3GPP TSG CN Plenary **Tdoc NP-010274**
Meeting #12, Stockholm, Sweden
13th - 15th June 2001

Source: **TSG CN WG 1**

Title: **CRs to R97 and R99 (with mirror CRs) on Work Item GPRS towards 04.08 and 24.008**

Agenda item: **7.12**

Document for: **APPROVAL**

Introduction:

This document contains **10** CRs on **R97 and R99 (with mirror CRs)** Work Item **"GPRS"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Version-Current	Workitem
04.08	A1093		N1-010593	R97	Missing SM cause 40 in table 10.6.6	F	6.14.0	GPRS
04.08	A1095		N1-010594	R98	Missing SM cause 40 in table 10.6.6	A	7.11.0	GPRS
24.008	393		N1-010595	R99	Missing SM cause 40 in table 10.6.6	A	3.7.0	GPRS
24.008	394		N1-010596	Rel-4	Missing SM cause 40 in table 10.6.6	A	4.2.0	GPRS
24.008	397	1	N1-010666	R99	Clarification to REQUEST PDP CONTEXT ACTIVATION	F	3.7.0	GPRS
24.008	398	1	N1-010667	Rel-4	Clarification to REQUEST PDP CONTEXT ACTIVATION	A	4.2.0	GPRS
04.08	A1099	2	N1-010677	R97	Clarification of Network Initiated GPRS Detach Procedure	F	6.14.0	GPRS
04.08	A1101	2	N1-010678	R98	Clarification of Network Initiated GPRS Detach Procedure	A	7.11.0	GPRS
24.008	405	2	N1-010679	R99	Clarification of Network Initiated GPRS Detach Procedure	A	3.7.0	GPRS
24.008	411	2	N1-010680	Rel-4	Clarification of Network Initiated GPRS Detach Procedure	A	4.2.0	GPRS

3GPP TSG-N1 Meeting #N1-R99 Ad Hoc ***Tdoc N1-010593***
Helsinki, Finland, 8th-9th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **04.08 CR A1093** ⌘ rev **-** ⌘ Current version: **6.14.0** ⌘

*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:	⌘	Missing SM cause 40 in table 10.5.6.6
Source:	⌘	Nokia
Work item code:	⌘	GPRS ***Date:*** ⌘ 24-Apr-01
Category:	⌘	**F** ***Release:*** ⌘ R97

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	The use of SM cause #40 'feature not supported' is specified in clause 6.1.3.1.4 and in Annex I. However, the cause value #40 is not included in the clause 10.5.6.6 which specifies the encoding of different SM cause values. This CR adds the missing encoding to clause 10.5.6.6.
Summary of change:	⌘	Addition of missing encoding of SM cause #40.
Consequences if not approved:	⌘	Encoding of SM cause values is not in line with procedure description in 6.1.3.1.4 and usage purposes listed in Annex I. When MS receives SM cause 'feature not supported', it will treat the cause as 'service option temporarily out of order'. When network receives SM cause 'feature not supported', it will treat the cause as 'protocol error, unspecified'.

Clauses affected:	⌘	10.5.6.6
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.1.3 Session Management procedures

6.1.3.1 PDP context activation

The purpose of this procedure is to establish a PDP context between the MS and the network for a specific QoS on a specific NSAPI. The PDP context activation may be initiated by the MS or the initiation may be requested by the network.

6.1.3.1.1 Successful PDP context activation initiated by the mobile station

In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the MS shall stop timer T3380, shall enter the state PDP-ACTIVE and shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. “insufficient resources to activate another context”.

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

6.1.3.1.3 Unsuccessful PDP context activation initiated by the MS

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message the network may reject the MS initiated PDP context activation by sending an ACTIVATE PDP CONTEXT REJECT message to the MS. The message shall contain a cause code that typically indicates one of the following causes:

26: insufficient resources;
27: missing or unknown APN;
28: unknown PDP address or PDP type;
29: user authentication failed;
30: activation rejected by GGSN;
31: activation rejected, unspecified;
32: service option not supported;
33: requested service option not subscribed;
34: service option temporarily out of order;

35: NSAPI already used; or
95 - 111: protocol errors.

Upon receipt of an ACTIVATE PDP CONTEXT REJECT message, the MS shall stop timer T3380 and enter/remain in state PDP-INACTIVE.

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** THE MODIFIED SECTION ***

10.5.6.6 SM cause

The purpose of the *SM cause* information element is to indicate the reason why a session management request is rejected.

The *SM cause* is a type 3 information element with 2 octets length.

The *SM cause* information element is coded as shown in figure 10.5.139/GSM 04.08 and table 10.5.157/GSM 04.08.

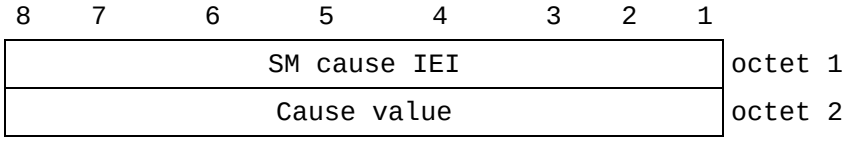

Figure 10.5.139/GSM 04.08: *SM cause* information element

Table 10.5.157/GSM 04.08: *SM cause* information element

Cause value (octet 2)	
Bits	
8 7 6 5 4 3 2 1	
0 0 0 1 1 0 0 1	LLC or SNDCP failure
0 0 0 1 1 0 1 0	Insufficient resources
0 0 0 1 1 0 1 1	Missing or unknown APN
0 0 0 1 1 1 0 0	Unknown PDP address or PDP type
0 0 0 1 1 1 0 1	User Aauthentication failed
0 0 0 1 1 1 1 0	Activation rejected by GGSN
0 0 0 1 1 1 1 1	Activation rejected, unspecified
0 0 1 0 0 0 0 0	Service option not supported
0 0 1 0 0 0 0 1	Requested service option not subscribed
0 0 1 0 0 0 1 0	Service option temporarily out of order
0 0 1 0 0 0 1 1	NSAPI already used
0 0 1 0 0 1 0 0	Regular deactivation
0 0 1 0 0 1 0 1	QoS not accepted
0 0 1 0 0 1 1 0	Network failure
0 0 1 0 0 1 1 1	Reactivation required
0 0 1 0 1 0 0 0	Feature not supported
0 1 0 1 0 0 0 1	Invalid transaction identifier value
0 1 0 1 1 1 1 1	Semantically incorrect message
0 1 1 0 0 0 0 0	Invalid mandatory information
0 1 1 0 0 0 0 1	Message type non-existent or not implemented
0 1 1 0 0 0 1 0	Message type not compatible with the protocol state
0 1 1 0 0 0 1 1	Information element non-existent or not implemented
0 1 1 0 0 1 0 0	Conditional IE error
0 1 1 0 0 1 0 1	Message not compatible with the protocol state
0 1 1 0 1 1 1 1	Protocol error, unspecified
Any other value received by the mobile station shall be treated as 0010 0010, 'Service option temporarily out of order'. Any other value received by the network shall be treated as 0110 1111, 'Protocol error, unspecified'.	
NOTE: The listed cause values are defined in Annex I	

*** THE END OF MODIFIED SECTION ***

Annex I (informative): GSM specific cause values for session management

This annex is informative.

I.1 Causes related to nature of request

Cause value = 25 LLC or SNDCP failure

This cause code is used by the MS indicate that a PDP context is deactivated because of a LLC or SNDCP failure (e.g. if the SM receives a *SNSM-STATUS.request* message with cause "*DM received* " or " *invalid XID response* ", see 04.65 [78])Cause value = 26 Insufficient resources

Cause value = 26 Insufficient resources

This cause code is used by the MS or by the network to indicate that a PDP context activation request or PDP context modification request cannot be accepted due to insufficient resources.

Cause value = 27 Unknown or missing access point name

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the access point name was not included although required or if the access point name could not be resolved.

Cause value = 28 Unknown PDP address or PDP type

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the PDP address or type could not be recognised.

Cause value = 29 User authentication failed

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network due to a failed user authentication.

Cause value = 30 Activation rejected by GGSN

This cause code is used by the network to indicate that the requested service was rejected by the GGSN..

Cause value = 31 Activation rejected, unspecified

This cause code is used by the network to indicate that the requested service was rejected due to unspecified reasons.

Cause value = 32 Service option not supported

This cause code is used by the network when the MS requests a service which is not supported by the PLMN.

Cause value = 33 Requested service option not subscribed

See Annex G, section 4.

Cause value = 34 Service option temporarily out of order

See Annex G, section 4.

Cause value = 35 NSAPI already used

This cause code is used by the network to indicate that the NSAPI requested by the MS in the PDP context activation is already used by another active PDP context of this MS.

Cause value = 36 Regular PDP context deactivation

This cause code is used to indicate a regular MS or network initiated PDP context deactivation.

Cause value = 37 QoS not accepted

This cause code is used by the MS if the new QoS cannot be accepted that were indicated by the network in the PDP Context Modification procedure.

Cause value = 38 Network failure

This cause code is used by the network to indicate that the PDP context deactivation is caused by an error situation in the network.

Cause value = 39 Reactivation requested

This cause code is used by the network to request a PDP context reactivation after a GGSN restart.

