

**TSG RAN Meeting #24**  
**SEOUL, South Korea, 02 - 04 June 2004**

**RP-040174**

**Title** CRs (Rel-5 and Rel-6 Category A) to TS 25.413  
**Source** TSG RAN WG3  
**Agenda Item** 7.4.5

RAN3 Tdoc	Spec	curr. Vers.	new Vers.	CR	Rev	Cat	Rel	Title	Work item
R3-040836	TS 25.413	5.8.0	5.9.0	671	-	F	Rel-5	Correction of Transport Layer Address and Iu Transport Association handling in RAB Assignment	TEI5
R3-040837	TS 25.413	6.1.0	6.2.0	672	-	A	Rel-6	Correction of Transport Layer Address and Iu Transport Association handling in RAB Assignment	TEI5
R3-040928	TS 25.413	5.8.0	5.9.0	661	3	F	Rel-5	Data Volume Reporting Correction	TEI5
R3-040929	TS 25.413	6.1.0	6.2.0	662	3	A	Rel-6	Data Volume Reporting Correction	TEI5
R3-040930	TS 25.413	5.8.0	5.9.0	666	1	F	Rel-5	SNA Coding Correction	NTshar-UTRANEnh
R3-040931	TS 25.413	6.1.0	6.2.0	667	1	A	Rel-6	SNA Coding correction	NTshar-UTRANEnh

3GPP TSG-RAN3 Meeting #42  
 Montreal, CANADA, 10<sup>th</sup>-14th May 2004

Tdoc #R3-040928

CR-Form-v7	
<b>CHANGE REQUEST</b>	
# <b>25.413 CR 661</b> # rev <b>3</b> #	Current version: <b>5.8.0</b> #

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

**Proposed change affects:** UICC apps#  ME  Radio Access Network  Core Network

<b>Title:</b>	# Data Volume Reporting Correction		
<b>Source:</b>	# RAN3		
<b>Work item code:</b>	# TEI5	<b>Date:</b>	# 10/05/2004
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# REL-5
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

<b>Reason for change:</b>	# The handling of the data volume reporting field is not defined in the RAB modification request. The unsuccessfully transmitted data volume is said to be reported for a RAB successfully modified in section 8.2 but not according to section 9.2.1.17 and stage 2.
<b>Summary of change:</b>	# The handling of the data volume reporting field is defined for a RAB Modification Request and section 8.2 is also changed to clarify that the unsuccessfully transmitted data volume is not to be reported when the RAB is successfully modified as stated in 9.2.1.17 and in alignment with the stage 2 TS32015.  <u>Impact assessment towards the previous version of the specification (same release):</u>  This CR has isolated impact towards the previous version of the specification (same release).  This CR has an impact under functional point of view.  The impact can be considered isolated because it only affects the RAB Assignment procedure.
<b>Consequences if not approved:</b>	# Incorrect data volume reported in RAB Assignment Response.

<b>Clauses affected:</b>	⌘	8.2, 8.5,										
<b>Other specs affected:</b>	⌘	<table border="1"><tr><td>Y</td><td>N</td></tr><tr><td>X</td><td></td></tr><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr></table>	Y	N	X			X		X	Other core specifications	⌘ TS25.413 v 6.1.0 CR662
		Y	N									
		X										
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	Test specifications											
	O&M Specifications											
<b>Other comments:</b>	⌘											

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

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

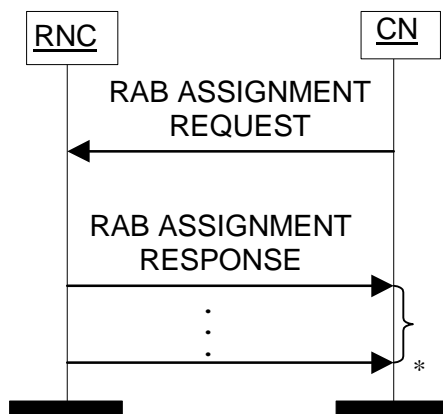
- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.2 RAB Assignment

### 8.2.1 General

The purpose of the RAB Assignment procedure is to establish new RABs and/or to enable modifications and/or releases of already established RABs for a given UE. The procedure uses connection oriented signalling.

### 8.2.2 Successful Operation



\* it can be several responses

**Figure 1: RAB Assignment procedure. Successful operation.**

The CN initiates the procedure by sending a RAB ASSIGNMENT REQUEST message. When sending the RAB ASSIGNMENT REQUEST message, the CN shall start the  $T_{RABAssgt}$  timer.

The CN may request the UTRAN to:

- establish,
- modify,
- release

one or several RABs with one RAB ASSIGNMENT REQUEST message.

The CN shall include in the RAB ASSIGNMENT REQUEST message at least one request to either establish/modify or release a RAB.

The message shall contain the information required by the UTRAN to build the new RAB configuration, such as:

- list of RABs to establish or modify with their bearer characteristics;
- list of RABs to release.

For each RAB requested to be established, the message shall contain:

- RAB ID;
- NAS Synchronisation Indicator (only when available);
- RAB parameters (including e.g. Allocation/Retention Priority);
- User Plane Information (i.e. required User Plane Mode and required UP Mode Versions);
- Transport Layer Information;

- PDP Type Information (only for PS);
- Data Volume Reporting Indication (only for PS);
- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- DL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]);
- UL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]).

For each RAB requested to be modified, the message may contain:

- RAB ID (mandatory);
- NAS Synchronisation Indicator;
- RAB parameters;
- Transport Layer Information;
- User Plane Information.

The *Transport Layer Information* IE may be present at a RAB modification except in the case when the only other present IE, besides the *RAB ID* IE, is the *NAS Synchronisation Indicator* IE.

At a RAB modification that does not include transfer of the *NAS Synchronisation Indicator* IE, the *RAB Parameters* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

At a RAB modification, the *User Plane Information* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

For a RAB setup, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *User Plane Mode* IE is set to "support mode for pre-defined SDU sizes" and the *Traffic Class* IE is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters* IE may contain the *Signalling Indication* IE. The *Signalling Indication* IE shall not be present if the *Traffic Class* IE is not set to "Interactive" or if the *CN Domain Indicator* IE is not set to "PS domain".

If the *RAB Parameters* IE is present for a RAB modification, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *Traffic Class* IE is set to either "Conversational" or "Streaming" and if

- either the User Plane mode is currently "support mode for pre-defined SDU sizes" and the *User Plane Mode* IE is not contained in the RAB ASSIGNMENT REQUEST message
- or if the *User Plane Mode* IE optionally contained within the RAB ASSIGNMENT REQUEST message is set to "support mode for pre-defined SDU sizes".

If, for a RAB requested to be modified, one (or more) of these IEs except *RAB ID* IE are not present in the RAB ASSIGNMENT REQUEST message the RNC shall continue to use the value(s) currently in use for the not present IEs.

For each RAB requested to be released, the message shall contain:

- RAB ID;
- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message, the UTRAN shall execute the requested RAB configuration. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT REQUEST message.

The RAB ID shall uniquely identify the RAB for the specific CN domain and for the particular UE, which makes the RAB ID unique over the Iu connection on which the RAB ASSIGNMENT REQUEST message is received. When a RAB ID already in use over that particular Iu instance is used, the procedure is considered as modification of that RAB.

The RNC shall pass the contents of the *RAB ID* IE to the radio interface protocol for each RAB requested to be established or modified.

The RNC shall establish or modify the resources according to the values of the *Allocation/Retention Priority* IE (priority level, pre-emption indicators, queuing) and the resource situation as follows:

- The RNC shall consider the priority level of the requested RAB, when deciding on the resource allocation.
- If the requested RAB is allowed for queuing and the resource situation requires so, the RNC may place the RAB in the establishment queue.
- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the RAB assignment has to be performed unconditionally and immediately. If the requested RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the RAB ASSIGNMENT REQUEST message, shall be treated as follows:
  1. The values of the last received *Pre-emption Vulnerability* IE and *Priority Level* IE shall prevail.
  2. If the *Pre-emption Capability* IE is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure.
  3. If the *Pre-emption Capability* IE is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.
  4. If the *Pre-emption Vulnerability* IE is set to "pre-emptable", then this connection shall be included in the pre-emption process.
  5. If the *Pre-emption Vulnerability* IE is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.
  6. If the *Priority Level* IE is set to "no priority" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.
- If the *Allocation/Retention Priority* IE is not given in the RAB ASSIGNMENT REQUEST message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.
- The UTRAN pre-emption process shall keep the following rules:
  1. UTRAN shall only pre-empt RABs with lower priority, in ascending order of priority.
  2. The pre-emption may be done for RABs belonging to the same UE or to other UEs.

If the *NAS Synchronisation Indicator* IE is contained in the RAB ASSIGNMENT REQUEST message, the RNC shall pass it to the radio interface protocol for transfer to the UE.

If the RAB ASSIGNMENT REQUEST message includes the *PDP Type Information* IE, the UTRAN may use it to configure any compression algorithms.

If included, the *Service Handover* IE tells if the RAB

- should be handed over to GSM, i.e. from a NAS point of view, the RAB should be handed over to GSM as soon as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.
- should not be handed over to GSM, i.e. from a NAS point of view, the RAB should remain in UMTS as long as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.
- shall not be handed over to GSM, i.e. the RAB shall never be handed over to GSM. This means that the UTRAN shall not initiate handover to GSM for the UE unless the RABs with this indication have first been released with the normal release procedures.

The value of the *Service Handover* IE is valid throughout the lifetime of the RAB or until changed by a RAB modification.

The *Service Handover* IE shall only influence decisions made regarding UTRAN-initiated inter-system handovers.

If the *Service Handover* IE is not included, the decision whether to perform an inter-system handover to GSM is only an internal UTRAN matter.

The UTRAN shall report to the CN, in the first RAB ASSIGNMENT RESPONSE message, the result for all the requested RABs, such as:

- List of RABs successfully established or modified.
- List of RABs released.
- List of RABs queued.
- List of RABs failed to establish or modify.
- List of RABs failed to release.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT RESPONSE message.

For each RAB successfully established towards the PS domain, the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully ~~modified or~~ released towards the PS domain, for which data volume reporting had been requested when the RAB was established, the RNC shall include the *DL Data Volumes* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully released towards the PS domain, the RNC shall include in the RAB ASSIGNMENT RESPONSE message the *DL GTP-PDU Sequence Number* IE and the *UL GTP-PDU Sequence Number* IE, if available and if the release was initiated by the UTRAN.

The RNC shall report in the RAB ASSIGNMENT RESPONSE message at least one RAB:

- setup/modified or
- released or
- queued or
- failed to setup/modify or
- failed to release.

If any alternative RAB parameter values have been used when establishing or modifying a RAB, these RAB parameter values shall be included in the RAB ASSIGNMENT RESPONSE message within the *Assigned RAB Parameter Values* IE.

For the CS domain, when an ALCAP is used, UTRAN shall report the successful outcome of a specific RAB to establish or modify only after the Iu user plane at RNL level is ready to be used in UL and DL. At a RAB establishment, the transport network control plane signalling required to set up the transport bearer shall use the *Transport Layer Address* IE and *Iu Transport Association* IE. At a RAB modification when *Transport Layer Address* (IE) and *Iu Transport Association* IEs are included, the RNC shall establish a new transport bearer. The transport network control plane signalling shall then use the included *Transport Layer Address* IE and *Iu Transport Association* IE. Then the switch

over to this new transport bearer shall be done immediately after transport bearer establishment and initialisation of the user plane mode. If *Transport Layer Address* (IE) and *Iu Transport Association* IEs are not included, then the RNC may modify the already existing transport bearer.

