TSG-RAN Meeting #10
Bangkok, Thailand, 6 - 8 December 2000

TSGRP#10(00)0612

Title: **Agreed CRs to TS 25.413**

Source: **TSG-RAN WG3**

Agenda item: 5.3.3

Tdoc_Num	Specification	CR_Num	Revision_Nu	CR_Subject	CR_Categor	WG_Status	Cur_Ver_Nu	New_Ver_Nu
R3-002488	25.413	185		Clarify the direction of LAI, RAC and SAI IEs in DIRECT	F	agreed	3.3.0	3.3.0
R3-002828	25.413	186	1	Correction of the behaviour of the Error Indication	F	agreed	3.3.0	3.4.0
R3-002829	25.413	187	1	Clarification of Location Report Procedure	F	agreed	3.3.0	3.4.0
R3-002830	25.413	188	1	Transfer Syntax Error description in RANAP	F	agreed	3.3.0	3.4.0
R3-002710	25.413	189	1	Handling of the optional IEs inside the Criticality	F	agreed	3.3.0	3.4.0
R3-002525	25.413	190		Protocol specification principles	F	agreed	3.3.0	3.4.0
R3-002556	25.413	191		Editorial Corrections	D	agreed	3.3.0	3.4.0
R3-002783	25.413	194	1	Handling Unknown Signalling Connection Identifiers in	F	agreed	3.3.0	3.4.0
R3-003223	25.413	195	2	Usage of cause values in RANAP	F	agreed	3.3.0	3.4.0
R3-002867	25.413	196	1	Reducing the maximum number of signalling	F	agreed	3.3.0	3.4.0
R3-002784	25.413	197	1	Correction to the initiation of Relocation Cancel	F	agreed	3.3.0	3.4.0
R3-002597	25.413	198		RRC container references	F	agreed	3.3.0	3.4.0

R3-002598	25.413	199		Description of Target Cell ID	F	agreed	3.3.0	3.4.0
R3-002812	25.413	201	1	Cause values not only for RAB modification	F	agreed	3.3.0	3.4.0
R3-002813	25.413	203	1	RAB assignment response after successful Initialisation	F	agreed	3.3.0	3.4.0
R3-003171	25.413	204	1	Clarification of DRX Cycle Length Coefficient range	F	agreed	3.3.0	3.4.0
R3-002912	25.413	205	2	RAB configuration at modification	F	agreed	3.3.0	3.4.0
R3-003295	25.413	206	3	Service based inter-system handover	F	agreed	3.3.0	3.4.0
R3-002712	25.413	207	1	Clarification on rules for assigning criticality/presence	F	agreed	3.3.0	3.4.0
R3-003209	25.413	210	2	Directed Retry UMTS->GS	F	agreed	3.3.0	3.4.0

CHANGE REQUEST

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25.413	**CR**	**185**		Current Version:	**3.3.0**	

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to: **TSG-RAN#10**   for approval **X**   Strategic ☐   *(for SMG*
list expected approval meeting # here   for information ☐   non-strategic ☐   *use only)*
↑

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Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3	**Date:**	October, 2000

Subject: Clarify the direction of LAI, RAC and SAI IEs in DIRECT TRANSFER message in tabular

Work item:

Category:
(only one category shall be marked with an X)

			Release:	
F	Correction	**X**	Phase 2	
A	Corresponds to a correction in an earlier release		Release 96	
B	Addition of feature		Release 97	
C	Functional modification of feature		Release 98	
D	Editorial modification		Release 99	**X**
			Release 00	

Reason for change:

In current desciption of the text procedure in chapter 8.23.2.2 for Direct Transfer procedure, the LAI, RAC and SAI IEs are shown as the direction from RNC to the PS domain, however the condition table does not show clearly. This CR is to provide the clarification of the condition table to show that the LAI, RAC and SAI IEs are only for uplink direction, i.e. from RNC to PS domain in DIRECT TRANSFER message.

If this is not implemented, there may be a misunderstanding of the direction of these IEs in DIRECT TRANSFER message.

There is no backward impact by this CR.

Clauses affected: 9.1.34

Other specs affected:

Other 3G core specifications	☐ → List of CRs:	
Other GSM core specifications	☐ → List of CRs:	
MS test specifications	☐ → List of CRs:	
BSS test specifications	☐ → List of CRs:	
O&M specifications	☐ → List of CRs:	

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

9.1.34 DIRECT TRANSFER

This message is sent by both the CN and the RNC and is used for carrying NAS information over the Iu interface.