Cause value = 40 Feature not supported

This cause code is used by the MS to indicate that the PDP context activation initiated by the network is not supported by the MS.

3GPP TSG-N1 Meeting #N1-R99 Ad Hoc ***Tdoc N1-010594***
Helsinki, Finland, 8th-9th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **04.08** **CR** **A1095** ⌘ rev **-** ⌘ Current version: **7.11.0** ⌘

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

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

Title:	⌘	Missing SM cause 40 in table 10.5.6.6
Source:	⌘	Nokia
Work item code:	⌘	GPRS
Date:	⌘	24-Apr-01
Category:	⌘	**A**
Release:	⌘	R98

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	The use of SM cause #40 'feature not supported' is specified in clause 6.1.3.1.4 and in Annex I. However, the cause value #40 is not included in the clause 10.5.6.6 which specifies the encoding of different SM cause values. This CR adds the missing encoding to clause 10.5.6.6.
Summary of change:	⌘	Addition of missing encoding of SM cause #40.
Consequences if not approved:	⌘	Encoding of SM cause values is not in line with procedure description in 6.1.3.1.4 and usage purposes listed in Annex I. When MS receives SM cause 'feature not supported', it will treat the cause as 'service option temporarily out of order'. When network receives SM cause 'feature not supported', it will treat the cause as 'protocol error, unspecified'.

Clauses affected:	⌘	10.5.6.6
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.1.3 Session Management procedures

6.1.3.1 PDP context activation

The purpose of this procedure is to establish a PDP context between the MS and the network for a specific QoS on a specific NSAPI. The PDP context activation may be initiated by the MS or the initiation may be requested by the network.

6.1.3.1.1 Successful PDP context activation initiated by the mobile station

In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the MS shall stop timer T3380, shall enter the state PDP-ACTIVE and shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. “insufficient resources to activate another context”.

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

6.1.3.1.3 Unsuccessful PDP context activation initiated by the MS

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message the network may reject the MS initiated PDP context activation by sending an ACTIVATE PDP CONTEXT REJECT message to the MS. The message shall contain a cause code that typically indicates one of the following causes:

26: insufficient resources;
27: missing or unknown APN;
28: unknown PDP address or PDP type;
29: user authentication failed;
30: activation rejected by GGSN;
31: activation rejected, unspecified;
32: service option not supported;
33: requested service option not subscribed;
34: service option temporarily out of order;
35: NSAPI already used; or
95 - 111: protocol errors.

Upon receipt of an ACTIVATE PDP CONTEXT REJECT message, the MS shall stop timer T3380 and enter/remain in state PDP-INACTIVE.

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;
31: activation rejected, unspecified;
40: feature not supported; or
95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** THE MODIFIED SECTION ***

10.5.6.6 SM cause

The purpose of the *SM cause* information element is to indicate the reason why a session management request is rejected.

The *SM cause* is a type 3 information element with 2 octets length.

The *SM cause* information element is coded as shown in figure 10.5.139/GSM 04.08 and table 10.5.157/GSM 04.08.

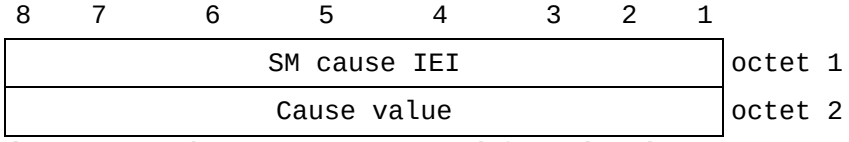

Figure 10.5.139/GSM 04.08: *SM cause* information element

Table 10.5.157/GSM 04.08: *SM cause* information element

```
Cause value (octet 2)
Bits
8 7 6 5 4 3 2 10 0 0 1 1 0 0 1 LLC or SNDCP failure
0 0 0 1 1 0 1 0  Insufficient resources
0 0 0 1 1 0 1 1  Missing or unknown APN
0 0 0 1 1 1 0 0  Unknown PDP address or PDP type
0 0 0 1 1 1 0 1  User Aauthentication failed
0 0 0 1 1 1 1 0  Activation rejected by GGSN
0 0 0 1 1 1 1 1  Activation rejected, unspecified
0 0 1 0 0 0 0 0  Service option not supported
0 0 1 0 0 0 0 1  Requested service option
       not subscribed
0 0 1 0 0 0 1 0  Service option temporarily
       out of order
0 0 1 0 0 0 1 1  NSAPI already used
0 0 1 0 0 1 0 0  Regular deactivation
0 0 1 0 0 1 0 1  QoS not accepted
0 0 1 0 0 1 1 0  Network failure
0 0 1 0 0 1 1 1  Reactivation required
0 0 1 0 1 0 0 0  Feature not supported
0 1 0 1 0 0 0 1  Invalid transaction identifier value
0 1 0 1 1 1 1 1  Semantically incorrect message
0 1 1 0 0 0 0 0  Invalid mandatory information
0 1 1 0 0 0 0 1  Message type non-existent
       or not implemented
0 1 1 0 0 0 1 0  Message type not compatible with
       the protocol state
0 1 1 0 0 0 1 1  Information element non-existent
       or not implemented
0 1 1 0 0 1 0 0  Conditional IE error
0 1 1 0 0 1 0 1  Message not compatible with
       the protocol state
0 1 1 0 1 1 1 1  Protocol error, unspecified

Any other value received by the mobile station shall
be treated as 0010 0010, 'Service option temporarily
out of order'. Any other value received by the network
shall be treated as 0110 1111, 'Protocol error,
unspecified'.

NOTE: The listed cause values are defined in
      Annex I
```

***** THE END OF MODIFIED SECTION *****

Annex I (informative): GSM specific cause values for session management

This annex is informative.

I.1 Causes related to nature of request

Cause value = 25 LLC or SNDCP failure

This cause code is used by the MS indicate that a PDP context is deactivated because of a LLC or SNDCP failure (e.g. if the SM receives a *SNSM-STATUS.request* message with cause "*DM received* " or " *invalid XID response* ", see 04.65 [78])

Cause value = 26 Insufficient resources

This cause code is used by the MS or by the network to indicate that a PDP context activation request or PDP context modification request cannot be accepted due to insufficient resources.

Cause value = 27 Unknown or missing access point name

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the access point name was not included although required or if the access point name could not be resolved.

Cause value = 28 Unknown PDP address or PDP type

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the PDP address or type could not be recognised.

Cause value = 29 User authentication failed

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network due to a failed user authentication.

Cause value = 30 Activation rejected by GGSN

This cause code is used by the network to indicate that the requested service was rejected by the GGSN..

Cause value = 31 Activation rejected, unspecified

This cause code is used by the network to indicate that the requested service was rejected due to unspecified reasons.

Cause value = 32 Service option not supported

This cause code is used by the network when the MS requests a service which is not supported by the PLMN.

Cause value = 33 Requested service option not subscribed

See Annex G, section 4.

Cause value = 34 Service option temporarily out of order

See Annex G, section 4.

Cause value = 35 NSAPI already used

This cause code is used by the network to indicate that the NSAPI requested by the MS in the PDP context activation is already used by another active PDP context of this MS.

Cause value = 36 Regular PDP context deactivation

This cause code is used to indicate a regular MS or network initiated PDP context deactivation.

Cause value = 37 QoS not accepted

This cause code is used by the MS if the new QoS cannot be accepted that were indicated by the network in the PDP Context Modification procedure.

Cause value = 38 Network failure

This cause code is used by the network to indicate that the PDP context deactivation is caused by an error situation in the network.

Cause value = 39 Reactivation requested

This cause code is used by the network to request a PDP context reactivation after a GGSN restart.

Cause value = 40 Feature not supported

This cause code is used by the MS to indicate that the PDP context activation initiated by the network is not supported by the MS.

3GPP TSG_CN WG1 Ad-Hoc **Tdoc ~~N1-010624~~N1-01065~~5~~77**
Helsinki, Finland
8 - 9 May, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **04.08 CR A1099** ⌘ rev **~~21-~~** ⌘ Current version: **6.14.0** ⌘

*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:	⌘	Clarification of Network Initiated GPRS Detach Procedure
Source:	⌘	Qualcomm
Work item code:	⌘	GPRS
Date:	⌘	02.05.2001
Category:	⌘	**F**
Release:	⌘	R97

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	The current specification for "network initiated GPRS detach procedure" is inconsistent for the case where the detach type is "re-attach no required" and the cause code is "IMSI unknown in HLR". There are two conflicting requirements for the mobile behaviour in this case.
Summary of change:	⌘	An exception phrase is added to remove the inconsistency in the specification.
Consequences if not approved:	⌘	The inconsistent specification cannot be correctly implemented.

Clauses affected:	⌘	4.7.4.2.2
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates ~~"re-attach not required" or~~ "re-attach required", ~~except for the case where the detach type is "re-attach not required" and the cause code is "IMSI unknown in HLR",~~ the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure ~~if indicated by the network in the detach type IE~~. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", the MS shall not deactivate the PDP contexts. A MS in operation mode A or B in network operation mode I may send a DETACH ACCEPT message to the network., and shall re-attach to non-GPRS service by performing the combined routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". A MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates "IMSI detach" or "re-attach required", then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

~~If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.~~

~~NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.~~

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" and the cause code is not "#2 (IMSI unknown in HLR)", the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED.