For the PS domain or for the CS domain when an ALCAP is not used, for each RAB successfully modified towards the PS domain, if the RNC has changed the *Transport Layer Address* IE and/or the *Iu Transport Association* IE, it shall include the new value(s) in the RAB ASSIGNMENT RESPONSE message.

Before reporting the successful outcome of a specific RAB to establish or modify, the RNC shall have executed the initialisation of the user plane, if necessary.

Re-initialisation of the user plane shall not be performed if:

- the *RAB Parameters* IE is not included, for example during transfer of *NAS Synchronisation Indicator* IE;
- the *RAB Parameters* IE is included but the *SDU Format Information Parameter* IE is not changed for the existing RAB and the *NAS Synchronisation Indicator* IE is not included.

Re-initialisation of the user plane shall be performed if the *RAB Parameters* IE and *NAS Synchronisation Indicator* IE are included.

If the RNC can not initialise the requested user plane mode for any of the user plane mode versions in the *UP Mode Versions* IE according to the rules for initialisation of the respective user plane mode versions, as described in [6], the RAB Assignment shall fail with the cause value "RNC unable to establish all RFCs".

In case of establishment of a RAB for the PS domain, the CN must be prepared to receive user data before the RAB ASSIGNMENT RESPONSE message has been received.

If none of the RABs have been queued, the CN shall stop timer  $T_{\text{RABAssgt}}$  and the RAB Assignment procedure terminates. In that case, the procedure shall also be terminated in the UTRAN.

When the request to establish or modify one or several RABs is put in a queue, the UTRAN shall start the timer  $T_{\text{QUEUING}}$ . This timer specifies the maximum time for queuing of the request for establishment or modification. The same timer  $T_{\text{QUEUING}}$  supervises all RABs of the request being queued.

For each RAB that is queued the following outcomes are possible:

- successfully established or modified;
- failed to establish or modify;
- failed due to expiry of the timer  $T_{\text{QUEUING}}$ .

For RABs indicated as queued in the first RAB ASSIGNMENT RESPONSE message, the UTRAN shall report the outcome of the queuing for every RAB individually or for several RABs in subsequent RAB ASSIGNMENT RESPONSE message(s). This is left to implementation. The UTRAN shall stop  $T_{\text{QUEUING}}$  when all RABs have been either successfully established or modified or failed to establish or modify. The RAB Assignment procedure is then terminated both in the CN and the UTRAN when all RABs have been responded to.

When the CN receives the response that one or several RABs are queued, it shall expect the UTRAN to provide the outcome of the queuing function for each RAB before expiry of the  $T_{\text{RABAssgt}}$  timer. In case the timer  $T_{\text{RABAssgt}}$  expires, the CN shall consider the RAB Assignment procedure terminated and the RABs not reported shall be considered as failed.

In case the timer  $T_{\text{QUEUING}}$  expires, the RAB Assignment procedure terminates in the UTRAN for all queued RABs, and the UTRAN shall respond for all of them in one RAB ASSIGNMENT RESPONSE message. The RAB Assignment procedure shall also be terminated in the CN.

In case a request to modify or release a RAB contains the RAB ID of a RAB being queued, the RAB shall be taken out of the queue and treated according to the second request. The first request shall be responded to as a RAB failed to setup or modify with the cause value "Request superseded".

If the UTRAN failed to modify a RAB, it shall keep the RAB as it was configured prior to the modification request.



When UTRAN reports unsuccessful establishment/modification of a RAB, the cause value should be precise enough to enable the core network to know the reason for unsuccessful establishment/modification. Typical cause values are: "Requested Traffic Class not Available", "Invalid RAB Parameters Value", "Requested Maximum Bit Rate not Available", "Requested Maximum Bit Rate for DL not Available", "Requested Maximum Bit Rate for UL not Available", "Requested Guaranteed Bit Rate not Available", "Requested Guaranteed Bit Rate for DL not Available", "Requested Guaranteed Bit Rate for UL not Available", "Requested Transfer Delay not Achievable", "Invalid RAB Parameters Combination", "Condition Violation for SDU Parameters", "Condition Violation for Traffic Handling Priority", "Condition Violation for Guaranteed Bit Rate", "User Plane Versions not Supported", "Iu UP Failure", "Iu Transport Connection Failed to Establish", "T<sub>QUEUING</sub> Expiry".

If the RAB ID of a RAB requested to be released is unknown in the RNC, this shall be reported as a RAB failed to release with the cause value "Invalid RAB ID".

The RNC may indicate an impending directed retry attempt to GSM by sending a RAB ASSIGNMENT RESPONSE message with a RAB ID included in the list of RABs failed to setup and a cause value of "Directed Retry".

The RNC shall be prepared to receive a RAB ASSIGNMENT REQUEST message containing a *RABs To Be Released* IE at any time and shall always reply to it. If there is an ongoing RAB Assignment procedure for a RAB indicated within the *RABs To Be Released* IE, the RNC shall discard the preceding RAB Assignment procedure for that specific RAB, release any related resources and report the released RAB within the RAB ASSIGNMENT RESPONSE message.

After sending a RAB ASSIGNMENT RESPONSE message containing RAB ID within the *RABs Released* IE, the RNC shall be prepared to receive a new establishment request for a RAB identified by the same RAB ID.

### 8.2.2.1 Successful Operation for GERAN Iu-mode

For GERAN Iu-mode the following shall apply in addition for the successful operation of the RAB Assignment procedure:

- In case of GERAN Iu-mode, for a RAB requested to be setup or modified from the CS domain, the RAB ASSIGNMENT REQUEST message may contain the *GERAN BSC Container* IE in order to provide GERAN-specific information to GERAN (see [27]).
- In case of GERAN Iu-mode (only for CS), if the BSC cannot provide an appropriate RAB corresponding to the content of the *GERAN BSC Container* IE (if received), the BSC shall report unsuccessful RAB establishment/modification indicating the cause value "GERAN Iu-mode Failure" and the *GERAN Classmark* IE in the *GERAN Iu mode specific RABs Failed To Setup Or Modify List* IE within the RAB ASSIGNMENT RESPONSE message.

### 8.2.3 Unsuccessful Operation

The unsuccessful operation for this Class 3 Elementary procedure is described under the Successful Operation chapter.

### 8.2.4 Abnormal Conditions

For a RAB requested to be modified, if only the *RAB ID* IE, the *NAS Synchronisation Indicator* IE and the *Transport Layer Information* IE are included in the *First Setup or Modify Item* IE, the RAB shall not be modified, and the corresponding *RAB ID* IE and *Cause* IE shall be included in the "RABs Failed To Setup Or Modify List" in the RAB ASSIGNMENT RESPONSE message.

If, for a RAB requested to be setup towards the PS domain, any of the following IEs:

- *PDP Type Information*.
- *Data Volume Reporting Indication*.

is not present, the RNC shall continue with the procedure.

If, for a RAB requested to be modified towards the PS domain, the *Data Volume Reporting Indication* IE is included, it shall be ignored by the RNC.

**Interactions with Relocation Preparation procedure:**

If the relocation becomes necessary during the RAB Assignment procedure, the RNC may interrupt the ongoing RAB Assignment procedure and initiate the Relocation Preparation procedure as follows:

1. The RNC shall terminate the RAB Assignment procedure indicating unsuccessful RAB configuration modification:
  - for all queued RABs;
  - for RABs not already established or modified, and
  - for RABs not already released;with the cause "Relocation triggered".
2. The RNC shall terminate the RAB Assignment procedure indicating successful RAB configuration modification:
  - for RABs already established or modified but not yet reported to the CN, and
  - for RABs already released but not yet reported to the CN.
3. The RNC shall report the outcome of the procedure in one RAB ASSIGNMENT RESPONSE message.
4. The RNC shall invoke relocation by sending a RELOCATION REQUIRED message to the active CN node(s).
5. The CN shall terminate the RAB Assignment procedure at reception of the RAB ASSIGNMENT RESPONSE message.

Directed retry from UMTS to GSM (CS domain only):

In the case where the RNC has no RAB configuration for a particular UE in the CS domain, and the RNC receives a RAB ASSIGNMENT REQUEST message for that UE requesting the establishment of one RAB only, a directed retry to perform inter-system handover to GSM may be initiated. In this case the RNC may interrupt the ongoing RAB Assignment procedure and initiate the Relocation Preparation procedure as follows:

1. The RNC shall terminate the RAB Assignment procedure indicating unsuccessful RAB configuration modification of that RAB with the cause "Directed retry".
2. The RNC shall report the outcome of the procedure in one RAB ASSIGNMENT RESPONSE message.
3. The RNC shall invoke relocation by sending a RELOCATION REQUIRED message to the active CN node, with the cause "Directed Retry".
4. The CN shall terminate the RAB Assignment procedure at reception of the RAB ASSIGNMENT RESPONSE message.



3GPP TSG-RAN3 Meeting #42  
Montreal, CANADA, 10<sup>th</sup>-14th May 2004

Tdoc #R3-040929

CR-Form-v7

## CHANGE REQUEST

# 25.413 CR 662 # rev 3 # Current version: 6.1.0 #

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

Proposed change affects: UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	# Data Volume Reporting Correction
<b>Source:</b>	# RAN3
<b>Work item code:</b>	# TEI5
<b>Date:</b>	# 10/05/2004
<b>Category:</b>	# A
<p>Use <u>one</u> of the following categories:</p> <p><b>F</b> (correction)  <b>A</b> (corresponds to a correction in an earlier release)  <b>B</b> (addition of feature),  <b>C</b> (functional modification of feature)  <b>D</b> (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.</p>	
<b>Release:</b>	# REL-6
<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2)  R96 (Release 1996)  R97 (Release 1997)  R98 (Release 1998)  R99 (Release 1999)  Rel-4 (Release 4)  Rel-5 (Release 5)  Rel-6 (Release 6)</p>	

<b>Reason for change:</b>	# The handling of the data volume reporting field is not defined for a RAB modification request. The unsuccessfully transmitted data volume is said to be reported for a RAB successfully modified in section 8.2 but not according to section 9.2.1.17 and stage 2.
<b>Summary of change:</b>	# The handling of the data volume reporting field is defined for a RAB Modification request and section 8.2 is also changed to clarify that the unsuccessfully transmitted data volume is not to be reported for a RAB successfully modified as stated in 9.2.1.17 and in alignment with the stage 2 TS32015.  <u>Impact assessment towards the previous version of the specification (same release):</u>  This CR has isolated impact towards the previous version of the specification (same release).  This CR has an impact under functional point of view.  The impact can be considered isolated because it only affects the RAB Assignment procedure.
<b>Consequences if not approved:</b>	# Incorrect data volume reported in RAB Assignment Response.

<b>Clauses affected:</b>	⌘	8.2, 8.5,										
<b>Other specs affected:</b>	⌘	<table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table>	Y	N	X			X		X	Other core specifications	⌘ TS25.413 v5.8.0 CR661
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		Test specifications										
		O&M Specifications										
<b>Other comments:</b>	⌘											

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

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

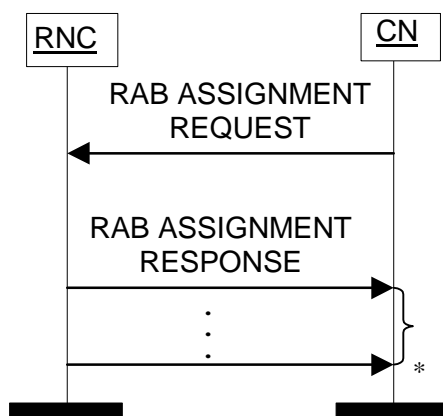
- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.2 RAB Assignment

### 8.2.1 General

The purpose of the RAB Assignment procedure is to establish new RABs and/or to enable modifications and/or releases of already established RABs for a given UE. The procedure uses connection oriented signalling.

