assigned to it in the old SGSN.

Packet Flow Id is the packet flow identifier assigned to the PDP context. One Packet Flow Id IE shall be included per PDP context that has a valid packet flow identifier value assigned to it in the old SGSN.

Charging Characteristics IE contains the charging characteristics which apply for a PDP context; see 3GPP TS 32.215. One Charging Characteristics IE shall be included per PDP context IE. If no PDP context is active, this IE shall not be included. The mapping of a Charging Characteristics IE to a PDP Context IE is done according to the sequence of their appearance, e.g. the first Charging Characteristics IE is mapped to the first PDP Context IE.

The optional Private Extension contains vendor or operator specific information.

**Table 27: Information Elements in a SGSN Context Response**

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
RAB Context	Conditional	7.7.19
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
Charging Characteristics	Optional	7.7.23
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
Private Extension	Optional	7.7.44

## CHANGE REQUEST

# 29.060 CR 407 # rev 1 # Current version: 5.5.0 #

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

<b>Title:</b>	# Correction for PDP Context Response with no PDP Contexts		
<b>Source:</b>	# Nortel Networks		
<b>Work item code:</b>	# GTP Enhancements	<b>Date:</b>	# 04/04/03
<b>Category:</b>	# <b>A</b>	<b>Release:</b>	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	# At CN4 #09, CRs 239 and 240 (R99 and R4 respectively) against 29.060 were approved to modify the behaviour of the New SGSN when receiving a SGSN Context Response message that identified no contexts were active for the subscriber being handed from Old SGSN to New SGSN. The change made it a requirement that the New SGSN sent the SGSN Context Acknowledge message in the case where no contexts were identified (whereas prior to the change this message was not required). This requirement comes from 23.060 (as detailed in CR 239) since the receipt of the Ack messages at the Old SGSN triggers Mobility Management actions. Without the receipt of the Ack, these actions will not occur and the Old SGSN will believe that something has failed in the message exchange.
	However, text within section 7.5.4 of 29.060 (SGSN Context Response) still implies that the SGSN Context Acknowledge message is not required when no contexts are identified in the Response message – there is currently no requirement for the T3-TUNNEL timer to be started when no contexts are included and so no requirement for a retry of the Response message if the Acknowledge is not received. This text has the potential to cause confusion, given that this applies a condition to the sending of the Acknowledge message, and there is no explicit statement in 7.5.5 (SGSN Context Acknowledge) that states when and whether the Ack is sent. That is, the text in 7.5.4 is the only place where any condition exists and so it could be taken that the condition applies since there is no other text to the contrary.
	Therefore, this is an essential correction.
<b>Summary of change:</b>	# 7.5.4 is modified to align with the intent of CR 239.

**Consequences if not approved:** ⌘ The conditions on the sending of SGSN Context Acknowledge in 7.5.4 could be applied incorrectly, resulting in failed subscriber handovers (the Old SGSN will be waiting for the Acknowledge message, which an incorrectly implemented New SGSN would never send).

**Clauses affected:** ⌘ 7.5.4

	Y	N		⌘
<b>Other specs affected:</b>		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

**Other comments:** ⌘

**How to create CRs using this form:**

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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.

## 7.5.4 SGSN Context Response

The old SGSN shall send an SGSN Context Response to the new SGSN as a response to a previous SGSN Context Request.

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

If the Cause contains the value 'Request accepted', all information elements are mandatory, except PDP Context, RAB Context and Private Extension.

If the Cause contains the value 'P-TMSI Signature mismatch' the IMSI information element shall be included in the response, otherwise only the Cause information element shall be included in the response.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SGSN context transfer procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN and related to the PDP context(s) requested.

The IMSI information element contains the IMSI matching the TLLI or P-TMSI (for GSM or UMTS respectively) and RAI in the SGSN Context Request.

The MM Context contains necessary mobility management and security parameters.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP contexts are included in an implementation dependant prioritized order, and the most important PDP context is placed first. When the PDP Context Prioritization IE is included, it informs the new SGSN that the PDP contexts are sent prioritized. If the new SGSN is not able to maintain active all the PDP contexts received from the old SGSN when it is indicated that prioritization of the PDP contexts is applied, the new SGSN should use the prioritisation sent by old SGSN as input when deciding which PDP contexts to maintain active and which ones to delete.

If there is at least one active PDP context, the old SGSN shall start the T3-TUNNEL timer and store the address of the new SGSN in the "New SGSN Address" field of the MM context. The old SGSN shall wait for SGSN Context Acknowledge before sending T-PDUs to the new SGSN. If ~~the old SGSN has one or more active PDP contexts for the subscriber and~~ an SGSN Context Acknowledge message is not received within a time defined by T3-RESPONSE, the old SGSN shall retransmit the SGSN Context Response to the new SGSN as long as the total number of attempts is less than N3-REQUESTS. After N3-REQUESTS unsuccessfully attempts, the old SGSN shall proceed as described in section 'Reliable delivery of signalling messages' in case the transmission of a control plane message fails N3-REQUESTS times.

For each RAB using lossless PDCP context, the old SGSN shall include a RAB Context. If a RAB Context is included in the SGSN Context Response, the new SGSN shall ignore the PDCP and GTP-U sequence numbers received in the PDP Context.