If the detach type IE indicates "re-attach not required", then, depending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR);

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed. A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the “forbidden PLMN list” for cause #11, in the list of “forbidden location areas for regional provision of service” for cause #12 or in the list of “forbidden location areas for roaming” for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B, is still IMSI attached for CS services in the network.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.

3GPP TSG_CN WG1 Ad-Hoc **Tdoc ~~N1-010625~~N1-010678~~56~~**
Helsinki, Finland
8 - 9 May, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **04.08 CR A1101** ⌘ rev **~~2~~1~~-~~** ⌘ Current version: **7.11.0** ⌘

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

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

Title:	⌘	Clarification of Network Initiated GPRS Detach Procedure
Source:	⌘	Qualcomm
Work item code:	⌘	GPRS
Date:	⌘	02.05.2001
Category:	⌘	**A**
Release:	⌘	R98

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	The current specification for "network initiated GPRS detach procedure" is inconsistent for the case where the detach type is "re-attach no required" and the cause code is "IMSI unknown in HLR". There are two conflicting requirements for the mobile behaviour in this case.
Summary of change:	⌘	An exception phrase is added to remove the inconsistency in the specification.
Consequences if not approved:	⌘	The inconsistent specification cannot be correctly implemented.

Clauses affected:	⌘	4.7.4.2.2
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates ~~"re-attach not required" or~~ "re-attach required", ~~except for the case where the detach type is "re-attach not required" and the cause code is "IMSI unknown in HLR",~~ the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure ~~if indicated by the network in the detach type IE.~~ The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", the MS shall not deactivate the PDP contexts. A MS in operation mode A or B in network operation mode I may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". An MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates "IMSI detach" or "re-attach required", then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

~~If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.~~

~~NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.~~

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" and the cause code is not "#2 (IMSI unknown in HLR)", the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED.

If the detach type IE indicates "re-attach not required", then, depending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR);

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM

idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed); or

13 (Roaming not allowed in this location area)

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the “forbidden PLMN list” for cause #11, in the list of “forbidden location areas for regional provision of service” for cause #12 or in the list of “forbidden location areas for roaming” for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B, is still IMSI attached for CS services in the network.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.

3GPP TSG-N1 Meeting #N1-R99 Ad Hoc ***Tdoc N1-010595***
Helsinki, Finland, 8th-9th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **24.008** **CR** **393** ⌘ rev **-** ⌘ Current version: **3.7.0** ⌘

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

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

Title:	⌘	Missing SM cause 40 in table 10.5.6.6
Source:	⌘	Nokia
Work item code:	⌘	GPRS
Date:	⌘	24-Apr-01
Category:	⌘	**A**
Release:	⌘	R99

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	The use of SM cause #40 'feature not supported' is specified in clause 6.1.3.1.4 and in Annex I. However, the cause value #40 is not included in the clause 10.5.6.6 which specifies the encoding of different SM cause values. This CR adds the missing encoding to clause 10.5.6.6.
Summary of change:	⌘	Addition of missing encoding of SM cause #40.
Consequences if not approved:	⌘	Encoding of SM cause values is not in line with procedure description in 6.1.3.1.4 and usage purposes listed in Annex I. When MS receives SM cause 'feature not supported', it will treat the cause as 'service option temporarily out of order'. When network receives SM cause 'feature not supported', it will treat the cause as 'protocol error, unspecified'.

Clauses affected:	⌘	10.5.6.6
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.1.3 Session Management procedures

6.1.3.1 PDP context activation

The purpose of this procedure is to establish a PDP context between the MS and the network for a specific QoS on a specific NSAPI. The PDP context activation may be initiated by the MS or the initiation may be requested by the network.

Each PDP address may be described by one or more PDP contexts in the MS or the network. The PDP Context Activation procedure is used to activate the first PDP context for a given PDP address and APN, whereas all additional contexts associated to the same PDP address and APN are activated with the secondary PDP context activation procedure. When more than one PDP contexts are associated to a PDP address, there shall be a Traffic Flow Template (TFT) for each or all but one context. If present, the TFT shall be sent transparently via the SGSN to the GGSN to enable packet classification and policing for downlink data transfer (see 3GPP TS 23.060).

6.1.3.1.1 Successful PDP context activation initiated by the mobile station

In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the MS shall stop timer T3380, shall enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

In GSM, the MS shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.

In UMTS, both the network and the MS shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

An MS, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while an MS which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. The message contains an offered PDP address. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

6.1.3.1.3 Unsuccessful PDP context activation initiated by the MS

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message the network may reject the MS initiated PDP context activation by sending an ACTIVATE PDP CONTEXT REJECT message to the MS. The message shall contain a cause code that typically indicates one of the following causes:

26: insufficient resources;

27: missing or unknown APN;

28: unknown PDP address or PDP type;

29: user authentication failed;

30: activation rejected by GGSN;

31: activation rejected, unspecified;

32: service option not supported;

33: requested service option not subscribed;

34: service option temporarily out of order;

35: NSAPI already used. The network shall not send this cause code (Note 1); or

95 - 111: protocol errors.

NOTE 1: Pre-R99 network may send this cause code.

Upon receipt of an ACTIVATE PDP CONTEXT REJECT message, the MS shall stop timer T3380 and enter/remain in state PDP-INACTIVE.

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;

31: activation rejected, unspecified;

40: feature not supported; or

95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** THE MODIFIED SECTION ***

10.5.6.6 SM cause

The purpose of the *SM cause* information element is to indicate the reason why a session management request is rejected.

The *SM cause* is a type 3 information element with 2 octets length.

The *SM cause* information element is coded as shown in figure 10.5.139/3GPP TS 24.008 and table 10.5.157/3GPP TS 24.008.

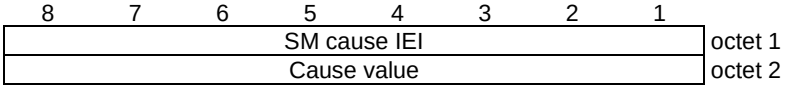

Figure 10.5.139/3GPP TS 24.008: *SM cause* information element

Table 10.5.157/3GPP TS 24.008: *SM cause* information element

Cause value (octet 2)
Bits

8 7 6 5 4 3 2 1	
0 0 0 1 1 0 0 1	LLC or SNDCP failure(GSM only)
0 0 0 1 1 0 1 0	Insufficient resources
0 0 0 1 1 0 1 1	Missing or unknown APN
0 0 0 1 1 1 0 0	Unknown PDP address or PDP type
0 0 0 1 1 1 0 1	User Aauthentication failed
0 0 0 1 1 1 1 0	Activation rejected by GGSN
0 0 0 1 1 1 1 1	Activation rejected, unspecified
0 0 1 0 0 0 0 0	Service option not supported
0 0 1 0 0 0 0 1	Requested service option not subscribed
0 0 1 0 0 0 1 0	Service option temporarily out of order
0 0 1 0 0 0 1 1	NSAPI already used (not sent)
0 0 1 0 0 1 0 0	Regular deactivation
0 0 1 0 0 1 0 1	QoS not accepted
0 0 1 0 0 1 1 0	Network failure
0 0 1 0 0 1 1 1	Reactivation required
0 0 1 0 1 0 0 0	Feature not supported
0 0 1 0 1 0 0 1	Semantic error in the TFT operation
0 0 1 0 1 0 1 0	Syntactical error in the TFT operation
0 0 1 0 1 0 1 1	Unknown PDP context
0 0 1 0 1 1 1 0	PDP context without TFT already activated
0 0 1 0 1 1 0 0	Semantic errors in packet filter(s)
0 0 1 0 1 1 0 1	Syntactical errors in packet filter(s)
0 1 0 1 0 0 0 1	Invalid transaction identifier value
0 1 0 1 1 1 1 1	Semantically incorrect message
0 1 1 0 0 0 0 0	Invalid mandatory information
0 1 1 0 0 0 0 1	Message type non-existent or not implemented
0 1 1 0 0 0 1 0	Message type not compatible with the protocol state
0 1 1 0 0 0 1 1	Information element non-existent or not implemented
0 1 1 0 0 1 0 0	Conditional IE error
0 1 1 0 0 1 0 1	Message not compatible with the protocol state
0 1 1 0 1 1 1 1	Protocol error, unspecified

Any other value received by the mobile station shall be treated as 0010 0010, 'Service option temporarily out of order'. Any other value received by the network shall be treated as 0110 1111, 'Protocol error, unspecified'.

NOTE: The listed cause values are defined in Annex I

*** THE END OF MODIFIED SECTION ***

Annex I (informative):
GPRS specific cause values for session management

This annex is informative.

I.1 Causes related to nature of request

Cause value = 25 LLC or SNDCP failure (GSM only)

This cause code is used by the MS indicate that a PDP context is deactivated because of a LLC or SNDCP failure (e.g. if the SM receives a *SNSM-STATUS.request* message with cause "*DM received* " or " *invalid XID response* ", see GSM 04.65 [78])

Cause value = 26 Insufficient resources

This cause code is used by the MS or by the network to indicate that a PDP context activation request, secondary PDP context activation request or PDP context modification request cannot be accepted due to insufficient resources.