Direction: RNC → CN and CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
NAS-PDU	M		9.2.3.5		YES	ignore
LAI	C – ifPS2CN		9.2.3.6		YES	ignore
RAC	C – ifPS2CN		9.2.3.7		YES	ignore
SAI	C – ifPS2CN		9.2.3.9		YES	ignore
SAPI	C – ifDL		9.2.3.8		YES	ignore

Condition	Explanation
IfPS2CN	This IE is only present if the message is directed to the PS domain in uplink direction.
IfDL	This IE is always used in downlink direction.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	**CR**	**186r1**	Current Version:	**3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to: **TSG-RAN#10**   for approval **X**   Strategic ☐   *(for SMG*
list expected approval meeting # here   For information ☐   non-strategic ☐   *use only)*
               ↑

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source: R-WG3   **Date:** October, 2000

Subject: Correction of the behaviour of the Error Indication

Work item:

Category: F   Correction   **X**   **Release:**   Phase 2   ☐
             A   Corresponds to a correction in an earlier release   ☐   Release 96   ☐
(only one category   B   Addition of feature   ☐   Release 97   ☐
shall be marked   C   Functional modification of feature   ☐   Release 98   ☐
with an X)   D   Editorial modification   ☐   Release 99   **X**
                                                                    Release 00   ☐

Reason for change: A CR was approved in the last N4 meeting to change the Error Indication message from GTP-C to GTP-U in 29.060. The CR number is 141r2 and the tdoc is N4-000733. The reason of changing is that once miss delivery is detected in GSN, it's hard to find the appropriate destination C-plane address of the remote node that to be returned to and also what is the proper C-plane address in a node to sent from. From the Iu interface point of view, the problem may exist as well. This is because the Iu interface can be a IP backbone and therefore it is hard for the SGSN or the RNC to know the unidentified packet (e.g. invalid TEID) initiator if it is received.

Moreover for the case of G-PDU forwarding during Relocation, the SRNC transfer the G-PDU to the DRNC via SGSN, the SGNS is an router and if the RNC send a ERROR INDICATION to the SGSN, it will not help anything. In fact, it is simple to set the ERROR INDICATION message in GTP-U because one more reason is that the receiving node can derive the source address from the IP header and send the GTP-C Error Indication message to the initiating node. This is the simplest way.

If this CR is not approved, there will be inconsistency between 29.060 and 25.413.

N4-000733(2906
41r2).doc

Clauses affected: 8.27.2, 9.1.41, 9.2.1.4, 9.3.3, 9.3.4

Other specs affected: Other 3G core specifications   **X**   → List of CRs: 29.060CR141r2
                 Other GSM core   ☐   → List of CRs:

		→ List of CRs:	
specifications			
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

8.27 Error Indication

8.27.1 General

The Error Indication procedure is initiated by a node to report detected errors in one incoming message, provided they cannot be reported by an appropriate failure message.

If the error situation arises due to reception of a message utilising dedicated signalling, then the Error Indication procedure uses connection oriented signalling. Otherwise the procedure uses connectionless signalling.

8.27.2 Successful Operation

Figure 1: Error Indication procedure, CN originated

Figure 2: Error Indication procedure, RNC originated

When the conditions defined in chapter [*Handling of unknown, unforeseen and erroneous protocol data*] are fulfilled, the Error Indication procedure is initiated by an ERROR INDICATION message sent from the receiving node.

~~When the ERROR INDICATION message is triggered due to the reception of an Iu user plane PDU(s) with an unknown Iu transport association, the appropriate cause value and both the *Iu Transport Association* IE and the *Transport Layer Address* IE shall be included in the message.~~

Examples for possible cause values for protocol error indications are:

- "Transfer Syntax Error".

- ~~"Logical Error: Unknown Iu Transport Association".~~

- "Semantic Error".

- "Message not compatible with receiver state".

8.27.3 Abnormal Conditions

9.1.41 ERROR INDICATION

This message is sent by both the CN and the RNC and is used to indicate that some error has been detected in the node.

Direction: RNC → CN and CN → RNC.