### 8.2.2 Successful Operation



\* it can be several responses

**Figure 1: RAB Assignment procedure. Successful operation.**

The CN initiates the procedure by sending a RAB ASSIGNMENT REQUEST message. When sending the RAB ASSIGNMENT REQUEST message, the CN shall start the  $T_{RABAssgt}$  timer.

The CN may request the UTRAN to:

- establish,
- modify,
- release

one or several RABs with one RAB ASSIGNMENT REQUEST message.

The CN shall include in the RAB ASSIGNMENT REQUEST message at least one request to either establish/modify or release a RAB.

The message shall contain the information required by the UTRAN to build the new RAB configuration, such as:

- list of RABs to establish or modify with their bearer characteristics;
- list of RABs to release.

For each RAB requested to be established, the message shall contain:

- RAB ID;
- NAS Synchronisation Indicator (only when available);
- RAB parameters (including e.g. Allocation/Retention Priority);
- User Plane Information (i.e. required User Plane Mode and required UP Mode Versions);
- Transport Layer Information;

- PDP Type Information (only for PS);
- Data Volume Reporting Indication (only for PS);
- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- DL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]);
- UL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]).

For each RAB requested to be modified, the message may contain:

- RAB ID (mandatory);
- NAS Synchronisation Indicator;
- RAB parameters;
- Transport Layer Information;
- User Plane Information.

The *Transport Layer Information* IE may be present at a RAB modification except in the case when the only other present IE, besides the *RAB ID* IE, is the *NAS Synchronisation Indicator* IE.

At a RAB modification that does not include transfer of the *NAS Synchronisation Indicator* IE, the *RAB Parameters* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

At a RAB modification, the *User Plane Information* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

For a RAB setup, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *User Plane Mode* IE is set to "support mode for pre-defined SDU sizes" and the *Traffic Class* IE is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters* IE may contain the *Signalling Indication* IE. The *Signalling Indication* IE shall not be present if the *Traffic Class* IE is not set to "Interactive" or if the *CN Domain Indicator* IE is not set to "PS domain".

If the *RAB Parameters* IE is present for a RAB modification, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *Traffic Class* IE is set to either "Conversational" or "Streaming" and if

- either the User Plane mode is currently "support mode for pre-defined SDU sizes" and the *User Plane Mode* IE is not contained in the RAB ASSIGNMENT REQUEST message
- or if the *User Plane Mode* IE optionally contained within the RAB ASSIGNMENT REQUEST message is set to "support mode for pre-defined SDU sizes".

If, for a RAB requested to be modified, one (or more) of these IEs except *RAB ID* IE are not present in the RAB ASSIGNMENT REQUEST message the RNC shall continue to use the value(s) currently in use for the not present IEs.

For each RAB requested to be released, the message shall contain:

- RAB ID;
- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message, the UTRAN shall execute the requested RAB configuration. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT REQUEST message.

The RAB ID shall uniquely identify the RAB for the specific CN domain and for the particular UE, which makes the RAB ID unique over the Iu connection on which the RAB ASSIGNMENT REQUEST message is received. When a RAB ID already in use over that particular Iu instance is used, the procedure is considered as modification of that RAB.

The RNC shall pass the contents of the *RAB ID* IE to the radio interface protocol for each RAB requested to be established or modified.

The RNC shall establish or modify the resources according to the values of the *Allocation/Retention Priority* IE (priority level, pre-emption indicators, queuing) and the resource situation as follows:

- The RNC shall consider the priority level of the requested RAB, when deciding on the resource allocation.
- If the requested RAB is allowed for queuing and the resource situation requires so, the RNC may place the RAB in the establishment queue.
- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the RAB assignment has to be performed unconditionally and immediately. If the requested RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the RAB ASSIGNMENT REQUEST message, shall be treated as follows:
  1. The values of the last received *Pre-emption Vulnerability* IE and *Priority Level* IE shall prevail.
  2. If the *Pre-emption Capability* IE is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure.
  3. If the *Pre-emption Capability* IE is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.
  4. If the *Pre-emption Vulnerability* IE is set to "pre-emptable", then this connection shall be included in the pre-emption process.
  5. If the *Pre-emption Vulnerability* IE is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.
  6. If the *Priority Level* IE is set to "no priority" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.
- If the *Allocation/Retention Priority* IE is not given in the RAB ASSIGNMENT REQUEST message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.
- The UTRAN pre-emption process shall keep the following rules:
  1. UTRAN shall only pre-empt RABs with lower priority, in ascending order of priority.
  2. The pre-emption may be done for RABs belonging to the same UE or to other UEs.

If the *NAS Synchronisation Indicator* IE is contained in the RAB ASSIGNMENT REQUEST message, the RNC shall pass it to the radio interface protocol for transfer to the UE.

If the RAB ASSIGNMENT REQUEST message includes the *PDP Type Information* IE, the UTRAN may use it to configure any compression algorithms.

If included, the *Service Handover* IE tells if the RAB



- should be handed over to GSM, i.e. from a NAS point of view, the RAB should be handed over to GSM as soon as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.
- should not be handed over to GSM, i.e. from a NAS point of view, the RAB should remain in UMTS as long as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.
- shall not be handed over to GSM, i.e. the RAB shall never be handed over to GSM. This means that the UTRAN shall not initiate handover to GSM for the UE unless the RABs with this indication have first been released with the normal release procedures.

The value of the *Service Handover* IE is valid throughout the lifetime of the RAB or until changed by a RAB modification.

The *Service Handover* IE shall only influence decisions made regarding UTRAN-initiated inter-system handovers.

If the *Service Handover* IE is not included, the decision whether to perform an inter-system handover to GSM is only an internal UTRAN matter.

The UTRAN shall report to the CN, in the first RAB ASSIGNMENT RESPONSE message, the result for all the requested RABs, such as:

- List of RABs successfully established or modified.
- List of RABs released.
- List of RABs queued.
- List of RABs failed to establish or modify.
- List of RABs failed to release.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT RESPONSE message.

For each RAB successfully established towards the PS domain, the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully ~~modified or~~ released towards the PS domain, for which data volume reporting had been requested when the RAB was established, the RNC shall include the *DL Data Volumes* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully released towards the PS domain, the RNC shall include in the RAB ASSIGNMENT RESPONSE message the *DL GTP-PDU Sequence Number* IE and the *UL GTP-PDU Sequence Number* IE, if available and if the release was initiated by the UTRAN.

The RNC shall report in the RAB ASSIGNMENT RESPONSE message at least one RAB:

- setup/modified or
- released or
- queued or
- failed to setup/modify or
- failed to release.

If any alternative RAB parameter values have been used when establishing or modifying a RAB, these RAB parameter values shall be included in the RAB ASSIGNMENT RESPONSE message within the *Assigned RAB Parameter Values* IE.

For the CS domain, when an ALCAP is used, UTRAN shall report the successful outcome of a specific RAB to establish or modify only after the Iu user plane at RNL level is ready to be used in UL and DL. At a RAB establishment, the transport network control plane signalling required to set up the transport bearer shall use the *Transport Layer Address* IE and *Iu Transport Association* IE. At a RAB modification when *Transport Layer Address* (IE) and *Iu Transport Association* IEs are included, the RNC shall establish a new transport bearer. The transport network control plane signalling shall then use the included *Transport Layer Address* IE and *Iu Transport Association* IE. Then the switch

over to this new transport bearer shall be done immediately after transport bearer establishment and initialisation of the user plane mode. If *Transport Layer Address* (IE) and *Iu Transport Association* IEs are not included, then the RNC may modify the already existing transport bearer.

For the PS domain or for the CS domain when an ALCAP is not used, for each RAB successfully modified towards the PS domain, if the RNC has changed the *Transport Layer Address* IE and/or the *Iu Transport Association* IE, it shall include the new value(s) in the RAB ASSIGNMENT RESPONSE message.

Before reporting the successful outcome of a specific RAB to establish or modify, the RNC shall have executed the initialisation of the user plane, if necessary.

Re-initialisation of the user plane shall not be performed if:

- the *RAB Parameters* IE is not included, for example during transfer of *NAS Synchronisation Indicator* IE;
- the *RAB Parameters* IE is included but the *SDU Format Information Parameter* IE is not changed for the existing RAB and the *NAS Synchronisation Indicator* IE is not included.

Re-initialisation of the user plane shall be performed if the *RAB Parameters* IE and *NAS Synchronisation Indicator* IE are included.

If the RNC can not initialise the requested user plane mode for any of the user plane mode versions in the *UP Mode Versions* IE according to the rules for initialisation of the respective user plane mode versions, as described in [6], the RAB Assignment shall fail with the cause value "RNC unable to establish all RFCs".

In case of establishment of a RAB for the PS domain, the CN must be prepared to receive user data before the RAB ASSIGNMENT RESPONSE message has been received.

If none of the RABs have been queued, the CN shall stop timer  $T_{RABAssgt}$  and the RAB Assignment procedure terminates. In that case, the procedure shall also be terminated in the UTRAN.

When the request to establish or modify one or several RABs is put in a queue, the UTRAN shall start the timer  $T_{QUEUING}$ . This timer specifies the maximum time for queuing of the request for establishment or modification. The same timer  $T_{QUEUING}$  supervises all RABs of the request being queued.

For each RAB that is queued the following outcomes are possible:

- successfully established or modified;
- failed to establish or modify;
- failed due to expiry of the timer  $T_{QUEUING}$ .

For RABs indicated as queued in the first RAB ASSIGNMENT RESPONSE message, the UTRAN shall report the outcome of the queuing for every RAB individually or for several RABs in subsequent RAB ASSIGNMENT RESPONSE message(s). This is left to implementation. The UTRAN shall stop  $T_{QUEUING}$  when all RABs have been either successfully established or modified or failed to establish or modify. The RAB Assignment procedure is then terminated both in the CN and the UTRAN when all RABs have been responded to.

When the CN receives the response that one or several RABs are queued, it shall expect the UTRAN to provide the outcome of the queuing function for each RAB before expiry of the  $T_{RABAssgt}$  timer. In case the timer  $T_{RABAssgt}$  expires, the CN shall consider the RAB Assignment procedure terminated and the RABs not reported shall be considered as failed.

In case the timer  $T_{QUEUING}$  expires, the RAB Assignment procedure terminates in the UTRAN for all queued RABs, and the UTRAN shall respond for all of them in one RAB ASSIGNMENT RESPONSE message. The RAB Assignment procedure shall also be terminated in the CN.

In case a request to modify or release a RAB contains the RAB ID of a RAB being queued, the RAB shall be taken out of the queue and treated according to the second request. The first request shall be responded to as a RAB failed to setup or modify with the cause value "Request superseded".

If the UTRAN failed to modify a RAB, it shall keep the RAB as it was configured prior to the modification request.

When UTRAN reports unsuccessful establishment/modification of a RAB, the cause value should be precise enough to enable the core network to know the reason for unsuccessful establishment/modification. Typical cause values are: "Requested Traffic Class not Available", "Invalid RAB Parameters Value", "Requested Maximum Bit Rate not Available", "Requested Maximum Bit Rate for DL not Available", "Requested Maximum Bit Rate for UL not Available", "Requested Guaranteed Bit Rate not Available", "Requested Guaranteed Bit Rate for DL not Available", "Requested Guaranteed Bit Rate for UL not Available", "Requested Transfer Delay not Achievable", "Invalid RAB Parameters Combination", "Condition Violation for SDU Parameters", "Condition Violation for Traffic Handling Priority", "Condition Violation for Guaranteed Bit Rate", "User Plane Versions not Supported", "Iu UP Failure", "Iu Transport Connection Failed to Establish", "T<sub>QUEUING</sub> Expiry".