Cause value = 27 Unknown or missing access point name

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the access point name was not included although required or if the access point name could not be resolved.

Cause value = 28 Unknown PDP address or PDP type

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the PDP address or type could not be recognised.

Cause value = 29 User authentication failed

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network due to a failed user authentication.

Cause value = 30 Activation rejected by GGSN

This cause code is used by the network to indicate that the requested service was rejected by the GGSN.

Cause value = 31 Activation rejected, unspecified

This cause code is used by the network to indicate that the requested service was rejected due to unspecified reasons.

Cause value = 32 Service option not supported

This cause code is used by the network when the MS requests a service which is not supported by the PLMN.

Cause value = 33 Requested service option not subscribed

See Annex G, section 4.

Cause value = 34 Service option temporarily out of order

See Annex G, section 4.

Cause value = 35 NSAPI already used

This cause code may be used by a network to indicate that the NSAPI requested by the MS in the PDP context activation request is already used by another active PDP context of this MS.

Never to be sent, but can be received from a R97/R98 network at PDP context activation

Cause value = 36 Regular PDP context deactivation

This cause code is used to indicate a regular MS or network initiated PDP context deactivation.

Cause value = 37 QoS not accepted

This cause code is used by the MS if the new QoS cannot be accepted that were indicated by the network in the PDP Context Modification procedure.

Cause value = 38 Network failure

This cause code is used by the network to indicate that the PDP context deactivation is caused by an error situation in the network.

Cause value = 39 Reactivation requested

This cause code is used by the network to request a PDP context reactivation after a GGSN restart.

Cause value = 40 Feature not supported

This cause code is used by the MS to indicate that the PDP context activation initiated by the network is not supported by the MS.

Cause value = 41 semantic error in the TFT operation.

This cause code is used by the network to indicate that the there is a semantic error in the TFT operation included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 42 syntactical error in the TFT operation.

This cause code is used by the network to indicate that there is a syntactical error in the TFT operation included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 43 unknown PDP context

This cause code is used by the network to indicate that the PDP context identified by the Linked TI IE the secondary PDP context activation request is not active.

Cause value = 44 semantic errors in packet filter(s)

This cause code is used by the network to indicate that there is one or more semantic errors in packet filter(s) of the TFT included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 45 syntactical error in packet filter(s)

This cause code is used by the network to indicate that there is one or more syntactical errors in packet filter(s) of the TFT included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 46 PDP context without TFT already activated

This cause code is used by the network to indicate that the network has already activated a PDP context without TFT.

3GPP TSG-N1 Meeting #N1-R99 Ad Hoc ***Tdoc N1-010596***
Helsinki, Finland, 8th-9th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **24.008** **CR** **394** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Missing SM cause 40 in table 10.5.6.6
Source:	⌘	Nokia
Work item code:	⌘	GPRS
Date:	⌘	24-Apr-01
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	The use of SM cause #40 'feature not supported' is specified in clause 6.1.3.1.4 and in Annex I. However, the cause value #40 is not included in the clause 10.5.6.6 which specifies the encoding of different SM cause values. This CR adds the missing encoding to clause 10.5.6.6.
Summary of change:	⌘	Addition of missing encoding of SM cause #40.
Consequences if not approved:	⌘	Encoding of SM cause values is not in line with procedure description in 6.1.3.1.4 and usage purposes listed in Annex I. When MS receives SM cause 'feature not supported', it will treat the cause as 'service option temporarily out of order'. When network receives SM cause 'feature not supported', it will treat the cause as 'protocol error, unspecified'.

Clauses affected:	⌘	10.5.6.6
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.1.3 Session Management procedures

6.1.3.1 PDP context activation

The purpose of this procedure is to establish a PDP context between the MS and the network for a specific QoS on a specific NSAPI. The PDP context activation may be initiated by the MS or the initiation may be requested by the network.

Each PDP address may be described by one or more PDP contexts in the MS or the network. The PDP Context Activation procedure is used to activate the first PDP context for a given PDP address and APN, whereas all additional contexts associated to the same PDP address and APN are activated with the secondary PDP context activation procedure. When more than one PDP contexts are associated to a PDP address, there shall be a Traffic Flow Template (TFT) for each or all but one context. If present, the TFT shall be sent transparently via the SGSN to the GGSN to enable packet classification and policing for downlink data transfer (see 3GPP TS 23.060).

6.1.3.1.1 Successful PDP context activation initiated by the mobile station

In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the MS shall stop timer T3380, shall enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

In GSM, the MS shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.

In UMTS, both the network and the MS shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

An MS, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while an MS which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. The message contains an offered PDP address. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".

The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.

Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

6.1.3.1.3 Unsuccessful PDP context activation initiated by the MS

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message the network may reject the MS initiated PDP context activation by sending an ACTIVATE PDP CONTEXT REJECT message to the MS. The message shall contain a cause code that typically indicates one of the following causes:

8: Operator Determined Barring

26: insufficient resources;

27: missing or unknown APN;

28: unknown PDP address or PDP type;

29: user authentication failed;

30: activation rejected by GGSN;

31: activation rejected, unspecified;

32: service option not supported;

33: requested service option not subscribed;

34: service option temporarily out of order;

35: NSAPI already used. The network shall not send this cause code (Note 1); or

95 - 111: protocol errors.

NOTE 1: Pre-R99 network may send this cause code.

Upon receipt of an ACTIVATE PDP CONTEXT REJECT message, the MS shall stop timer T3380 and enter/remain in state PDP-INACTIVE.

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;

31: activation rejected, unspecified;

40: feature not supported; or

95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

*** THE MODIFIED SECTION ***

10.5.6.6 SM cause

The purpose of the *SM cause* information element is to indicate the reason why a session management request is rejected.

The *SM cause* is a type 3 information element with 2 octets length.

The *SM cause* information element is coded as shown in figure 10.5.139/3GPP TS 24.008 and table 10.5.157/3GPP TS 24.008.

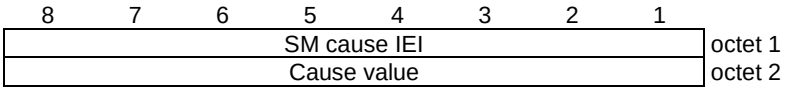

Figure 10.5.139/3GPP TS 24.008: *SM cause* information element

Table 10.5.157/3GPP TS 24.008: *SM cause* information element

Cause value (octet 2)
Bits

8 7 6 5 4 3 2 1	
0 0 0 0 1 0 0 0	Operator Determined Barring
0 0 0 1 1 0 0 1	LLC or SNDCP failure(GSM only)
0 0 0 1 1 0 1 0	Insufficient resources
0 0 0 1 1 0 1 1	Missing or unknown APN
0 0 0 1 1 1 0 0	Unknown PDP address or PDP type
0 0 0 1 1 1 0 1	User Aauthentication failed
0 0 0 1 1 1 1 0	Activation rejected by GGSN
0 0 0 1 1 1 1 1	Activation rejected, unspecified
0 0 1 0 0 0 0 0	Service option not supported
0 0 1 0 0 0 0 1	Requested service option not subscribed
0 0 1 0 0 0 1 0	Service option temporarily out of order
0 0 1 0 0 0 1 1	NSAPI already used (not sent)
0 0 1 0 0 1 0 0	Regular deactivation
0 0 1 0 0 1 0 1	QoS not accepted
0 0 1 0 0 1 1 0	Network failure
0 0 1 0 0 1 1 1	Reactivation required
0 0 1 0 1 0 0 0	Feature not supported
0 0 1 0 1 0 0 1	Semantic error in the TFT operation
0 0 1 0 1 0 1 0	Syntactical error in the TFT operation
0 0 1 0 1 0 1 1	Unknown PDP context
0 0 1 0 1 1 1 0	PDP context without TFT already activated
0 0 1 0 1 1 0 0	Semantic errors in packet filter(s)
0 0 1 0 1 1 0 1	Syntactical errors in packet filter(s)
0 1 0 1 0 0 0 1	Invalid transaction identifier value
0 1 0 1 1 1 1 1	Semantically incorrect message
0 1 1 0 0 0 0 0	Invalid mandatory information
0 1 1 0 0 0 0 1	Message type non-existent or not implemented
0 1 1 0 0 0 1 0	Message type not compatible with the protocol state
0 1 1 0 0 0 1 1	Information element non-existent or not implemented
0 1 1 0 0 1 0 0	Conditional IE error
0 1 1 0 0 1 0 1	Message not compatible with the protocol state
0 1 1 0 1 1 1 1	Protocol error, unspecified

Any other value received by the mobile station shall be treated as 0010 0010, 'Service option temporarily out of order'. Any other value received by the network shall be treated as 0110 1111, 'Protocol error, unspecified'.

NOTE: The listed cause values are defined in Annex I

*** THE END OF MODIFIED SECTION ***

Annex I (informative):
GPRS specific cause values for session management

This annex is informative.

I.1 Causes related to nature of request

Cause value = 8 Operator Determined Barring

This cause code is used by the network to indicate that the requested service was rejected by the SGSN due to Operator Determined Barring.