Signalling bearer mode: Connection oriented or connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Cause	C - ifalone		9.2.1.4		YES	ignore
Criticality Diagnostics	C - ifalone		9.2.1.35		YES	ignore
CN Domain Indicator	O		9.2.1.5		YES	ignore
~~Transport Layer Address~~	~~O~~		~~9.2.2.1~~		~~YES~~	~~ignore~~
~~Iu Transport Association~~	~~O~~		~~9.2.2.2~~		~~YES~~	~~ignore~~
Global RNC-ID	C – ifULandCL		9.2.1.39		YES	ignore

Condition	Explanation
Ifalone	At least either Cause IE or Criticality Diagnostics IE shall be present.
IfULandCL	This IE is always used in uplink direction when message is sent connectionless

9.2.1.4 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the RANAP protocol.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), Unable to Establish During Relocation(8), Unknown Target RNC(9), Relocation Cancelled(10), Successful Relocation(11), Requested Ciphering and/or Integrity Protection Algorithms not Supported(12), Change of Ciphering and/or Integrity Protection is not supported(13), Failure in the Radio Interface Procedure(14), Release due to UTRAN Generated Reason(15), User Inactivity(16), Time Critical Relocation(17), Requested Traffic Class not Available(18), Invalid RAB Parameters Value(19), Requested	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Maximum Bit Rate not Available(20),	
			Requested Maximum Bit Rate for DL not Available(33),	
			Requested Maximum Bit Rate for UL not Available(34),	
			Requested Guaranteed Bit Rate not Available(21),	
			Requested Guaranteed Bit Rate for DL not Available(35),	
			Requested Guaranteed Bit Rate for UL not Available(36),	
			Requested Transfer Delay not Achievable(22),	
			Invalid RAB Parameters Combination(23),	
			Condition Violation for SDU Parameters(24),	
			Condition Violation for Traffic Handling Priority(25),	
			Condition Violation for Guaranteed Bit Rate(26),	
			User Plane Versions not Supported(27),	
			Iu UP Failure(28),	
			TRELOCalloc Expiry (7),	
			Relocation Failure in Target CN/RNC or Target System (29),	
			Invalid RAB ID(30),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			No remaining RAB(31),	
			Interaction with other procedure(32),	
			Repeated Integrity Checking Failure(37),	
			Requested Report Type not supported(38),	
			Request superseded(39),	
			Release due to UE generated signalling connection release(40),	
			Resource Optimisation Relocation(41),	
			Requested Information Not Available(42),	
			Relocation desirable for radio reasons (43),	
			Relocation not supported in Target RNC or Target system(44)	
			…)	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Transport Layer Cause			INTEGER (~~Logical Error: Unknown Iu Transport Association(65),~~ …)	Value range is 65 – 80.
>NAS Cause			INTEGER (User Restriction Start Indication(81), User Restriction End Indication(82), Normal Release(83), …)	Value range is 81 – 96.
>Protocol Cause			INTEGER (Transfer Syntax Error(97), Semantic Error (98), Message not compatible with receiver state (99), Abstract Syntax Error (Reject) (100), Abstract Syntax Error (Ignore and Notify) (101), Abstract Syntax Error (Falsely Constructed Message) (102), …)	Value range is 97 – 112.
>Miscellaneous Cause			INTEGER (O&M Intervention(113), No Resource Available(114), Unspecified Failure(115), Network Optimisation(116), …)	Value range is 113 – 128.
>Non-standard Cause			INTEGER (…)	Value range is 129 – 256.

9.3.3   PDU Definitions

Partly omitted

```
-- ****************************************************************
--
-- ERROR INDICATION ELEMENTARY PROCEDURE
--
-- ****************************************************************


-- ****************************************************************
--
-- Error Indication
--
-- ****************************************************************

ErrorIndication ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {ErrorIndicationIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ErrorIndicationExtensions} }          OPTIONAL,
    ...
}

ErrorIndicationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                    CRITICALITY ignore  TYPE Cause                      PRESENCE conditional
    -- At least either of Cause IE or Criticality IE shall be present --                         } |
    { ID id-CriticalityDiagnostics       CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE conditional
    -- At least either of Cause IE or Criticality IE shall be present --                         } |
    { ID id-CN-DomainIndicator        CRITICALITY ignore  TYPE CN-DomainIndicator          PRESENCE optional   } |
    { ID id-TransportLayerAddress          CRITICALITY ignore  TYPE TransportLayerAddress       PRESENCE optional } |
    { ID id-IuTransportAssociation         CRITICALITY ignore  TYPE IuTransportAssociation      PRESENCE optional } |
    { ID id-GlobalRNC-ID             CRITICALITY ignore  TYPE GlobalRNC-ID                PRESENCE conditional
    -- This IE is always used in the uplink direction when message is sent connectionless --              },
    ...
}

ErrorIndicationExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- ****************************************************************
--
-- SRNS DATA FORWARD ELEMENTARY PROCEDURE
--
-- ****************************************************************


-- ****************************************************************
--
-- SRNS Data Forward Command
--
-- ****************************************************************
```