Radio Priority SMS contains the radio priority level for MO SMS transmission, and shall be included if a valid Radio Priority SMS value exists for the MS in the old SGSN.

Radio Priority LCS contains the radio priority level for MO LCS transmission, and shall be included if a valid Radio Priority LCS value exists for the MS in the old SGSN.

Radio Priority is the radio priority level that the MS uses when accessing the network for the transmission of uplink user data for a particular PDP context. One Radio Priority IE shall be included per PDP context that has a valid radio priority value assigned to it in the old SGSN.

Packet Flow Id is the packet flow identifier assigned to the PDP context. One Packet Flow Id IE shall be included per PDP context that has a valid packet flow identifier value assigned to it in the old SGSN.

Charging Characteristics IE contains the charging characteristics which apply for a PDP context; see 3GPP TS 32.215 [18]. One Charging Characteristics IE shall be included per PDP context IE. If no PDP context is active, this IE shall not be included. The mapping of a Charging Characteristics IE to a PDP Context IE is done according to the sequence of their appearance, e.g. the first Charging Characteristics IE is mapped to the first PDP Context IE.

The optional Private Extension contains vendor or operator specific information.

**Table 27: Information Elements in a SGSN Context Response**

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
RAB Context	Conditional	7.7.19
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
Charging Characteristics	Optional	7.7.23
Radio Priority LCS	Optional	7.7.25B
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
PDP Context Prioritization	Optional	7.7.45
Private Extension	Optional	7.7.46

## CHANGE REQUEST

# 29.060 CR 408 # rev 1 # Current version: 6.0.0 #

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

<b>Title:</b>	# Correction for PDP Context Response with no PDP Contexts		
<b>Source:</b>	# Nortel Networks		
<b>Work item code:</b>	# CN4	<b>Date:</b>	# 04/04/03
<b>Category:</b>	# <b>A</b>	<b>Release:</b>	# Rel-6
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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)

<b>Reason for change:</b>	<p># At CN4 #09, CRs 239 and 240 (R99 and R4 respectively) against 29.060 were approved to modify the behaviour of the New SGSN when receiving a SGSN Context Response message that identified no contexts were active for the subscriber being handed from Old SGSN to New SGSN. The change made it a requirement that the New SGSN sent the SGSN Context Acknowledge message in the case where no contexts were identified (whereas prior to the change this message was not required). This requirement comes from 23.060 (as detailed in CR 239) since the receipt of the Ack messages at the Old SGSN triggers Mobility Management actions. Without the receipt of the Ack, these actions will not occur and the Old SGSN will believe that something has failed in the message exchange.</p> <p>However, text within section 7.5.4 of 29.060 (SGSN Context Response) still implies that the SGSN Context Acknowledge message is not required when no contexts are identified in the Response message – there is currently no requirement for the T3-TUNNEL timer to be started when no contexts are included and so no requirement for a retry of the Response message if the Acknowledge is not received. This text has the potential to cause confusion, given that this applies a condition to the sending of the Acknowledge message, and there is no explicit statement in 7.5.5 (SGSN Context Acknowledge) that states when and whether the Ack is sent. That is, the text in 7.5.4 is the only place where any condition exists and so it could be taken that the condition applies since there is no other text to the contrary.</p> <p>Therefore, this is an essential correction.</p>
<b>Summary of change:</b>	# 7.5.4 is modified to align with the intent of CR 239.

**Consequences if not approved:** ⌘ The conditions on the sending of SGSN Context Acknowledge in 7.5.4 could be applied incorrectly, resulting in failed subscriber handovers (the Old SGSN will be waiting for the Acknowledge message, which an incorrectly implemented New SGSN would never send).

**Clauses affected:** ⌘ 7.5.4

	Y	N		⌘
<b>Other specs affected:</b>		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

**Other comments:** ⌘

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## 7.5.4 SGSN Context Response

The old SGSN shall send an SGSN Context Response to the new SGSN as a response to a previous SGSN Context Request.

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

If the Cause contains the value 'Request accepted', all information elements are mandatory, except PDP Context, RAB Context and Private Extension.

If the Cause contains the value 'P-TMSI Signature mismatch' the IMSI information element shall be included in the response, otherwise only the Cause information element shall be included in the response.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SGSN context transfer procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN and related to the PDP context(s) requested.

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If there is at least one active PDP context, the old SGSN shall start the T3-TUNNEL timer and store the address of the new SGSN in the "New SGSN Address" field of the MM context. The old SGSN shall wait for SGSN Context Acknowledge before sending T-PDUs to the new SGSN. If ~~the old SGSN has one or more active PDP contexts for the subscriber and~~ an SGSN Context Acknowledge message is not received within a time defined by T3-RESPONSE, the old SGSN shall retransmit the SGSN Context Response to the new SGSN as long as the total number of attempts is less than N3-REQUESTS. After N3-REQUESTS unsuccessfully attempts, the old SGSN shall proceed as described in section 'Reliable delivery of signalling messages' in case the transmission of a control plane message fails N3-REQUESTS times.

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MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
PDP Context Prioritization	Optional	7.7.45
Private Extension	Optional	7.7.46