Cause value = 25 LLC or SNDCP failure (GSM only)

This cause code is used by the MS indicate that a PDP context is deactivated because of a LLC or SNDCP failure (e.g. if the SM receives a *SNSM-STATUS.request* message with cause "*DM received* " or " *invalid XID response* ", see 3GPP TS 44.065 [78])

Cause value = 26 Insufficient resources

This cause code is used by the MS or by the network to indicate that a PDP context activation request, secondary PDP context activation request or PDP context modification request cannot be accepted due to insufficient resources.

Cause value = 27 Unknown or missing access point name

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the access point name was not included although required or if the access point name could not be resolved.

Cause value = 28 Unknown PDP address or PDP type

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network because the PDP address or type could not be recognised.

Cause value = 29 User authentication failed

This cause code is used by the network to indicate that the requested service was rejected by the external packet data network due to a failed user authentication.

Cause value = 30 Activation rejected by GGSN

This cause code is used by the network to indicate that the requested service was rejected by the GGSN.

Cause value = 31 Activation rejected, unspecified

This cause code is used by the network to indicate that the requested service was rejected due to unspecified reasons.

Cause value = 32 Service option not supported

This cause code is used by the network when the MS requests a service which is not supported by the PLMN.

Cause value = 33 Requested service option not subscribed

See Annex G, section 4.

Cause value = 34 Service option temporarily out of order

See Annex G, section 4.

Cause value = 35 NSAPI already used

This cause code may be used by a network to indicate that the NSAPI requested by the MS in the PDP context activation request is already used by another active PDP context of this MS.

Never to be sent, but can be received from a R97/R98 network at PDP context activation

Cause value = 36 Regular PDP context deactivation

This cause code is used to indicate a regular MS or network initiated PDP context deactivation.

Cause value = 37 QoS not accepted

This cause code is used by the MS if the new QoS cannot be accepted that were indicated by the network in the PDP Context Modification procedure.

Cause value = 38 Network failure

This cause code is used by the network to indicate that the PDP context deactivation is caused by an error situation in the network.

Cause value = 39 Reactivation requested

This cause code is used by the network to request a PDP context reactivation after a GGSN restart.

Cause value = 40 Feature not supported

This cause code is used by the MS to indicate that the PDP context activation initiated by the network is not supported by the MS.

Cause value = 41 semantic error in the TFT operation.

This cause code is used by the network to indicate that the there is a semantic error in the TFT operation included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 42 syntactical error in the TFT operation.

This cause code is used by the network to indicate that there is a syntactical error in the TFT operation included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 43 unknown PDP context

This cause code is used by the network to indicate that the PDP context identified by the Linked TI IE the secondary PDP context activation request is not active.

Cause value = 44 semantic errors in packet filter(s)

This cause code is used by the network to indicate that there is one or more semantic errors in packet filter(s) of the TFT included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 45 syntactical error in packet filter(s)

This cause code is used by the network to indicate that there is one or more syntactical errors in packet filter(s) of the TFT included in a secondary PDP context activation request or an MS-initiated PDP context modification.

Cause value = 46 PDP context without TFT already activated

This cause code is used by the network to indicate that the network has already activated a PDP context without TFT.

3GPP TSG-N1 Meeting #N1-R99 Ad Hoc
Helsinki, Finland, 8th-9th May 2001

Tdoc N1-010666~~11~~

CR-Form-v3

CHANGE REQUEST

⌘ **24.008 CR 397** ⌘ rev **1-** ⌘ Current version: **3.7.0** ⌘

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

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

Title:	⌘	Clarification to REQUEST PDP CONTEXT ACTIVATION
Source:	⌘	Nokia, NTT Docomo
Work item code:	⌘	GPRS
Date:	⌘	02-05-01
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	There is an unclear case in REQUEST PDP CONTEXT ACTIVATION procedure description.
Summary of change:	⌘	The MS sends in ACTIVATE PDP CONTEXT REQUEST message the same IE it received in REQUEST PDP CONTEXT ACTIVATION message, even if no address information is present.
Consequences if not approved:	⌘	MS behaviour will be manufacturer dependent which may lead to inconsistency

Clauses affected:	⌘	6.1.3.1.5
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

6.1.3 Session Management procedures

6.1.3.1 PDP context activation

The purpose of this procedure is to establish a PDP context between the MS and the network for a specific QoS on a specific NSAPI. The PDP context activation may be initiated by the MS or the initiation may be requested by the network.
Each PDP address may be described by one or more PDP contexts in the MS or the network. The PDP Context Activation procedure is used to activate the first PDP context for a given PDP address and APN, whereas all additional contexts associated to the same PDP address and APN are activated with the secondary PDP context activation procedure. When more than one PDP contexts are associated to a PDP address, there shall be a Traffic Flow Template (TFT) for each or all but one context. If present, the TFT shall be sent transparently via the SGSN to the GGSN to enable packet classification and policing for downlink data transfer (see 3GPP TS 23.060).

6.1.3.1.1 Successful PDP context activation initiated by the mobile station

In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.
Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the MS shall stop timer T3380, shall enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.
In GSM, the MS shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.
In UMTS, both the network and the MS shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.
An MS, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while an MS which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. The message contains an offered PDP address IE. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.
Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION

REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".
The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address IE~~, PDP Type~~ and APN IE requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.
Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated PDP context activation.

6.1.3.1.3 Unsuccessful PDP context activation initiated by the MS

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message the network may reject the MS initiated PDP context activation by sending an ACTIVATE PDP CONTEXT REJECT message to the MS. The message shall contain a cause code that typically indicates one of the following causes:

26: insufficient resources;

27: missing or unknown APN;

28: unknown PDP address or PDP type;

29: user authentication failed;

30: activation rejected by GGSN;

31: activation rejected, unspecified;

32: service option not supported;

33: requested service option not subscribed;

34: service option temporarily out of order;

35: NSAPI already used. The network shall not send this cause code (Note 1); or

95 - 111: protocol errors.

NOTE 1: Pre-R99 network may send this cause code.

Upon receipt of an ACTIVATE PDP CONTEXT REJECT message, the MS shall stop timer T3380 and enter/remain in state PDP-INACTIVE.

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;

31: activation rejected, unspecified;

40: feature not supported; or

95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resend the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resend the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected within the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

NOTE: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

- In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. If the MS is not able to compare the PDP type, PDP address, and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message, then the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

- In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure

c) MS initiated PDP context activation request for an already activated PDP context (on the network side)

i) If the network receives a ACTIVATE PDP CONTEXT REQUEST message with the same combination of APN, PDP type and PDP address as an already activated PDP context, the network shall deactivate the existing PDP context and, if any, all the linked PDP contexts (matching the combination of APN, PDP type and PDP address), locally without notification to the MS and proceed with the requested PDP context activation.

ii) Alternatively (different combination of APN, PDP type and PDP address), if the NSAPI matches that of an already activated PDP context, then the network shall deactivate only the existing PDP context locally without notification to the MS and proceed with the requested PDP context activation.

It is an implementation option if the parameters used for comparison described in clause i) and ii) are the parameters provided in the (current and previous) ACTIVATE PDP CONTEXT REQUESTs or the parameters which are the result of the application of the selection rules defined in 3GPP TS23.060 Annex A.2.

The parameter provided in the current ACTIVATE PDP CONTEXT REQUEST can not be compared to the actually used parameters (result of application of selection rules defined in 3GPP TS23.060 Annex A.2) of the previously activated PDP contexts.

d) Network initiated PDP context activation request for an already activated PDP context (on the mobile station side)

If the MS receives a REQUEST PDP CONTEXT ACTIVATION message with the same combination of APN, PDP type and PDP address as an already activated PDP context, the MS shall deactivate the existing PDP context and, if any, all the linked PDP contexts (matching the combination of APN, PDP type and PDP address) locally without notification to the network and proceed with the requested PDP context activation.