partly omitted

9.3.4   Information Element Definitions

PARTLY OMITTED

```
-- C


Cause ::= CHOICE {
    radioNetwork         CauseRadioNetwork,
    transmissionNetwork    CauseTransmissionNetwork,
    nAS             CauseNAS,
    protocol            CauseProtocol,
    misc            CauseMisc,
    non-Standard        CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101),
    abstract-syntax-error-falsely-constructed-message (102)
} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
```

```
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
    user-inactivity (16),
    time-critical-relocation (17),
    requested-traffic-class-not-available (18),
    invalid-rab-parameters-value (19),
    requested-maximum-bit-rate-not-available (20),
    requested-guaranteed-bit-rate-not-available (21),
    requested-transfer-delay-not-achievable (22),
    invalid-rab-parameters-combination (23),
    condition-violation-for-sdu-parameters (24),
    condition-violation-for-traffic-handling-priority (25),
    condition-violation-for-guaranteed-bit-rate (26),
    user-plane-versions-not-supported (27),
    iu-up-failure (28),
    relocation-failure-in-target-CN-RNC-or-target-system(29),
    invalid-RAB-ID (30),
    no-remaining-rab (31),
    interaction-with-other-procedure (32),
    requested-maximum-bit-rate-for-dl-not-available (33),
    requested-maximum-bitr-ate-for-ul-not-available (34),
    requested-guaranteed-bit-rate-for-dl-not-available (35),
    requested-guaranteed-bit-rate-for-ul-not-available (36),
    repeated-integrity-checking-failure (37),
    requested-report-type-not-supported (38),
    request-superseded (39),
    release-due-to-UE-generated-signalling-connection-release (40),
    resource-optimisation-relocation (41),
    requested-information-not-available (42),
    relocation-desirable-for-radio-reasons (43),
    relocation-not-supported-in-target-RNC-or-target-system (44)
} (1..64)


CauseNon-Standard ::= INTEGER (129..256)


CauseTransmissionNetwork ::= INTEGER {
    logical error unknown iu transport association (65)
} (65..80)


CriticalityDiagnostics ::= SEQUENCE {
    procedureCode          ProcedureCode          OPTIONAL,
    triggeringMessage      TriggeringMessage      OPTIONAL,
    criticalityResponse    Criticality          OPTIONAL,
    iEsCriticalityResponses    CriticalityDiagnostics-IE-List  OPTIONAL,
    iE-Extensions          ProtocolExtensionContainer { {CriticalityDiagnostics-ExtIEs} } OPTIONAL,
```

```
    ...
}
```

PARTLY OMITTED

CHANGE REQUEST

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| **25.413** | **CR** | **187r1** | Current Version: | **3.3.0** |

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

| For submission to: | **TSG-RAN#10** | for approval | **X** | | Strategic | | *(for SMG* |
| *list expected approval meeting # here* ↑ | | for information | | | non-strategic | | *use only)* |

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

| **Source:** | R-WG3 | | **Date:** | October, 2000 |

| **Subject:** | Clarification of Location Report Procedure |

| **Work item:** | |

Category:	F	Correction	**X**	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification			Release 99	**X**
					Release 00	

| **Reason for change:** | It has decided in CR98r1 that the geographical coordinates may be reported when the request on LOCATION REPORTING CONTROL message is" to report upon change of Service area". However still a description is likely showing that only the Service Area may be reported when the request on LOCATION REPORTING CONTROL message is" to report upon change of Service area". This CR is to correct this misalignment.