If the RAB ID of a RAB requested to be released is unknown in the RNC, this shall be reported as a RAB failed to release with the cause value "Invalid RAB ID".

The RNC may indicate an impending directed retry attempt to GSM by sending a RAB ASSIGNMENT RESPONSE message with a RAB ID included in the list of RABs failed to setup and a cause value of "Directed Retry".

The RNC shall be prepared to receive a RAB ASSIGNMENT REQUEST message containing a *RABs To Be Released* IE at any time and shall always reply to it. If there is an ongoing RAB Assignment procedure for a RAB indicated within the *RABs To Be Released* IE, the RNC shall discard the preceding RAB Assignment procedure for that specific RAB, release any related resources and report the released RAB within the RAB ASSIGNMENT RESPONSE message.

After sending a RAB ASSIGNMENT RESPONSE message containing RAB ID within the *RABs Released* IE, the RNC shall be prepared to receive a new establishment request for a RAB identified by the same RAB ID.

### 8.2.2.1 Successful Operation for GERAN Iu-mode

For GERAN Iu-mode the following shall apply in addition for the successful operation of the RAB Assignment procedure:

- In case of GERAN Iu-mode, for a RAB requested to be setup or modified from the CS domain, the RAB ASSIGNMENT REQUEST message may contain the *GERAN BSC Container* IE in order to provide GERAN-specific information to GERAN (see [27]).
- In case of GERAN Iu-mode (only for CS), if the BSC cannot provide an appropriate RAB corresponding to the content of the *GERAN BSC Container* IE (if received), the BSC shall report unsuccessful RAB establishment/modification indicating the cause value "GERAN Iu-mode Failure" and the *GERAN Classmark* IE in the *GERAN Iu mode specific RABs Failed To Setup Or Modify List* IE within the RAB ASSIGNMENT RESPONSE message.

### 8.2.3 Unsuccessful Operation

The unsuccessful operation for this Class 3 Elementary procedure is described under the Successful Operation chapter.

### 8.2.4 Abnormal Conditions

For a RAB requested to be modified, if only the *RAB ID* IE, the *NAS Synchronisation Indicator* IE and the *Transport Layer Information* IE are included in the *First Setup or Modify Item* IE, the RAB shall not be modified, and the corresponding *RAB ID* IE and *Cause* IE shall be included in the "RABs Failed To Setup Or Modify List" in the RAB ASSIGNMENT RESPONSE message.

If, for a RAB requested to be setup towards the PS domain, any of the following IEs:

- *PDP Type Information*.
- *Data Volume Reporting Indication*.

is not present, the RNC shall continue with the procedure.

If, for a RAB requested to be modified towards the PS domain, the *Data Volume Reporting Indication* IE is included, it shall be ignored by the RNC.

**Interactions with Relocation Preparation procedure:**

If the relocation becomes necessary during the RAB Assignment procedure, the RNC may interrupt the ongoing RAB Assignment procedure and initiate the Relocation Preparation procedure as follows:

1. The RNC shall terminate the RAB Assignment procedure indicating unsuccessful RAB configuration modification:
  - for all queued RABs;
  - for RABs not already established or modified, and
  - for RABs not already released;with the cause "Relocation triggered".
2. The RNC shall terminate the RAB Assignment procedure indicating successful RAB configuration modification:
  - for RABs already established or modified but not yet reported to the CN, and
  - for RABs already released but not yet reported to the CN.
3. The RNC shall report the outcome of the procedure in one RAB ASSIGNMENT RESPONSE message.
4. The RNC shall invoke relocation by sending a RELOCATION REQUIRED message to the active CN node(s).
5. The CN shall terminate the RAB Assignment procedure at reception of the RAB ASSIGNMENT RESPONSE message.

Directed retry from UMTS to GSM (CS domain only):

In the case where the RNC has no RAB configuration for a particular UE in the CS domain, and the RNC receives a RAB ASSIGNMENT REQUEST message for that UE requesting the establishment of one RAB only, a directed retry to perform inter-system handover to GSM may be initiated. In this case the RNC may interrupt the ongoing RAB Assignment procedure and initiate the Relocation Preparation procedure as follows:

1. The RNC shall terminate the RAB Assignment procedure indicating unsuccessful RAB configuration modification of that RAB with the cause "Directed retry".
2. The RNC shall report the outcome of the procedure in one RAB ASSIGNMENT RESPONSE message.
3. The RNC shall invoke relocation by sending a RELOCATION REQUIRED message to the active CN node, with the cause "Directed Retry".
4. The CN shall terminate the RAB Assignment procedure at reception of the RAB ASSIGNMENT RESPONSE message.



3GPP TSG-RAN3 Meeting #42  
 Montreal, CANADA, 10<sup>th</sup>-14th May 2004

Tdoc #R3-040930

CR-Form-v7	
<b>CHANGE REQUEST</b>	
# <b>25.413 CR 666</b> # rev <b>1</b> #	Current version: <b>5.8.0</b> #

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

**Proposed change affects:** UICC apps#  ME  Radio Access Network  Core Network

<b>Title:</b>	# SNA Coding Change		
<b>Source:</b>	# RAN3		
<b>Work item code:</b>	# NTshar-UTRANEnh	<b>Date:</b>	# 10/05/2004
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# REL-5
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

<b>Reason for change:</b>	# Allow the sending of the SNA Information in all 2G to 3G relocation scenarios.
<b>Summary of change:</b>	# The possibility to receive the SNA information in the RNC in a subsequent Common-id message after the Relocation Request message is added.  <u>Impact assessment towards the previous version of the specification (same release):</u>  This CR has isolated impact towards the previous version of the specification (same release).  This CR has an impact under functional point of view.  The impact can be considered isolated because it only affects the Relocation Resource allocation and Common Id functions.
<b>Consequences if not approved:</b>	# If SNA Access Information could not be sent in RELOCATION REQUEST message over E interface, it will not be possible to send it later on in a COMMON ID message.

<b>Clauses affected:</b>	# 8.7, 8.16						
<b>Other specs</b>	# <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> </table> Other core specifications	Y	N	X		#	TS25.413 v 6.1.0 CR667
Y	N						
X							

<b>affected:</b>	<input checked="" type="checkbox"/>	Test specifications	
	<input checked="" type="checkbox"/>	O&M Specifications	
<b>Other comments:</b>	⌘		

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

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>.

Below is a brief summary:

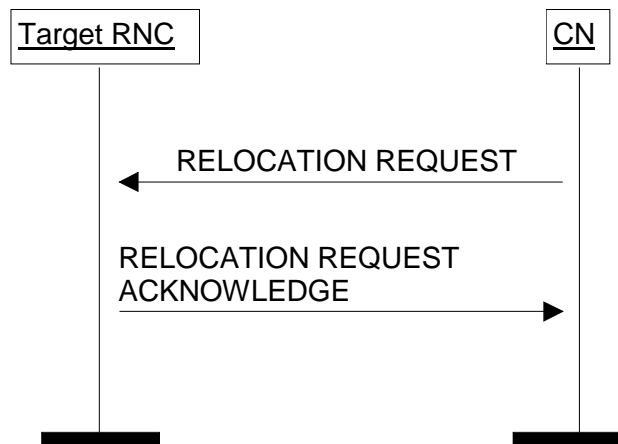
- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.7 Relocation Resource Allocation

### 8.7.1 General

The purpose of the Relocation Resource Allocation procedure is to allocate resources from a target RNS for a relocation of SRNS. The procedure shall be co-ordinated over all Iu signalling connections existing for the UE. The procedure uses connection oriented signalling.

### 8.7.2 Successful Operation



**Figure 7: Relocation Resource Allocation procedure. Successful operation.**

The CN initiates the procedure by generating a RELOCATION REQUEST message. In a UTRAN to UTRAN relocation, the message shall contain the information (if any) required by the UTRAN to build the same set of RABs as existing for the UE before the relocation. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

When the CN transmits the RELOCATION REQUEST message, it shall start the timer  $T_{RELOCalloc}$ .

When a RELOCATION REQUEST message is sent from a CN node towards an RNC for which the sending CN node is not the default CN node, the *Global CN-ID* IE shall be included.

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources.

The RELOCATION REQUEST message shall contain the following IEs:

- *Permanent NAS UE Identity* IE (if available);
- *Cause* IE;
- *CN Domain Indicator* IE;
- *Source RNC To Target RNC Transparent Container* IE;
- *Iu Signalling Connection Identifier* IE;
- *Integrity Protection Information* IE (if available);
- *SNA Access Information* IE (if available);
- *UESBI-Iu* IE (if available).

For each RAB requested to relocate (or to be created e.g. in the case of inter-system handover), the message shall contain the following IEs:



- *RAB-ID* IE;
- *NAS Synchronisation Indicator* IE (if the relevant NAS information is provided by the CN);
- *RAB parameters* IE;
- *User Plane Information* IE;
- *Transport Layer Address* IE;
- *Iu Transport Association* IE;
- *Data Volume Reporting Indication* IE (only for PS);
- *PDP Type Information* IE (only for PS).

The RELOCATION REQUEST message may include the following IE:

- *Encryption Information* IE (shall not be included if the *Integrity Protection Information* IE is not included).

For each RAB requested to relocate the message may include the following IEs:

- *Service Handover* IE;
- *Alternative RAB Parameter Values* IE.

The following information elements received in RELOCATION REQUEST message require the same special actions in the RNC as specified for the same IEs in the RAB Assignment procedure:

- *RAB-ID* IE;
- *User plane Information* IE (i.e. required User Plane Mode and required User Plane Versions);
- *Priority level* IE, *Queuing Allowed* IE, *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE;
- *Service Handover* IE.

The *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *User Plane Mode* IE is set to "support mode for pre-defined SDU sizes" and the *Traffic Class* IE is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters* IE may contain the *Signalling Indication* IE. The *Signalling Indication* IE shall not be present if the *Traffic Class* IE is not set to "Interactive" or if the *CN Domain Indicator* IE is not set to "PS domain".

If the RELOCATION REQUEST message includes the Permanent NAS UE identity (i.e. IMSI), the RNC shall associate the permanent identity to the RRC Connection of that user and shall save it for the duration of the RRC connection.

If the RELOCATION REQUEST message includes the *PDP Type Information* IE, the UTRAN may use this IE to configure any compression algorithms.

The *Cause* IE shall contain the same value as the one received in the related RELOCATION REQUIRED message.

The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN. The value for the *Iu Signalling Connection Identifier* IE shall be allocated so as to uniquely identify an Iu signalling connection for the involved CN node. The RNC shall store and remember this identifier for the duration of the Iu connection.

The RNC shall, if supported, use the *UESBI-Iu* IE when included in the RELOCATION REQUEST message.

The algorithms within the *Integrity Protection Information* IE and the *Encryption Information* IE shall be ordered in preferred order with the most preferred first in the list.

The *Permitted Encryption Algorithms* IE within the *Encryption Information* IE may contain "no encryption" within an element of its list in order to allow the RNC not to cipher the respective connection. This can be done either by not

starting ciphering or by using the UEA0 algorithm. In the absence of the *Encryption Information IE*, the RNC shall not start ciphering.

In case of intra-system relocation, if no *Integrity Protection Key IE* (*Ciphering Key IE* respectively) is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC shall not start integrity protection (ciphering respectively).