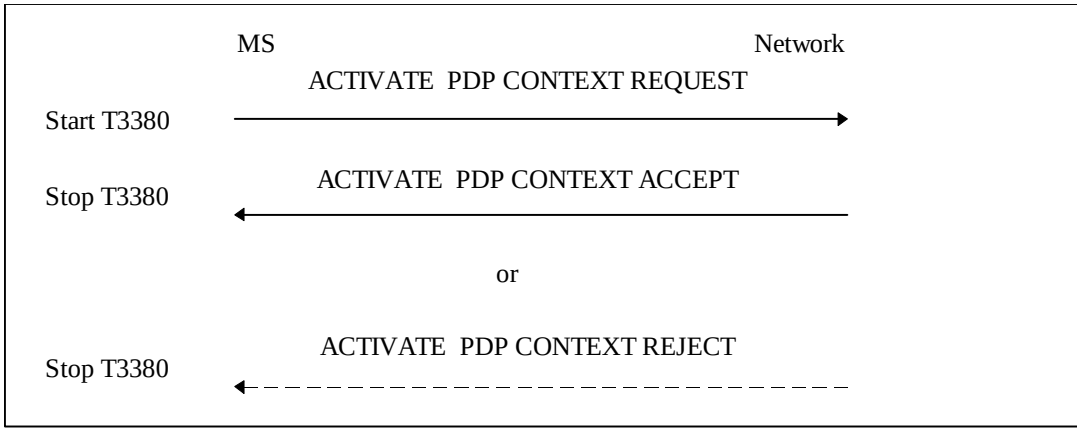

Figure 6.3/3GPP TS 24.008: MS initiated PDP context activation procedure

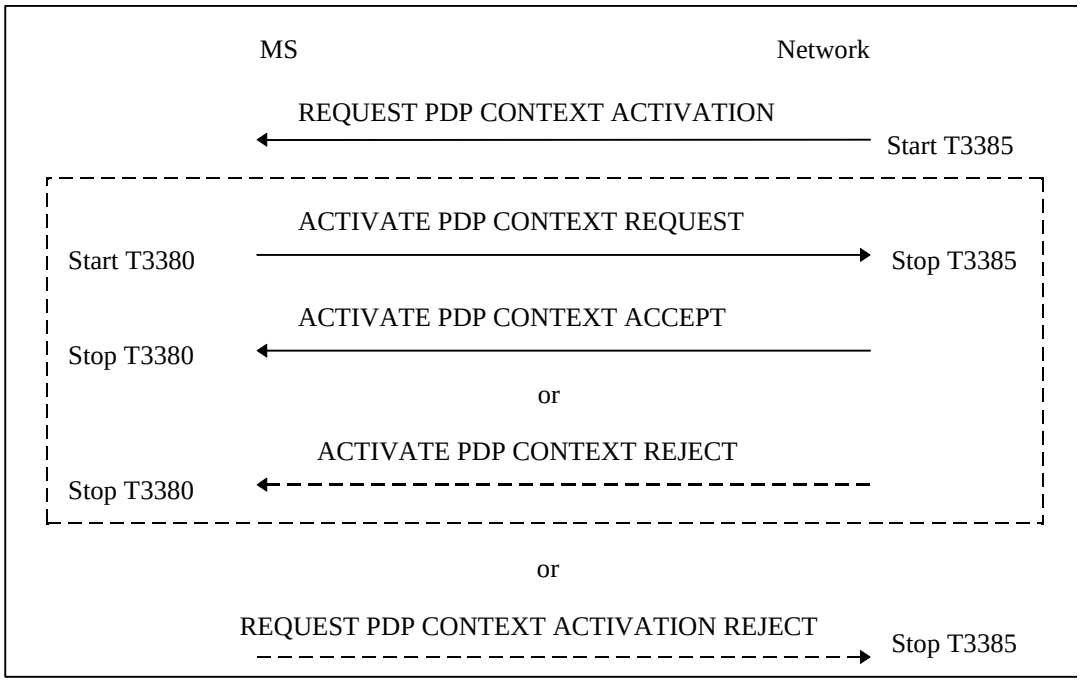

Figure 6.4/3GPP TS 24.008: Network initiated PDP context activation procedure

~~e) Network initiated PDP context activation request not containing address information but only PDP type If the MS receives a REQUEST PDP CONTEXT ACTIVATION message that does contain Packet data protocol address IE, the message is syntaxly correct. If this IE does contain only PDP type but no~~

~~address information (see section10.5.6.4), the MS shall consider the message as semantically correct. The MS shall copy the received Packet data protocol address IE from the REQUEST PDP CONTEXT ACTIVATION message into ACTIVATE PDP CONTEXT REQUEST message.~~

…

9.5.7 Request PDP context activation

This message is sent by the network to the MS to initiate activation of a PDP context.
See table 9.5.7/3GPP TS 24.008.

Message type: REQUEST PDP CONTEXT ACTIVATION

Significance: global

Direction: network to MS

Table 9.5.7/3GPP TS 24.008: REQUEST PDP CONTEXT ACTIVATION message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2– 3/2
	Request PDP context activation message identity	Message type 10.4	M	V	1
	Offered PDP address	Packet data protocol address 10.5.6.4	M	LV	3 - 19
28	Access point name	Access point name 10.5.6.1	O	TLV	3 – 102

….

10.5.6.4 Packet data protocol address

The purpose of the *packet data protocol address* information element is to identify an address associated with a PDP.
The *packet data protocol address* is a type 4 information element with minimum length of 4 octets and a maximum length of 20 octets.
The *packet data protocol address* information element is coded as shown in figure 10.5.137/3GPP TS 24.008 and table 10.5.155/3GPP TS 24.008.

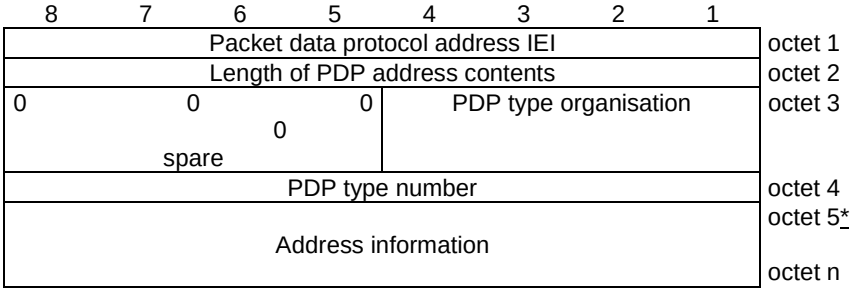

Figure 10.5.137/3GPP TS 24.008: *Packet data protocol address* information element

Table 10.5.155/3GPP TS 24.008: *Packet data protocol address* information element

Length of PDP address contents (octet 2)

If the value of octet 2 equals 0000 0010, then :
- No PDP address is included in this information element; and
- If the PDP type is IP, dynamic addressing is applicable.

NOTE : For PPP no address is required in this information element.

PDP type organisation (octet 3)
Bits
4 3 2 1
In MS to network direction :
0 0 0 0 ETSI allocated address
0 0 0 1 IETF allocated address
1 1 1 1 Empty PDP type

All other values are reserved.
In network to MS direction :
0 0 0 0 ETSI allocated address
0 0 0 1 IETF allocated address
All other values are reserved.
If bits 4,3,2,1 of octet 3 are coded 0 0 0 0
PDP type number value (octet 4)
Bits
8 7 6 5 4 3 2 1
0 0 0 0 0 0 0 0 Reserved, used in earlier version of this protocol
0 0 0 0 0 0 0 1 PDP-type PPP
All other values are reserved
in this version of the protocol.
If bits 4,3,2,1 of octet 3 are coded 0 0 0 1
PDP type number value (octet 4)
Bits
8 7 6 5 4 3 2 1
0 0 1 0 0 0 0 1 IPv4 address
0 1 0 1 0 1 1 1 IPv6 address
All other values shall be interpreted as IPv4 address
in this version of the protocol.
In MS to network direction:
If bits 4,3,2,1 of octet 3 are coded 1 1 1 1
PDP type number value (octet 4)
bits 8 to 1 are spare and shall be coded all 0.
Octet 3, bits 8, 7, 6, and 5 are spare and shall be coded all 0.

If PDP type number indicates IPv4, the Address information in octet 5 to octet 8 contains the IPv4 address. Bit 8 of octet 5 represents the most significant bit of the IP address and bit 1 of octet 8 the least significant bit .
If PDP type number indicates IPv6, the Address information in octet 5 to octet 20 contains the IPv6 address. Bit 8 of octet 5 represents the most significant bit of the IP address and bit 1 of octet 20 the least significant bit.

3GPP TSG-N1 Meeting #N1-R99 Ad Hoc ***Tdoc N1-01066~~12~~***
Helsinki, Finland, 8th-9th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **24.008 CR 398** ⌘ rev **1-** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Clarification to REQUEST PDP CONTEXT ACTIVATION
Source:	⌘	Nokia, NTT Docomo
Work item code:	⌘	GPRS
Date:	⌘	02-05-01
Category:	⌘	**A**
Release:	⌘	R4

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	There is an unclear case in REQUEST PDP CONTEXT ACTIVATION procedure description.
Summary of change:	⌘	The MS sends in ACTIVATE PDP CONTEXT REQUEST message the same IE it received in REQUEST PDP CONTEXT ACTIVATION message, even if no address information is present.
Consequences if not approved:	⌘	MS behaviour will be manufacturer dependent which may lead to inconsistency

Clauses affected:	⌘	6.1.3.1.5
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

6.1.3 Session Management procedures

6.1.3.1 PDP context activation

The purpose of this procedure is to establish a PDP context between the MS and the network for a specific QoS on a specific NSAPI. The PDP context activation may be initiated by the MS or the initiation may be requested by the network.
Each PDP address may be described by one or more PDP contexts in the MS or the network. The PDP Context Activation procedure is used to activate the first PDP context for a given PDP address and APN, whereas all additional contexts associated to the same PDP address and APN are activated with the secondary PDP context activation procedure. When more than one PDP contexts are associated to a PDP address, there shall be a Traffic Flow Template (TFT) for each or all but one context. If present, the TFT shall be sent transparently via the SGSN to the GGSN to enable packet classification and policing for downlink data transfer (see 3GPP TS 23.060).