If this CR is not implemented, there will be misalignment between Location Reporting Control procedure and Location Report procedure. |

| **Clauses affected:** | 8.20.2 |

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

| **Other comments:** | |

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8.20 Location Report

8.20.1 General

The purpose of the Location Report procedure is to provide the UE's location information to the CN. The procedure uses connection oriented signalling.
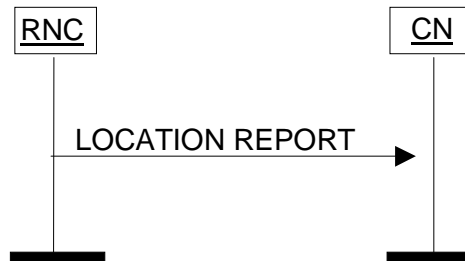
8.20.2 Successful Operation

Figure 1: Location Report procedure

The serving RNC shall initiate the procedure by generating a LOCATION REPORT message. The LOCATION REPORT message may be used as a response for the LOCATION REPORTING CONTROL message. Also, when a user enters or leaves a classified zone set by O&M, e.g. zone where a disaster occurred, a LOCATION REPORT message shall be sent to the CN including the Service Area of the UE in the *Area Identity* IE. The *Cause* IE shall indicate the appropriate cause value to CN, e.g. "User Restriction Start Indication" and "User Restriction End Indication". The CN shall react to the LOCATION REPORT message with CN vendor specific actions.

In case reporting at change of Service Area is requested by the CN, then the RNC shall issue a LOCATION REPORT message

- whenever the information given in the previous LOCATION REPORT message or INITIAL UE MESSAGE message is not anymore valid.

- after a performed relocation as soon as SAI becomes available in the new SRNC.

In ~~this~~ the case when Service Area is reported, the RNC shall include to the LOCATION REPORT message in the *Area Identity* IE the Service Area, which includes at least one of the cells from which the UE is consuming radio resources.

If the RNC can not deliver the location information as requested by the CN, the RNC shall indicate the UE location to be "Undetermined" by omitting the *Area Identity* IE. A cause value shall instead be added to indicate the reason for the undetermined location, e.g. "Requested Report Type not supported". In case the "Requested Report Type not supported" cause value is used, then also the *Request Type* IE shall be included as a reference of what report type is not supported.

If the Location Report procedure was triggered by a LOCATION REPORTING CONTROL message, which included a request for a geographical area with a specific accuracy, the LOCATION REPORT message shall include either a point with indicated uncertainty or a polygon, which both shall fulfill the requested accuracy as accurately as possible. If, on the other hand, no specific accuracy level was requested in the LOCATION REPORTING CONTROL message, it is up to UTRAN to decide with which accuracy to report.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

| 25.413 | CR | 188r1 | Current Version: | 3.3.0 |

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN#10	for approval	X		Strategic		(for SMG
list expected approval meeting # here		For information			non-strategic		use only)
↑							

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

| **Source:** | R-WG3 | | **Date:** | October, 2000 |

| **Subject:** | Transfer Syntax Error description in RANAP |

| **Work item:** | |

Category:

F	Correction	**X**	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	**X**
				Release 00	

(only one category shall be marked with an X)

| **Reason for change:** | The description in the chapter 10.2 Transfer Syntax Error is different from the same chapter in RNSAP and NBAP. It is proposed to add some description in order to align with RNSAP and NBAP.

If this is not done, the RANAP may have different error handling from the one in RNSAP and NBAP.

There is no backward impact by this correction. |

Clauses affected: 10.2

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

| **Other comments:** | |

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10 Handling of Unknown, Unforeseen and Erroneous Protocol Data

10.1 General

Protocol Error cases can be divided into three classes:

- Transfer Syntax Error.

- Abstract Syntax Error.

- Logical Error.

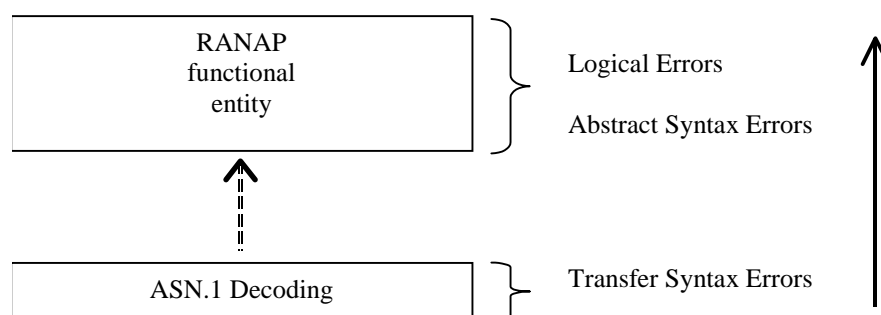Protocol errors can occur in the following functions within a receiving node:

Figure 22: Protocol Errors in RANAP

10.2 Transfer Syntax Error

A Transfer Syntax Error occurs when the receiver is not able to decode the received physical message. Transfer syntax errors are always detected in the process of ASN.1 decoding. If a Transfer Syntax Error occurs, the receiver should initiate Error Indication procedure with appropriate cause value for the Transfer Syntax protocol error.