In case of intra-system relocation, when an *Ciphering Key IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC may select to use a ciphering alternative where an algorithm is used. It shall in this case make use of this key to cipher its signalling data whatever the selected algorithm. The *Encryption Key IE* that is contained within the *Encryption Information IE* of the RELOCATION REQUEST message shall never be considered for ciphering of signalling data.

In case of intra-system relocation, when an *Integrity Protection Key IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC shall select one integrity algorithm to start integrity and shall in this case make use of this key whatever the selected algorithm. The integrity protection key that is contained within the *Integrity Protection Information IE* of the RELOCATION REQUEST message shall never be considered.

In case of inter-system relocation, the integrity protection and ciphering information to be considered shall be the ones received in the *Integrity Protection Information IE* and *Encryption Information IE* of the RELOCATION REQUEST message.

The *Global CN-ID IE* contains the identity of the CN node that sent the RELOCATION REQUEST message, and it shall, if included, be stored together with the Iu signalling connection identifier. If the *Global CN-ID IE* is not included, the RELOCATION REQUEST message shall be considered as coming from the default CN node for the indicated CN domain.

The following additional actions shall be executed in the target RNC during the Relocation Resource Allocation procedure:

If the *Relocation Type IE* is set to "UE involved in relocation of SRNS":

- The target RNC may accept a requested RAB only if the RAB can be supported by the target RNC.
- Other RABs shall be rejected by the target RNC in the RELOCATION REQUEST ACKNOWLEDGE message with an appropriate value in the *Cause IE*, e.g. "Unable to Establish During Relocation".
- The target RNC shall include information adapted to the resulting RAB configuration in the target to source RNC transparent container to be included in the RELOCATION REQUEST ACKNOWLEDGE message sent to the CN. If the target RNC supports triggering of the Relocation Detect procedure via the Iur interface, the RNC shall assign a d-RNTI for the context of the relocation and include it in the container. If two CNs are involved in the relocation of SRNS, the target RNC may, however, decide to send the container to only one CN.
- If any alternative RAB parameter values have been used when allocating the resources, these RAB parameter values shall be included in the RELOCATION REQUEST ACKNOWLEDGE message within the *Assigned RAB Parameter Values IE*.

If the *Relocation Type IE* is set to "UE not involved in relocation of SRNS":

- The target RNC may accept a RAB only if the radio bearer(s) for the RAB either exist(s) already and can be used for the RAB by the target RNC, or do(es) not exist before the relocation but can be established in order to support the RAB in the target RNC.
- If existing radio bearers are not related to any RAB that is accepted by the target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by the radio interface protocols after completion of relocation of SRNS.
- If any alternative RAB parameter values have been used when allocating the resources, these RAB parameter values shall be included in the RELOCATION REQUEST ACKNOWLEDGE message within the *Assigned RAB Parameter Values IE*. It should be noted that the usage of alternative RAB parameter values is not applicable to the UTRAN initiated relocation of type "UE not involved in relocation of SRNS".

After all necessary resources for accepted RABs including the initialised Iu user plane, are successfully allocated, the target RNC shall send a RELOCATION REQUEST ACKNOWLEDGE message to the CN.

For each RAB successfully setup the RNC shall include the following IEs:

- *RAB ID*
- *Transport Layer Address* (when no ALCAP has been used)
- *Iu Transport Association* (when no ALCAP has been used)

Two pairs of *Transport Layer Address* IE and *Iu Transport Association* IE may be included for RABs established towards the PS domain.

For each RAB the RNC is not able to setup during the Relocation Resource Allocation procedure, the RNC shall include the *RAB ID* IE and the *Cause* IE within the *RABs Failed To Setup* IE. The resources associated with the RABs indicated as failed to set up shall not be released in the CN until the relocation is completed. This is in order to make a return to the old configuration possible in case of a failed or cancelled relocation.

The RELOCATION REQUEST ACKNOWLEDGE message sent to the CN shall, if applicable and if not sent via the other CN domain, include the *Target RNC To Source RNC Transparent Container* IE. This container shall be transferred by the CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

If the target RNC supports cell load-based inter-system handover, then in the case of inter-system handover, the *New BSS to Old BSS Information* IE may be included in the RELOCATION REQUEST ACKNOWLEDGE message. This information shall include, if available, the current traffic load in the target cell assuming a successful completion of the handover in progress.

In case of inter-system relocation, the RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Information* IE (*Encryption Information* IE respectively) was included in the RELOCATION REQUEST message.

In case of intra-system relocation, the RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Key* IE (*Ciphering Key* IE respectively) was included within the *Source RNC-to-Target RNC transparent container* IE.

If one or more of the RABs that the target RNC has decided to support can not be supported by the CN, then these failed RABs shall not be released towards the target RNC until the relocation is completed.

If the *NAS Synchronisation Indicator* IE is contained in the RELOCATION REQUEST message, the target RNC shall pass it to the UE.

If the *SNA Access Information* IE is contained in the RELOCATION REQUEST message, the target RNC shall store this information and use it to determine whether the UE has access to radio resources in the UTRAN. The target RNC shall consider that the UE is authorised to access only the PLMNs identified by the *PLMN identity* IE in the *SNA Access Information* IE. If the *Authorised SNAs* IE is included for a given PLMN (identified by the *PLMN identity* IE), then the target RNC shall consider that the access to radio resources for the concerned UE is restricted to the LAs contained in the SNAs identified by the *SNAC* IEs.

If the *SNA Access Information* IE is not contained in the RELOCATION REQUEST message, the target RNC shall consider that no access restriction applies to the UE in the UTRAN.

Transmission and reception of a RELOCATION REQUEST ACKNOWLEDGE message terminate the procedure in the UTRAN and in the CN respectively.

Before reporting the successful outcome of the Relocation Resource allocation procedure, the RNC shall have executed the initialisation of the user plane mode as requested by the CN in the *User Plane Mode* IE. If the RNC can not initialise the requested user plane mode for any of the user plane mode versions in the *UP Mode Versions* IE according to the rules for initialisation of the respective user plane mode versions, as described in [6], the RAB Relocation shall fail with the cause value "RNC unable to establish all RFCs".

### 8.7.2.1 Successful Operation for GERAN Iu-mode

The relocation between UTRAN and GERAN Iu-mode shall be considered in the Relocation Resource Allocation procedure as intra-system relocation from RANAP point of view.

For GERAN Iu-mode and to support Relocation towards a GERAN BSC in Iu mode the following shall apply in addition for the successful operation of the Relocation Resource Allocation procedure:

- In case of GERAN Iu-mode, for RAB requested to be relocated from the the CS domain, the RELOCATION REQUEST message may contain the *GERAN BSC Container* IE in order to provide GERAN specific information to the target BSC (see [27]).

## 8.16 Common ID

### 8.16.1 General

The purpose of the Common ID procedure is to inform the RNC about the permanent NAS UE Identity (i.e. IMSI) of a user. This is used by the RNC e.g. to create a reference between the permanent NAS UE identity of the user and the RRC connection of that user for UTRAN paging co-ordination. [The procedure may also be used to provide the SNA Access Information IE to the RNC.](#)

The procedure uses connection oriented signalling.

### 8.16.2 Successful Operation



**Figure 17: Common ID procedure. Successful operation.**

After having established an Iu signalling connection, and if the Permanent NAS UE identity (i.e. IMSI) is available, the CN shall send to the RNC a COMMON ID message containing the *Permanent NAS UE Identity* IE and optionally the *SNA Access Information* IE. The COMMON ID message may also include the *UESBI-Iu* IE. The RNC shall associate the permanent identity to the RRC Connection of that user and shall save it for the duration of the RRC connection.

The RNC shall, if supported, use the *UESBI-Iu* IE when received in the COMMON ID message.

If the *SNA Access Information* IE is contained in the COMMON ID message, the RNC shall store this information and use it to determine whether the UE has access to radio resources in the UTRAN. The RNC shall consider that the UE is authorised to access only the PLMNs identified by the *PLMN identity* IEs in the *SNA Access Information* IE. If the *Authorised SNAs* IE is included for a given PLMN (identified by the *PLMN identity* IE), then the RNC shall consider that the access to radio resources for the concerned UE is restricted to the LAs contained in the SNAs identified by the *SNAC* IEs.

### 8.16.3 Abnormal Conditions

Not applicable.

3GPP TSG-RAN3 Meeting #42  
 Montreal, CANADA, 10<sup>th</sup>-14th May 2004

Tdoc #R3-040931

CR-Form-v7	
<b>CHANGE REQUEST</b>	
# <b>25.413 CR 667</b> # rev <b>1</b> #	Current version: <b>6.1.0</b> #

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

**Proposed change affects:** UICC apps#  ME  Radio Access Network  Core Network

<b>Title:</b>	# SNA Coding Change		
<b>Source:</b>	# RAN3		
<b>Work item code:</b>	# NTshar-UTRANEnh	<b>Date:</b>	# 10/05/2004
<b>Category:</b>	# <b>A</b>	<b>Release:</b>	# REL-6
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

<b>Reason for change:</b>	# Allow the sending of the SNA information in all 2g to 3g relocation scenarios.
<b>Summary of change:</b>	# The possibility to receive the SNA information in the RNC in a subsequent Common-id message after the Relocation Request message is added.  <u>Impact assessment towards the previous version of the specification (same release):</u>  This CR has isolated impact towards the previous version of the specification (same release).  This CR has an impact under functional point of view.  The impact can be considered isolated because it only affects the Relocation Resource Allocation and Common Id functions.
<b>Consequences if not approved:</b>	# If SNA Access Information could not be sent in RELOCATION REQUEST message over E interface, it will not be possible to send it later on in a Common Id message.

<b>Clauses affected:</b>	# 8.7, 8.16
	<input type="checkbox"/> Y <input type="checkbox"/> N

<b>Other specs affected:</b>	⌘	<input checked="" type="checkbox"/>	Other core specifications	⌘	TS25.413 v 5.8.0 CR666
		<input checked="" type="checkbox"/>	Test specifications		
		<input checked="" type="checkbox"/>	O&M Specifications		
<b>Other comments:</b>	⌘				

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

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

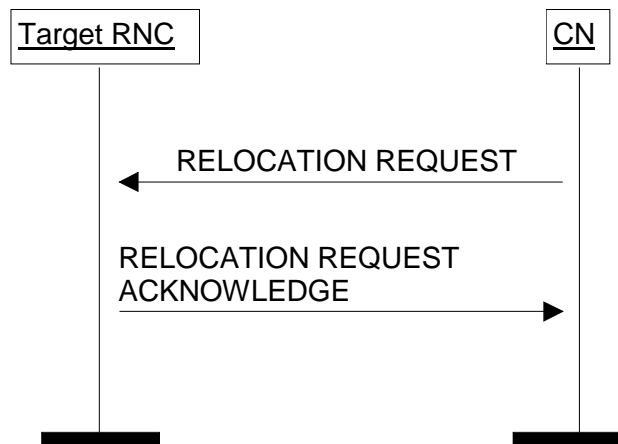
- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 8.7 Relocation Resource Allocation

### 8.7.1 General

The purpose of the Relocation Resource Allocation procedure is to allocate resources from a target RNS for a relocation of SRNS. The procedure shall be co-ordinated over all Iu signalling connections existing for the UE. The procedure uses connection oriented signalling.