6.1.3.1.1 Successful PDP context activation initiated by the mobile station

In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.
Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the MS shall stop timer T3380, shall enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.
In GSM, the MS shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.
In UMTS, both the network and the MS shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.
An MS, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while an MS which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

6.1.3.1.2 Successful PDP context activation requested by the network

In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the MS and starts timer T3385. The message contains an offered PDP address IE. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.
Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the MS shall than either initiate the PDP context activation procedure as described in the previous section or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in section 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION

REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".
The ACTIVATE PDP CONTEXT REQUEST message sent by the MS in order to initiate the PDP context activation procedure shall contain the PDP address IE, ~~PDP Type~~ and APN IE requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.
Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.
The same procedures then apply as described for MS initiated PDP context activation.

6.1.3.1.3 Unsuccessful PDP context activation initiated by the MS

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message the network may reject the MS initiated PDP context activation by sending an ACTIVATE PDP CONTEXT REJECT message to the MS. The message shall contain a cause code that typically indicates one of the following causes:

26: insufficient resources;

27: missing or unknown APN;

28: unknown PDP address or PDP type;

29: user authentication failed;

30: activation rejected by GGSN;

31: activation rejected, unspecified;

32: service option not supported;

33: requested service option not subscribed;

34: service option temporarily out of order;

35: NSAPI already used. The network shall not send this cause code (Note 1); or

95 - 111: protocol errors.

NOTE 1: Pre-R99 network may send this cause code.

Upon receipt of an ACTIVATE PDP CONTEXT REJECT message, the MS shall stop timer T3380 and enter/remain in state PDP-INACTIVE.

6.1.3.1.4 Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the MS may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

26: insufficient resources;

31: activation rejected, unspecified;

40: feature not supported; or

95 - 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

6.1.3.1.5 Abnormal cases

The following abnormal cases can be identified:

a) Expiry of timers

In the mobile station:

On the first expiry of the timer T3380, the MS shall resend the ACTIVATE PDP CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the MS shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

On the network side:

On the first expiry of the timer T3385, the network shall resend the message REQUEST PDP CONTEXT ACTIVATION and shall reset and restart timer T3385. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3385, the network shall release possibly allocated resources for this activation and shall abort the procedure.

b) Collision of MS initiated and network requested PDP context activation

Dynamic PDP address collision case:

If the MS uses dynamic PDP addressing that turns out to collide with the network requested PDP address, then there is no detection of collision specified but left for network implementation.

Static PDP address collision detected within the mobile station:

A collision of an MS initiated and a network requested PDP context activation procedure is identified by the MS if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the MS has sent an ACTIVATE PDP CONTEXT REQUEST message, and the MS has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

NOTE: In general, the MS is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the MS may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

- In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. If the MS is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the MS shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. If the MS is not able to compare the PDP type, PDP address, and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message, then the MS shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

Static PDP address collision detected on the network side:

A collision is detected by the network in the case where the PDP address, PDP type and APN derived (according to 23.060 annex A) from the ACTIVATE PDP CONTEXT REQUEST message received from the MS match those in the REQUEST PDP CONTEXT ACTIVATION message sent to the MS.

- In the case of such a collision, the MS initiated PDP context activation shall take precedence over the network requested PDP context activation. The network shall terminate the network requested PDP context activation procedure, and proceed with the MS initiated PDP context activation procedure

c) MS initiated PDP context activation request for an already activated PDP context (on the network side)

i) If the network receives a ACTIVATE PDP CONTEXT REQUEST message with the same combination of APN, PDP type and PDP address as an already activated PDP context, the network shall deactivate the existing PDP context and, if any, all the linked PDP contexts (matching the combination of APN, PDP type and PDP address), locally without notification to the MS and proceed with the requested PDP context activation.

ii) Alternatively (different combination of APN, PDP type and PDP address), if the NSAPI matches that of an already activated PDP context, then the network shall deactivate only the existing PDP context locally without notification to the MS and proceed with the requested PDP context activation.

It is an implementation option if the parameters used for comparison described in clause i) and ii) are the parameters provided in the (current and previous) ACTIVATE PDP CONTEXT REQUESTs or the parameters which are the result of the application of the selection rules defined in 3GPP TS23.060 Annex A.2.

The parameter provided in the current ACTIVATE PDP CONTEXT REQUEST can not be compared to the actually used parameters (result of application of selection rules defined in 3GPP TS23.060 Annex A.2) of the previously activated PDP contexts.

d) Network initiated PDP context activation request for an already activated PDP context (on the mobile station side)

If the MS receives a REQUEST PDP CONTEXT ACTIVATION message with the same combination of APN, PDP type and PDP address as an already activated PDP context, the MS shall deactivate the existing PDP context and, if any, all the linked PDP contexts (matching the combination of APN, PDP type and PDP address) locally without notification to the network and proceed with the requested PDP context activation.

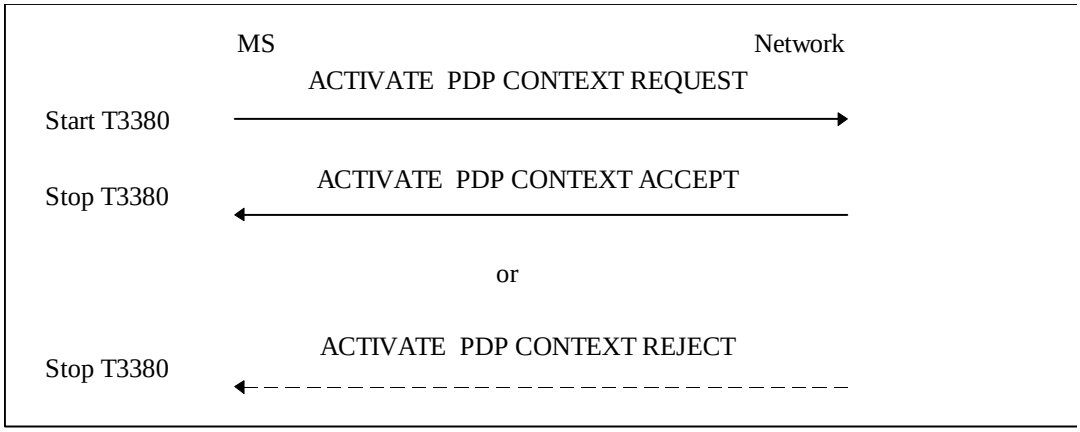

Figure 6.3/3GPP TS 24.008: MS initiated PDP context activation procedure

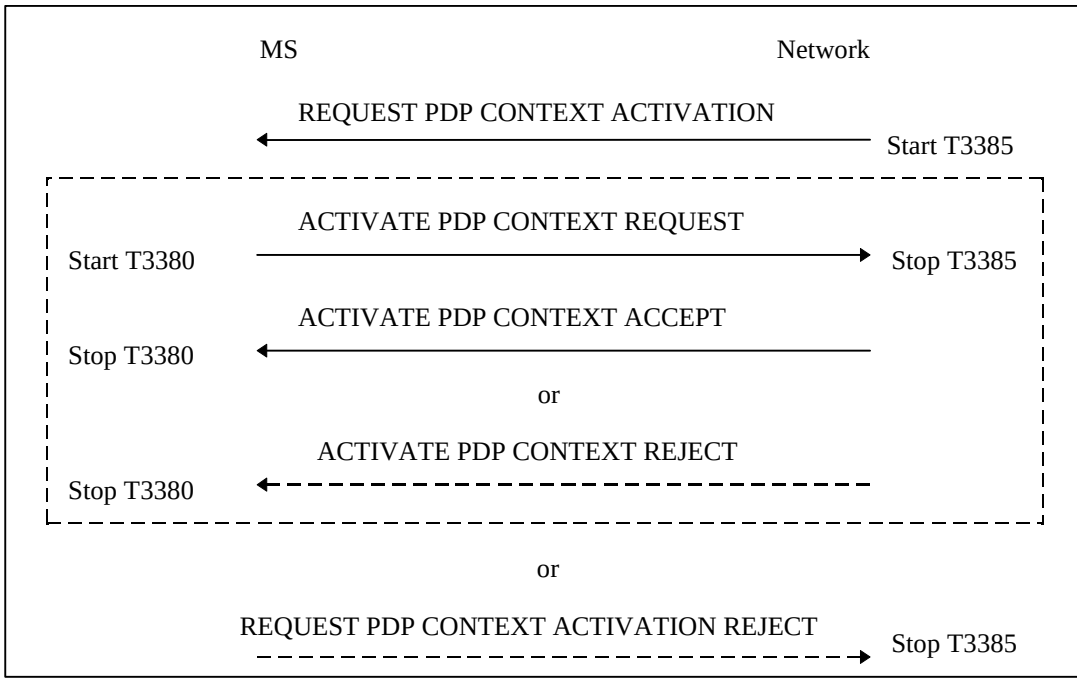

Figure 6.4/3GPP TS 24.008: Network initiated PDP context activation procedure

~~e) Network initiated PDP context activation request not containing address information but only PDP type~~
~~If the MS receives a REQUEST PDP CONTEXT ACTIVATION message that does contain Packet data protocol address IE, the message is syntaxly correct. If this IE does contain only PDP type but no~~

~~address information (see section10.5.6.4), the MS shall consider the message as semantically correct. The MS shall copy the received Packet data protocol address IE from the REQUEST PDP CONTEXT ACTIVATION message into ACTIVATE PDP CONTEXT REQUEST message.~~

…

9.5.7 Request PDP context activation

This message is sent by the network to the MS to initiate activation of a PDP context.
See table 9.5.7/3GPP TS 24.008.