Examples for Transfer Syntax Errors are:

- Violation of value ranges in ASN.1 definition of messages. e.g.: If an IE has a defined value range of 0 to 10 (ASN.1: INTEGER (0..10)), and 12 will be received, then this will be treated as a transfer syntax error.

- Violation in list element constraints. e.g.: If a list is defined as containing 1 to 10 elements, and 12 elements will be received, than this case will be handled as a transfer syntax error.

- Missing mandatory elements in ASN.1 SEQUENCE definitions (as sent by the originator of the message).

- Wrong order of elements in ASN.1 SEQUENCE definitions (as sent by the originator of the message).

10.3 Abstract Syntax Error

10.3.1 General

An Abstract Syntax Error occurs when the receiving functional RANAP entity:

1. receives IEs or IE groups that cannot be understood (unknown IE id);

2. receives IEs for which the logical range is violated (e.g.: ASN.1 definition: 0 to 15, the logical range is 0 to 10 (values 11 to 15 are undefined), and 12 will be received; this case will be handled as an abstract syntax error using criticality information sent by the originator of the message);

3. does not receive IEs or IE groups but according to the specified presence of the concerning object, the IEs or IE groups should have been present in the received message.

4. receives IEs or IE groups that are defined to be part of that message in wrong order or with too many occurrences of the same IE or IE group

Cases 1 and 2 (not comprehended IE/IE group) are handled based on received Criticality information. Case 3 (missing IE/IE group) is handled based on Criticality information and Presence information for the missing IE/IE group specified in the version of the specification used by the receiver. Case 4 (IEs or IE groups in wrong order or with too many occurrences) results in rejecting the procedure.

If an Abstract Syntax Error occurs, the receiver shall read the remaining message and shall then for each detected Abstract Syntax Error that belong to cases 1-3 act according to the Criticality Information and Presence Information for the IE/IE group due to which Abstract Syntax Error occurred in accordance with subclauses 10.3.4 and 10.3.5. The handling of case 4 is specified in subclause 10.3.6.

10.3.2   Criticality Information

In the RANAP messages there is criticality information set for individual IEs and/or IE groups. This criticality information instructs the receiver how to act when receiving an IE or an IE group that is not comprehended, i.e. the entire item (IE or IE group) which is not (fully or partially) comprehended shall be treated in accordance with its own criticality information as specified in chapter 10.3.4.

In addition, the criticality information is used in case of the missing IE/IE group abstract syntax error (see subclause 10.3.5).

The receiving node shall take different actions depending on the value of the Criticality Information. The three possible values of the Criticality Information for an IE/IE group are:

- Reject IE.

- Ignore IE and Notify Sender.

- Ignore IE.

The following rules restrict when a receiving entity may consider an IE, an IE group, or an EP not comprehended (not implemented), and when action based on criticality information is applicable:

1. IE or IE group: When one new or modified IE or IE group is implemented for one EP from a standard version, then other new or modified IEs or IE groups specified for that EP in that standard version shall be considered comprehended by a receiving entity (some may still remain unsupported).

   Note that this restriction is not applicable to a sending entity for constructing messages.

2. EP: The comprehension of different EPs within a standard version or between different standard versions is not mandated. Any EP that is not supported may be considered not comprehended, even if another EP from that standard version is comprehended, and action based on criticality shall be applied.

TSG-RAN Working Group 3 Meeting #16
Windsor, UK, 16th –20th October 2000

Document **R3-002710**

CHANGE REQUEST

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25.413	CR	**189r1**		Current Version:	**3.3.0**		

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to: **TSG RAN #10**

list expected approval meeting # here ↑

for approval	**X**	strategic		
for information		non-strategic		*(for SMG use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3	**Date:**	October 2000

Subject: Handling of the optional IEs inside the *Criticality Diagnostics* IE

Work item:

Category:
(only one category shall be marked with an X)

				Release:	
F	Correction	**X**		Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	**X**
				Release 00	

Reason for change:

In the current RANAP specification the handling of the Criticality Diagnostics IE is not clear. Currently there is semantics for the individual parts of the IE but there is no normative specification text. Since this IE is used to report compatibility problems between nodes it is absolutely essential that all nodes behave in the same (well-defined) way.