### 8.7.2 Successful Operation



**Figure 7: Relocation Resource Allocation procedure. Successful operation.**

The CN initiates the procedure by generating a RELOCATION REQUEST message. In a UTRAN to UTRAN relocation, the message shall contain the information (if any) required by the UTRAN to build the same set of RABs as existing for the UE before the relocation. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

When the CN transmits the RELOCATION REQUEST message, it shall start the timer  $T_{\text{RELOCalloc}}$ .

When a RELOCATION REQUEST message is sent from a CN node towards an RNC for which the sending CN node is not the default CN node, the *Global CN-ID* IE shall be included.

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources.

The RELOCATION REQUEST message shall contain the following IEs:

- *Permanent NAS UE Identity* IE (if available);
- *Cause* IE;
- *CN Domain Indicator* IE;
- *Source RNC To Target RNC Transparent Container* IE;
- *Iu Signalling Connection Identifier* IE;
- *Integrity Protection Information* IE (if available);
- *SNA Access Information* IE (if available);
- *UESBI-Iu* IE (if available).

For each RAB requested to relocate (or to be created e.g. in the case of inter-system handover), the message shall contain the following IEs:



- *RAB-ID* IE;
- *NAS Synchronisation Indicator* IE (if the relevant NAS information is provided by the CN);
- *RAB parameters* IE;
- *User Plane Information* IE;
- *Transport Layer Address* IE;
- *Iu Transport Association* IE;
- *Data Volume Reporting Indication* IE (only for PS);
- *PDP Type Information* IE (only for PS).

The RELOCATION REQUEST message may include the following IE:

- *Encryption Information* IE (shall not be included if the *Integrity Protection Information* IE is not included).

For each RAB requested to relocate the message may include the following IEs:

- *Service Handover* IE;
- *Alternative RAB Parameter Values* IE.

The following information elements received in RELOCATION REQUEST message require the same special actions in the RNC as specified for the same IEs in the RAB Assignment procedure:

- *RAB-ID* IE;
- *User plane Information* IE (i.e. required User Plane Mode and required User Plane Versions);
- *Priority level* IE, *Queuing Allowed* IE, *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE;
- *Service Handover* IE.

The *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *User Plane Mode* IE is set to "support mode for pre-defined SDU sizes" and the *Traffic Class* IE is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters* IE may contain the *Signalling Indication* IE. The *Signalling Indication* IE shall not be present if the *Traffic Class* IE is not set to "Interactive" or if the *CN Domain Indicator* IE is not set to "PS domain".

If the RELOCATION REQUEST message includes the Permanent NAS UE identity (i.e. IMSI), the RNC shall associate the permanent identity to the RRC Connection of that user and shall save it for the duration of the RRC connection.

If the RELOCATION REQUEST message includes the *PDP Type Information* IE, the UTRAN may use this IE to configure any compression algorithms.

The *Cause* IE shall contain the same value as the one received in the related RELOCATION REQUIRED message.

The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN. The value for the *Iu Signalling Connection Identifier* IE shall be allocated so as to uniquely identify an Iu signalling connection for the involved CN node. The RNC shall store and remember this identifier for the duration of the Iu connection.

The RNC shall, if supported, use the *UESBI-Iu* IE when included in the RELOCATION REQUEST message.

The algorithms within the *Integrity Protection Information* IE and the *Encryption Information* IE shall be ordered in preferred order with the most preferred first in the list.

The *Permitted Encryption Algorithms* IE within the *Encryption Information* IE may contain "no encryption" within an element of its list in order to allow the RNC not to cipher the respective connection. This can be done either by not

starting ciphering or by using the UEA0 algorithm. In the absence of the *Encryption Information IE*, the RNC shall not start ciphering.

In case of intra-system relocation, if no *Integrity Protection Key IE* (*Ciphering Key IE* respectively) is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC shall not start integrity protection (ciphering respectively).

In case of intra-system relocation, when an *Ciphering Key IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC may select to use a ciphering alternative where an algorithm is used. It shall in this case make use of this key to cipher its signalling data whatever the selected algorithm. The *Encryption Key IE* that is contained within the *Encryption Information IE* of the RELOCATION REQUEST message shall never be considered for ciphering of signalling data.

In case of intra-system relocation, when an *Integrity Protection Key IE* is provided within the *Source RNC to Target RNC Transparent Container IE*, the target RNC shall select one integrity algorithm to start integrity and shall in this case make use of this key whatever the selected algorithm. The integrity protection key that is contained within the *Integrity Protection Information IE* of the RELOCATION REQUEST message shall never be considered.

In case of inter-system relocation, the integrity protection and ciphering information to be considered shall be the ones received in the *Integrity Protection Information IE* and *Encryption Information IE* of the RELOCATION REQUEST message.

The *Global CN-ID IE* contains the identity of the CN node that sent the RELOCATION REQUEST message, and it shall, if included, be stored together with the Iu signalling connection identifier. If the *Global CN-ID IE* is not included, the RELOCATION REQUEST message shall be considered as coming from the default CN node for the indicated CN domain.

The following additional actions shall be executed in the target RNC during the Relocation Resource Allocation procedure:

If the *Relocation Type IE* is set to "UE involved in relocation of SRNS":

- The target RNC may accept a requested RAB only if the RAB can be supported by the target RNC.
- Other RABs shall be rejected by the target RNC in the RELOCATION REQUEST ACKNOWLEDGE message with an appropriate value in the *Cause IE*, e.g. "Unable to Establish During Relocation".
- The target RNC shall include information adapted to the resulting RAB configuration in the target to source RNC transparent container to be included in the RELOCATION REQUEST ACKNOWLEDGE message sent to the CN. If the target RNC supports triggering of the Relocation Detect procedure via the Iur interface, the RNC shall assign a d-RNTI for the context of the relocation and include it in the container. If two CNs are involved in the relocation of SRNS, the target RNC may, however, decide to send the container to only one CN.
- If any alternative RAB parameter values have been used when allocating the resources, these RAB parameter values shall be included in the RELOCATION REQUEST ACKNOWLEDGE message within the *Assigned RAB Parameter Values IE*.

If the *Relocation Type IE* is set to "UE not involved in relocation of SRNS":

- The target RNC may accept a RAB only if the radio bearer(s) for the RAB either exist(s) already and can be used for the RAB by the target RNC, or do(es) not exist before the relocation but can be established in order to support the RAB in the target RNC.
- If existing radio bearers are not related to any RAB that is accepted by the target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by the radio interface protocols after completion of relocation of SRNS.
- If any alternative RAB parameter values have been used when allocating the resources, these RAB parameter values shall be included in the RELOCATION REQUEST ACKNOWLEDGE message within the *Assigned RAB Parameter Values IE*. It should be noted that the usage of alternative RAB parameter values is not applicable to the UTRAN initiated relocation of type "UE not involved in relocation of SRNS".

After all necessary resources for accepted RABs including the initialised Iu user plane, are successfully allocated, the target RNC shall send a RELOCATION REQUEST ACKNOWLEDGE message to the CN.

For each RAB successfully setup the RNC shall include the following IEs:

- *RAB ID*
- *Transport Layer Address* (when no ALCAP has been used)
- *Iu Transport Association* (when no ALCAP has been used)

Two pairs of *Transport Layer Address* IE and *Iu Transport Association* IE may be included for RABs established towards the PS domain.

For each RAB the RNC is not able to setup during the Relocation Resource Allocation procedure, the RNC shall include the *RAB ID* IE and the *Cause* IE within the *RABs Failed To Setup* IE. The resources associated with the RABs indicated as failed to set up shall not be released in the CN until the relocation is completed. This is in order to make a return to the old configuration possible in case of a failed or cancelled relocation.

The RELOCATION REQUEST ACKNOWLEDGE message sent to the CN shall, if applicable and if not sent via the other CN domain, include the *Target RNC To Source RNC Transparent Container* IE. This container shall be transferred by the CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

If the target RNC supports cell load-based inter-system handover, then in the case of inter-system handover, the *New BSS to Old BSS Information* IE may be included in the RELOCATION REQUEST ACKNOWLEDGE message. This information shall include, if available, the current traffic load in the target cell assuming a successful completion of the handover in progress.

In case of inter-system relocation, the RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Information* IE (*Encryption Information* IE respectively) was included in the RELOCATION REQUEST message.

In case of intra-system relocation, the RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Key* IE (*Ciphering Key* IE respectively) was included within the *Source RNC-to-Target RNC transparent container* IE.

If one or more of the RABs that the target RNC has decided to support can not be supported by the CN, then these failed RABs shall not be released towards the target RNC until the relocation is completed.

If the *NAS Synchronisation Indicator* IE is contained in the RELOCATION REQUEST message, the target RNC shall pass it to the UE.

If the *SNA Access Information* IE is contained in the RELOCATION REQUEST message, the target RNC shall store this information and use it to determine whether the UE has access to radio resources in the UTRAN. The target RNC shall consider that the UE is authorised to access only the PLMNs identified by the *PLMN identity* IE in the *SNA Access Information* IE. If the *Authorised SNAs* IE is included for a given PLMN (identified by the *PLMN identity* IE), then the target RNC shall consider that the access to radio resources for the concerned UE is restricted to the LAs contained in the SNAs identified by the *SNAC* IEs.

If the *SNA Access Information* IE is not contained in the RELOCATION REQUEST message, the target RNC shall consider that no access restriction applies to the UE in the UTRAN.

Transmission and reception of a RELOCATION REQUEST ACKNOWLEDGE message terminate the procedure in the UTRAN and in the CN respectively.

Before reporting the successful outcome of the Relocation Resource allocation procedure, the RNC shall have executed the initialisation of the user plane mode as requested by the CN in the *User Plane Mode* IE. If the RNC can not initialise the requested user plane mode for any of the user plane mode versions in the *UP Mode Versions* IE according to the rules for initialisation of the respective user plane mode versions, as described in [6], the RAB Relocation shall fail with the cause value "RNC unable to establish all RFCs".

### 8.7.2.1 Successful Operation for GERAN Iu-mode

The relocation between UTRAN and GERAN Iu-mode shall be considered in the Relocation Resource Allocation procedure as intra-system relocation from RANAP point of view.

For GERAN Iu-mode and to support Relocation towards a GERAN BSC in Iu mode the following shall apply in addition for the successful operation of the Relocation Resource Allocation procedure:

- In case of GERAN Iu-mode, for RAB requested to be relocated from the CS domain, the RELOCATION REQUEST message may contain the *GERAN BSC Container* IE in order to provide GERAN specific information to the target BSC (see [27]).

## 8.16 Common ID

### 8.16.1 General

The purpose of the Common ID procedure is to inform the RNC about the permanent NAS UE Identity (i.e. IMSI) of a user. This is used by the RNC e.g. to create a reference between the permanent NAS UE identity of the user and the RRC connection of that user for UTRAN paging co-ordination. [The procedure may also be used to provide the SNA Access Information IE to the RNC.](#)

The procedure uses connection oriented signalling.

### 8.16.2 Successful Operation



**Figure 17: Common ID procedure. Successful operation.**

After having established an Iu signalling connection, and if the Permanent NAS UE identity (i.e. IMSI) is available, the CN shall send to the RNC a COMMON ID message containing the *Permanent NAS UE Identity* IE and optionally the *SNA Access Information* IE. The COMMON ID message may also include the *UESBI-Iu* IE. The RNC shall associate the permanent identity to the RRC Connection of that user and shall save it for the duration of the RRC connection.

The RNC shall, if supported, use the *UESBI-Iu* IE when received in the COMMON ID message.