Message type: REQUEST PDP CONTEXT ACTIVATION

Significance: global

Direction: network to MS

Table 9.5.7/3GPP TS 24.008: REQUEST PDP CONTEXT ACTIVATION message content

IEI	Information Element	Type/Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 10.2	M	V	1/2
	Transaction identifier	Transaction identifier 10.3.2	M	V	1/2– 3/2
	Request PDP context activation message identity	Message type 10.4	M	V	1
	Offered PDP address	Packet data protocol address 10.5.6.4	M	LV	3 - 19
28	Access point name	Access point name 10.5.6.1	O	TLV	3 – 102

….

10.5.6.4 Packet data protocol address

The purpose of the *packet data protocol address* information element is to identify an address associated with a PDP.
The *packet data protocol address* is a type 4 information element with minimum length of 4 octets and a maximum length of 20 octets.
The *packet data protocol address* information element is coded as shown in figure 10.5.137/3GPP TS 24.008 and table 10.5.155/3GPP TS 24.008.

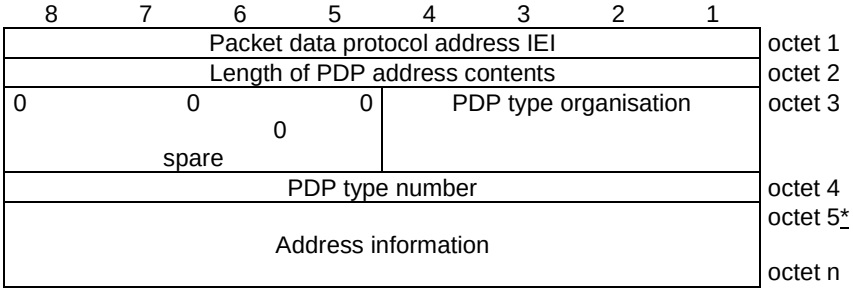

Figure 10.5.137/3GPP TS 24.008: *Packet data protocol address* information element

Table 10.5.155/3GPP TS 24.008: *Packet data protocol address* information element

Length of PDP address contents (octet 2)

If the value of octet 2 equals 0000 0010, then :
- No PDP address is included in this information element; and
- If the PDP type is IP, dynamic addressing is applicable.

NOTE : For PPP no address is required in this information element.

PDP type organisation (octet 3)
Bits
4 3 2 1
In MS to network direction :
0 0 0 0 ETSI allocated address
0 0 0 1 IETF allocated address
1 1 1 1 Empty PDP type

All other values are reserved.
In network to MS direction :
0 0 0 0 ETSI allocated address
0 0 0 1 IETF allocated address
All other values are reserved.
If bits 4,3,2,1 of octet 3 are coded 0 0 0 0
PDP type number value (octet 4)
Bits
8 7 6 5 4 3 2 1
0 0 0 0 0 0 0 0 Reserved, used in earlier version of this protocol
0 0 0 0 0 0 0 1 PDP-type PPP
All other values are reserved
in this version of the protocol.
If bits 4,3,2,1 of octet 3 are coded 0 0 0 1
PDP type number value (octet 4)
Bits
8 7 6 5 4 3 2 1
0 0 1 0 0 0 0 1 IPv4 address
0 1 0 1 0 1 1 1 IPv6 address
All other values shall be interpreted as IPv4 address
in this version of the protocol.
In MS to network direction:
If bits 4,3,2,1 of octet 3 are coded 1 1 1 1
PDP type number value (octet 4)
bits 8 to 1 are spare and shall be coded all 0.
Octet 3, bits 8, 7, 6, and 5 are spare and shall be coded all 0.

If PDP type number indicates IPv4, the Address information in octet 5 to octet 8 contains the IPv4 address. Bit 8 of octet 5 represents the most significant bit of the IP address and bit 1 of octet 8 the least significant bit .
If PDP type number indicates IPv6, the Address information in octet 5 to octet 20 contains the IPv6 address. Bit 8 of octet 5 represents the most significant bit of the IP address and bit 1 of octet 20 the least significant bit.

3GPP TSG_CN WG1 Ad-Hoc **Tdoc ~~N1-010626~~N1-010679~~57~~**
Helsinki, Finland
8 - 9 May, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **24.008** **CR** **405** ⌘ rev **~~21-~~** ⌘ Current version: **3.7.0** ⌘

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

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

Title:	⌘	Clarification of Network Initiated GPRS Detach Procedure
Source:	⌘	Qualcomm
Work item code:	⌘	GPRS
Date:	⌘	02.05.2001
Category:	⌘	**A**
Release:	⌘	R99

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	The current specification for "network initiated GPRS detach procedure" is inconsistent for the case where the detach type is "re-attach no required" and the cause code is "IMSI unknown in HLR". There are two conflicting requirements for the mobile behaviour in this case.
Summary of change:	⌘	An exception phrase is added to remove the inconsistency in the specification.
Consequences if not approved:	⌘	The inconsistent specification cannot be correctly implemented.

Clauses affected:	⌘	4.7.4.2.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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.

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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates ~~"re-attach not required" or~~ "re-attach required", ~~except for the case where the detach type is "re-attach not required" and the cause code is "IMSI unknown in HLR",~~ the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure ~~if indicated by the network in the detach type IE~~. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", the MS shall not deactivate the PDP contexts. The MS shall set the MM update status to U2 NOT UPDATED. A MS in operation mode A or B in network operation mode I may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure according to section 4.7.5.2, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". A MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates "IMSI detach", or "re-attach required" then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

~~If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.~~

~~NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.~~

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" and the cause code is not "#2 (IMSI unknown in HLR)", the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED.

If the detach type IE indicates "re-attach not required", then, depending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR)

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM

idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed),

13 (Roaming not allowed in this location area), or

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B, is still IMSI attached for CS services in the network.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.

3GPP TSG_CN WG1 Ad-Hoc **Tdoc ~~N1-010644~~N1-01068~~058~~**
Helsinki, Finland
8 - 9 May, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **24.008** **CR** **411** ⌘ rev **~~21-~~** ⌘ Current version: **4.2.0** ⌘

*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:	⌘	Clarification of Network Initiated GPRS Detach Procedure
Source:	⌘	Qualcomm
Work item code:	⌘	GPRS
Date:	⌘	02.05.2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential 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)

Reason for change:	⌘	The current specification for "network initiated GPRS detach procedure" is inconsistent for the case where the detach type is "re-attach no required" and the cause code is "IMSI unknown in HLR". There are two conflicting requirements for the mobile behaviour in this case.
Summary of change:	⌘	An exception phrase is added to remove the inconsistency in the specification.
Consequences if not approved:	⌘	The inconsistent specification cannot be correctly implemented.

Clauses affected:	⌘	4.7.4.2.2
Other specs affected:	⌘	☐ 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/3G_Specs/CRs.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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

4.7.4.2.2 Network initiated GPRS detach procedure completion by the MS

When receiving the DETACH REQUEST message and the detach type IE indicates ~~"re-attach not required" or~~ "re-attach required", ~~except for the case where the detach type is "re-attach not required" and the cause code is "IMSI unknown in HLR",~~ the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The MS shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure ~~if indicated by the network in the detach type IE~~. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

A GPRS MS operating in MS operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

When receiving the DETACH REQUEST message and the detach type IE indicates "IMSI detach", the MS shall not deactivate the PDP contexts. The MS shall set the MM update status to U2 NOT UPDATED. A MS in operation mode A or B in network operation mode I may send a DETACH ACCEPT message to the network, and shall re-attach to non-GPRS service by performing the combined routing area updating procedure according to section 4.7.5.2, sending a ROUTING AREA UPDATE REQUEST message with Update type IE indicating "combined RA/LA updating with IMSI attach". A MS in operation mode C, or in MS operation mode A or B in network operation mode II or III, shall send a DETACH ACCEPT message to the network.

If the detach type IE indicates "IMSI detach", or "re-attach required" then the MS shall ignore the cause code if received.

If the detach type information element value indicates "re-attach required" or "re-attach not required" and the MS is attached for GPRS and non-GPRS services and the network operates in network operation mode I, then if in the MS the timer T3212 is not already running, the timer T3212 shall be set to its initial value and restarted.

~~If the detach type IE indicates "re-attach required", the MS shall perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.~~

~~NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.~~

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach not required" and the cause code is not "#2 (IMSI unknown in HLR)", the MS shall deactivate the PDP contexts and deactivate the logical link(s), if any. The MS shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED.

If the detach type IE indicates "re-attach not required", then, depending on the received cause code, the MS shall act as follows:

2 (IMSI unknown in HLR);

The MS shall set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid for non-GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for GPRS services in the network.

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM

idle. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2). Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

The MS shall delete any RAI or LAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2).

A GPRS MS operating in MS operation mode A or B shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B, is still IMSI attached for CS services in the network.

Other cause values shall not impact the update status. Further actions of the MS are implementation dependent.