If the *SNA Access Information* IE is contained in the COMMON ID message, the RNC shall store this information and use it to determine whether the UE has access to radio resources in the UTRAN. The RNC shall consider that the UE is authorised to access only the PLMNs identified by the *PLMN identity* IEs in the *SNA Access Information* IE. If the *Authorised SNAs* IE is included for a given PLMN (identified by the *PLMN identity* IE), then the RNC shall consider that the access to radio resources for the concerned UE is restricted to the LAs contained in the SNAs identified by the *SNAC* IEs.

### 8.16.3 Abnormal Conditions

Not applicable.

## CHANGE REQUEST

⌘ **25.413 CR 671** ⌘ rev **-** ⌘ Current version: **5.8.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

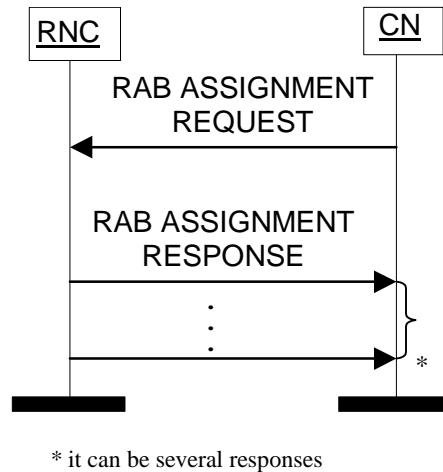
<b>Title:</b>	⌘ Correction of Transport Layer Address and lu Transport Association handling in RAB Assignment		
<b>Source:</b>	⌘ RAN3		
<b>Work item code:</b>	⌘ TEI5 <span style="float: right;"><b>Date:</b> ⌘ 04/05/2004</span>		
<b>Category:</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">                 ⌘ <b>F</b>                  Use <u>one</u> of the following categories:  <b>F</b> (correction)  <b>A</b> (corresponds to a correction in an earlier release)  <b>B</b> (addition of feature),  <b>C</b> (functional modification of feature)  <b>D</b> (editorial modification)                  Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a>.             </td> <td style="width: 50%; vertical-align: top;"> <b>Release:</b> ⌘ Rel-5                  Use <u>one</u> of the following releases:                  2 (GSM Phase 2)                  R96 (Release 1996)                  R97 (Release 1997)                  R98 (Release 1998)                  R99 (Release 1999)                  Rel-4 (Release 4)                  Rel-5 (Release 5)                  Rel-6 (Release 6)             </td> </tr> </table>	⌘ <b>F</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Release:</b> ⌘ Rel-5 Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)
⌘ <b>F</b> Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Release:</b> ⌘ Rel-5 Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)		

<b>Reason for change:</b>	⌘ The procedure text in RAB Assignment is corrected regarding the presence of the <i>Transport Layer Address</i> and the <i>lu Transport Association</i> in RAB ASSIGNMENT RESPONSE towards the CS domain when ALCAP is not used.
<b>Summary of change:</b>	⌘ Successful RAB establishment towards the CS domain when an ALCAP is not used is described in connection with the successful establishment towards the PS domain.  <u>Impact assessment towards the previous version of the specification (same release):</u>  This CR has an isolated impact towards the previous version of the specification (same release) if the RNC behaviour is not in line with this correction. This CR has an impact under protocol point of view. The impact can be considered isolated because it only affects one message in RANAP.
<b>Consequences if not approved:</b>	⌘ The specification remains ambiguous, potentially leading to interoperability problems

<b>Clauses affected:</b>	⌘ 8.2.2.										
<b>Other specs affected:</b>	<table border="1" style="border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> </table>	Y	N	X			X		X	Other core specifications Test specifications O&M Specifications	⌘ TS 25.413v6.0.0 CR672
Y	N										
X											
	X										
	X										
<b>Other comments:</b>	⌘										

<< unaffected parts have been omitted >>

## 8.2.2 Successful Operation



**Figure 1: RAB Assignment procedure. Successful operation.**

The CN initiates the procedure by sending a RAB ASSIGNMENT REQUEST message. When sending the RAB ASSIGNMENT REQUEST message, the CN shall start the  $T_{RABAssgt}$  timer.

The CN may request the UTRAN to:

- establish,
- modify,
- release

one or several RABs with one RAB ASSIGNMENT REQUEST message.

The CN shall include in the RAB ASSIGNMENT REQUEST message at least one request to either establish/modify or release a RAB.

The message shall contain the information required by the UTRAN to build the new RAB configuration, such as:

- list of RABs to establish or modify with their bearer characteristics;
- list of RABs to release.

For each RAB requested to be established, the message shall contain:

- RAB ID;
- NAS Synchronisation Indicator (only when available);
- RAB parameters (including e.g. Allocation/Retention Priority);
- User Plane Information (i.e. required User Plane Mode and required UP Mode Versions);
- Transport Layer Information;
- PDP Type Information (only for PS);
- Data Volume Reporting Indication (only for PS);

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- DL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]);
- UL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]).

For each RAB requested to be modified, the message may contain:

- RAB ID (mandatory);
- NAS Synchronisation Indicator;
- RAB parameters;
- Transport Layer Information;
- User Plane Information.

The *Transport Layer Information* IE may be present at a RAB modification except in the case when the only other present IE, besides the *RAB ID* IE, is the *NAS Synchronisation Indicator* IE.

At a RAB modification that does not include transfer of the *NAS Synchronisation Indicator* IE, the *RAB Parameters* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

At a RAB modification, the *User Plane Information* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

For a RAB setup, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *User Plane Mode* IE is set to "support mode for pre-defined SDU sizes" and the *Traffic Class* IE is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters* IE may contain the *Signalling Indication* IE. The *Signalling Indication* IE shall not be present if the *Traffic Class* IE is not set to "Interactive" or if the *CN Domain Indicator* IE is not set to "PS domain".

If the *RAB Parameters* IE is present for a RAB modification, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *Traffic Class* IE is set to either "Conversational" or "Streaming" and if

- either the User Plane mode is currently "support mode for pre-defined SDU sizes" and the *User Plane Mode* IE is not contained in the RAB ASSIGNMENT REQUEST message
- or if the *User Plane Mode* IE optionally contained within the RAB ASSIGNMENT REQUEST message is set to "support mode for pre-defined SDU sizes".

If, for a RAB requested to be modified, one (or more) of these IEs except *RAB ID* IE are not present in the RAB ASSIGNMENT REQUEST message the RNC shall continue to use the value(s) currently in use for the not present IEs.

For each RAB requested to be released, the message shall contain:

- RAB ID;
- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message, the UTRAN shall execute the requested RAB configuration. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT REQUEST message.



The RAB ID shall uniquely identify the RAB for the specific CN domain and for the particular UE, which makes the RAB ID unique over the Iu connection on which the RAB ASSIGNMENT REQUEST message is received. When a RAB ID already in use over that particular Iu instance is used, the procedure is considered as modification of that RAB.

The RNC shall pass the contents of the *RAB ID* IE to the radio interface protocol for each RAB requested to be established or modified.

The RNC shall establish or modify the resources according to the values of the *Allocation/Retention Priority* IE (priority level, pre-emption indicators, queuing) and the resource situation as follows:

- The RNC shall consider the priority level of the requested RAB, when deciding on the resource allocation.
- If the requested RAB is allowed for queuing and the resource situation requires so, the RNC may place the RAB in the establishment queue.
- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the RAB assignment has to be performed unconditionally and immediately. If the requested RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the RAB ASSIGNMENT REQUEST message, shall be treated as follows:
  1. The values of the last received *Pre-emption Vulnerability* IE and *Priority Level* IE shall prevail.
  2. If the *Pre-emption Capability* IE is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure.
  3. If the *Pre-emption Capability* IE is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.
  4. If the *Pre-emption Vulnerability* IE is set to "pre-emptable", then this connection shall be included in the pre-emption process.
  5. If the *Pre-emption Vulnerability* IE is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.
  6. If the *Priority Level* IE is set to "no priority" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.
- If the *Allocation/Retention Priority* IE is not given in the RAB ASSIGNMENT REQUEST message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.
- The UTRAN pre-emption process shall keep the following rules:
  1. UTRAN shall only pre-empt RABs with lower priority, in ascending order of priority.
  2. The pre-emption may be done for RABs belonging to the same UE or to other UEs.

If the *NAS Synchronisation Indicator* IE is contained in the RAB ASSIGNMENT REQUEST message, the RNC shall pass it to the radio interface protocol for transfer to the UE.

If the RAB ASSIGNMENT REQUEST message includes the *PDP Type Information* IE, the UTRAN may use it to configure any compression algorithms.

If included, the *Service Handover* IE tells if the RAB

- should be handed over to GSM, i.e. from a NAS point of view, the RAB should be handed over to GSM as soon as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.
- should not be handed over to GSM, i.e. from a NAS point of view, the RAB should remain in UMTS as long as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.

- shall not be handed over to GSM, i.e. the RAB shall never be handed over to GSM. This means that the UTRAN shall not initiate handover to GSM for the UE unless the RABs with this indication have first been released with the normal release procedures.

The value of the *Service Handover* IE is valid throughout the lifetime of the RAB or until changed by a RAB modification.

The *Service Handover* IE shall only influence decisions made regarding UTRAN-initiated inter-system handovers.

If the *Service Handover* IE is not included, the decision whether to perform an inter-system handover to GSM is only an internal UTRAN matter.

The UTRAN shall report to the CN, in the first RAB ASSIGNMENT RESPONSE message, the result for all the requested RABs, such as:

- List of RABs successfully established or modified.
- List of RABs released.
- List of RABs queued.
- List of RABs failed to establish or modify.
- List of RABs failed to release.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT RESPONSE message.

For each RAB successfully established towards the PS domain [or towards the CS domain when an ALCAP is not used](#), the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully modified or released towards the PS domain, for which data volume reporting has been requested, the RNC shall include the *DL Data Volumes* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully released towards the PS domain, the RNC shall include in the RAB ASSIGNMENT RESPONSE message the *DL GTP-PDU Sequence Number* IE and the *UL GTP-PDU Sequence Number* IE, if available and if the release was initiated by the UTRAN.

The RNC shall report in the RAB ASSIGNMENT RESPONSE message at least one RAB:

- setup/modified or
- released or
- queued or
- failed to setup/modify or
- failed to release.

If any alternative RAB parameter values have been used when establishing or modifying a RAB, these RAB parameter values shall be included in the RAB ASSIGNMENT RESPONSE message within the *Assigned RAB Parameter Values* IE.

For the CS domain, when an ALCAP is used, UTRAN shall report the successful outcome of a specific RAB to establish or modify only after the Iu user plane at RNL level is ready to be used in UL and DL. At a RAB establishment, the transport network control plane signalling required to set up the transport bearer shall use the *Transport Layer Address* IE and *Iu Transport Association* IE. At a RAB modification when *Transport Layer Address* (IE) and *Iu Transport Association* IEs are included, the RNC shall establish a new transport bearer. The transport network control plane signalling shall then use the included *Transport Layer Address* IE and *Iu Transport Association* IE. Then the switch over to this new transport bearer shall be done immediately after transport bearer establishment and initialisation of the user plane mode. If *Transport Layer Address* (IE) and *Iu Transport Association* IEs are not included, then the RNC may modify the already existing transport bearer.

For the PS domain or for the CS domain when an ALCAP is not used, for each RAB successfully modified ~~towards the PS domain~~, if the RNC has changed the *Transport Layer Address* IE and/or the *Iu Transport Association* IE, it shall include the new value(s) in the RAB ASSIGNMENT RESPONSE message.

Before reporting the successful outcome of a specific RAB to establish or modify, the RNC shall have executed the initialisation of the user plane, if necessary.

**<< end >>**

## CHANGE REQUEST

⌘ **25.413 CR 672** ⌘ rev **-** ⌘ Current version: **6.1.0** ⌘

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

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

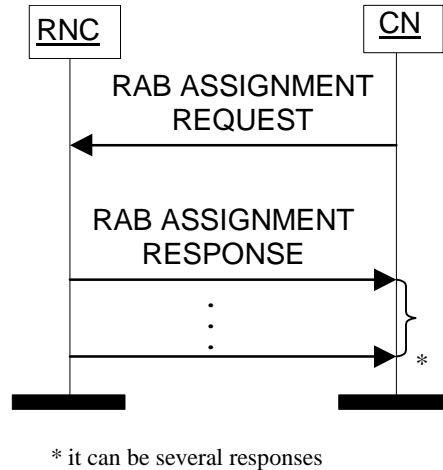
<b>Title:</b>	⌘ Correction of Transport Layer Address and lu Transport Association handling in RAB Assignment		
<b>Source:</b>	⌘ RAN3		
<b>Work item code:</b>	⌘ TEI5	<b>Date:</b>	⌘ 04/05/2004
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-6
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The procedure text in RAB Assignment is corrected regarding the presence of the <i>Transport Layer Address</i> and the <i>lu Transport Association</i> in RAB ASSIGNMENT RESPONSE towards the CS domain when ALCAP is not used.
<b>Summary of change:</b>	⌘ Successful RAB establishment towards the CS domain when an ALCAP is not used is described in connection with the successful establishment towards the PS domain.
	<u>Impact assessment towards the previous version of the specification (same release):</u>  This CR has an isolated impact towards the previous version of the specification (same release) if the RNC behaviour is not in line with this correction. This CR has an impact under protocol point of view. The impact can be considered isolated because it only affects one message in RANAP.
<b>Consequences if not approved:</b>	⌘ The specification remains ambiguous, potentially leading to interoperability problems

<b>Clauses affected:</b>	⌘ 8.2.2.										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	⌘ TS 25.413 CR671	
Y	N										
X											
	X										
	X										
<b>Other comments:</b>	⌘										

<< unaffected parts have been omitted >>

## 8.2.2 Successful Operation



**Figure 1: RAB Assignment procedure. Successful operation.**

The CN initiates the procedure by sending a RAB ASSIGNMENT REQUEST message. When sending the RAB ASSIGNMENT REQUEST message, the CN shall start the  $T_{\text{RABAssgt}}$  timer.

The CN may request the UTRAN to:

- establish,
- modify,
- release

one or several RABs with one RAB ASSIGNMENT REQUEST message.

The CN shall include in the RAB ASSIGNMENT REQUEST message at least one request to either establish/modify or release a RAB.

The message shall contain the information required by the UTRAN to build the new RAB configuration, such as:

- list of RABs to establish or modify with their bearer characteristics;
- list of RABs to release.

For each RAB requested to be established, the message shall contain:

- RAB ID;
- NAS Synchronisation Indicator (only when available);
- RAB parameters (including e.g. Allocation/Retention Priority);
- User Plane Information (i.e. required User Plane Mode and required UP Mode Versions);
- Transport Layer Information;
- PDP Type Information (only for PS);
- Data Volume Reporting Indication (only for PS);

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of intersystem change from GPRS to UMTS or when establishing a RAB for an existing PDP context or in some further cases described in [21]);
- DL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]);
- UL N-PDU sequence number (only when N-PDU sequence number is available in case of intersystem change from GPRS to UMTS or in some further cases described in [21]).

For each RAB requested to be modified, the message may contain:

- RAB ID (mandatory);
- NAS Synchronisation Indicator;
- RAB parameters;
- Transport Layer Information;
- User Plane Information.

The *Transport Layer Information* IE may be present at a RAB modification except in the case when the only other present IE, besides the *RAB ID* IE, is the *NAS Synchronisation Indicator* IE.

At a RAB modification that does not include transfer of the *NAS Synchronisation Indicator* IE, the *RAB Parameters* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

At a RAB modification, the *User Plane Information* IE shall be present in the RAB ASSIGNMENT REQUEST message only when any previously set value for this IE is requested to be modified.

For a RAB setup, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *User Plane Mode* IE is set to "support mode for pre-defined SDU sizes" and the *Traffic Class* IE is set to either "Conversational" or "Streaming".

For a RAB setup, the *RAB Parameters* IE may contain the *Signalling Indication* IE. The *Signalling Indication* IE shall not be present if the *Traffic Class* IE is not set to "Interactive" or if the *CN Domain Indicator* IE is not set to "PS domain".

If the *RAB Parameters* IE is present for a RAB modification, the *SDU Format Information Parameter* IE in the *RAB Parameters* IE shall be present only if the *Traffic Class* IE is set to either "Conversational" or "Streaming" and if

- either the User Plane mode is currently "support mode for pre-defined SDU sizes" and the *User Plane Mode* IE is not contained in the RAB ASSIGNMENT REQUEST message
- or if the *User Plane Mode* IE optionally contained within the RAB ASSIGNMENT REQUEST message is set to "support mode for pre-defined SDU sizes".

If, for a RAB requested to be modified, one (or more) of these IEs except *RAB ID* IE are not present in the RAB ASSIGNMENT REQUEST message the RNC shall continue to use the value(s) currently in use for the not present IEs.

For each RAB requested to be released, the message shall contain:

- RAB ID;
- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message, the UTRAN shall execute the requested RAB configuration. The CN may indicate that RAB QoS negotiation is allowed for certain RAB parameters and in some cases also which alternative values to be used in the negotiation.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT REQUEST message.

The RAB ID shall uniquely identify the RAB for the specific CN domain and for the particular UE, which makes the RAB ID unique over the Iu connection on which the RAB ASSIGNMENT REQUEST message is received. When a RAB ID already in use over that particular Iu instance is used, the procedure is considered as modification of that RAB.

The RNC shall pass the contents of the *RAB ID IE* to the radio interface protocol for each RAB requested to be established or modified.

The RNC shall establish or modify the resources according to the values of the *Allocation/Retention Priority IE* (priority level, pre-emption indicators, queuing) and the resource situation as follows:

- The RNC shall consider the priority level of the requested RAB, when deciding on the resource allocation.
- If the requested RAB is allowed for queuing and the resource situation requires so, the RNC may place the RAB in the establishment queue.
- The priority levels and the pre-emption indicators may (singularly or in combination) be used to determine whether the RAB assignment has to be performed unconditionally and immediately. If the requested RAB is marked as "may trigger pre-emption" and the resource situation requires so, the RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB which is marked as "pre-emptable". Whilst the process and the extent of the pre-emption procedure is operator-dependent, the pre-emption indicators, if given in the RAB ASSIGNMENT REQUEST message, shall be treated as follows:
  1. The values of the last received *Pre-emption Vulnerability IE* and *Priority Level IE* shall prevail.
  2. If the *Pre-emption Capability IE* is set to "may trigger pre-emption", then this allocation request may trigger the pre-emption procedure.
  3. If the *Pre-emption Capability IE* is set to "shall not trigger pre-emption", then this allocation request shall not trigger the pre-emption procedure.
  4. If the *Pre-emption Vulnerability IE* is set to "pre-emptable", then this connection shall be included in the pre-emption process.
  5. If the *Pre-emption Vulnerability IE* is set to "not pre-emptable", then this connection shall not be included in the pre-emption process.
  6. If the *Priority Level IE* is set to "no priority" the given values for the *Pre-emption Capability IE* and *Pre-emption Vulnerability IE* shall not be considered. Instead the values "shall not trigger pre-emption" and "not pre-emptable" shall prevail.
- If the *Allocation/Retention Priority IE* is not given in the RAB ASSIGNMENT REQUEST message, the allocation request shall not trigger the pre-emption process and the connection may be pre-empted and considered to have the value "lowest" as priority level. Moreover, queuing shall not be allowed.
- The UTRAN pre-emption process shall keep the following rules:
  1. UTRAN shall only pre-empt RABs with lower priority, in ascending order of priority.
  2. The pre-emption may be done for RABs belonging to the same UE or to other UEs.

If the *NAS Synchronisation Indicator IE* is contained in the RAB ASSIGNMENT REQUEST message, the RNC shall pass it to the radio interface protocol for transfer to the UE.

If the RAB ASSIGNMENT REQUEST message includes the *PDP Type Information IE*, the UTRAN may use it to configure any compression algorithms.

If included, the *Service Handover IE* tells if the RAB

- should be handed over to GSM, i.e. from a NAS point of view, the RAB should be handed over to GSM as soon as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.
- should not be handed over to GSM, i.e. from a NAS point of view, the RAB should remain in UMTS as long as possible although the final decision whether to perform a handover to GSM is still made in the UTRAN.

- shall not be handed over to GSM, i.e. the RAB shall never be handed over to GSM. This means that the UTRAN shall not initiate handover to GSM for the UE unless the RABs with this indication have first been released with the normal release procedures.

The value of the *Service Handover* IE is valid throughout the lifetime of the RAB or until changed by a RAB modification.

The *Service Handover* IE shall only influence decisions made regarding UTRAN-initiated inter-system handovers.

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The UTRAN shall report to the CN, in the first RAB ASSIGNMENT RESPONSE message, the result for all the requested RABs, such as:

- List of RABs successfully established or modified.
- List of RABs released.
- List of RABs queued.
- List of RABs failed to establish or modify.
- List of RABs failed to release.

The same RAB ID shall only be present once in the whole RAB ASSIGNMENT RESPONSE message.

For each RAB successfully established towards the PS domain [or towards the CS domain when an ALCAP is not used](#), the RNC shall include the *Transport Layer Address* IE and the *Iu Transport Association* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully modified or released towards the PS domain, for which data volume reporting has been requested, the RNC shall include the *DL Data Volumes* IE in the RAB ASSIGNMENT RESPONSE message.

For each RAB successfully released towards the PS domain, the RNC shall include in the RAB ASSIGNMENT RESPONSE message the *DL GTP-PDU Sequence Number* IE and the *UL GTP-PDU Sequence Number* IE, if available and if the release was initiated by the UTRAN.

The RNC shall report in the RAB ASSIGNMENT RESPONSE message at least one RAB:

- setup/modified or
- released or
- queued or
- failed to setup/modify or
- failed to release.

If any alternative RAB parameter values have been used when establishing or modifying a RAB, these RAB parameter values shall be included in the RAB ASSIGNMENT RESPONSE message within the *Assigned RAB Parameter Values* IE.

For the CS domain, when an ALCAP is used, UTRAN shall report the successful outcome of a specific RAB to establish or modify only after the Iu user plane at RNL level is ready to be used in UL and DL. At a RAB establishment, the transport network control plane signalling required to set up the transport bearer shall use the *Transport Layer Address* IE and *Iu Transport Association* IE. At a RAB modification when *Transport Layer Address* (IE) and *Iu Transport Association* IEs are included, the RNC shall establish a new transport bearer. The transport network control plane signalling shall then use the included *Transport Layer Address* IE and *Iu Transport Association* IE. Then the switch over to this new transport bearer shall be done immediately after transport bearer establishment and initialisation of the user plane mode. If *Transport Layer Address* (IE) and *Iu Transport Association* IEs are not included, then the RNC may modify the already existing transport bearer.



For the PS domain or for the CS domain when an ALCAP is not used, for each RAB successfully modified ~~towards the PS domain~~, if the RNC has changed the *Transport Layer Address* IE and/or the *Iu Transport Association* IE, it shall include the new value(s) in the RAB ASSIGNMENT RESPONSE message.

Before reporting the successful outcome of a specific RAB to establish or modify, the RNC shall have executed the initialisation of the user plane, if necessary.

**<< end >>**