This CR introduces normative text for chapter 10 describing under what conditions different parts of the Criticality Diagnostics IE are included. Some enhancements of the Criticality IE itself are also included.

Consequence if not accepted:
If this CR is not accepted the compatibility mechanisms are not fully normative parts of the specification. The compatibility handling will thus be less reliable and inter-working problems may occur.

Clauses affected: 9.2.1.35, 9.3.4, 10.3.4, and 10.3.5

Other specs affected:	Other 3G core specifications	**X**	→ List of CRs:	TS 25.419 CR24, TS 25.423 CR205, TS 25.433 CR253
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:

9.2.1.35 Criticality Diagnostics

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Criticality Diagnostics				
>Procedure Code	O		INTEGER (0..255)	Procedure cCode is to be used if Criticality dDiagnostics is part of Error Indication procedure, and not within the response message of the same procedure operation that caused the error
>Triggering Message	O		ENUMERAT ED(initiating message, successful outcome, unsuccessful outcome, outcome)	The Triggering Message is used only if the Criticality dDiagnostics is part of Error Indication procedure except when the procedure code is not understood.
>Procedure Criticality Response	O		ENUMERAT ED(reject, ignore, notify)	This Procedure Criticality response IE is used for reporting the Criticality of the Triggering message (Procedure). The value 'ignore' shall never be used.
Information Element Criticality Diagnostics		0 to <maxnoof errors>		
>IE Criticality Response	M		ENUMERAT ED(reject, ignore, notify)	The IE Criticality response IE is used for reporting the criticality of the triggering IE. The value 'ignore' shall not be used.
>IE Id	M		INTEGER (0..65535)	The IE Id of the not understood or missing IE
>Repetition Number	O		INTEGER (1..256)	The repetition number of the not understood IE if applicable

Range bound	Explanation
maxnooferrors	Maximum no. of IE errors allowed to be reported with a single message. The value for maxnooferrors is 256.

9.3.4   Information Element Definitions

```
-- ************************************************************
--
-- Information Element Definitions
--
-- ************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN
```

<Editor's note: Parts of the module is skipped.>

```
-- C


Cause ::= CHOICE {
    radioNetwork          CauseRadioNetwork,
    transmissionNetwork     CauseTransmissionNetwork,
    nAS             CauseNAS,
    protocol            CauseProtocol,
    misc            CauseMisc,
    non-Standard          CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
```

```
    abstract-syntax-error-ignore-and-notify (101),
    abstract-syntax-error-falsely-constructed-message (102)

} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
    user-inactivity (16),
    time-critical-relocation (17),
    requested-traffic-class-not-available (18),
    invalid-rab-parameters-value (19),
    requested-maximum-bit-rate-not-available (20),
    requested-guaranteed-bit-rate-not-available (21),
    requested-transfer-delay-not-achievable (22),
    invalid-rab-parameters-combination (23),
    condition-violation-for-sdu-parameters (24),
    condition-violation-for-traffic-handling-priority (25),
    condition-violation-for-guaranteed-bit-rate (26),
    user-plane-versions-not-supported (27),
    iu-up-failure (28),
    relocation-failure-in-target-CN-RNC-or-target-system(29),
    invalid-RAB-ID (30),
    no-remaining-rab (31),
    interaction-with-other-procedure (32),
    requested-maximum-bit-rate-for-dl-not-available (33),
    requested-maximum-bitr-ate-for-ul-not-available (34),
    requested-guaranteed-bit-rate-for-dl-not-available (35),
    requested-guaranteed-bit-rate-for-ul-not-available (36),
    repeated-integrity-checking-failure (37),
    requested-report-type-not-supported (38),
    request-superseded (39),
    release-due-to-UE-generated-signalling-connection-release (40),
    resource-optimisation-relocation (41),
    requested-information-not-available (42),
    relocation-desirable-for-radio-reasons (43),
    relocation-not-supported-in-target-RNC-or-target-system (44)
} (1..64)
```

```
CauseNon-Standard ::= INTEGER (129..256)

CauseTransmissionNetwork ::= INTEGER {
    logical-error-unknown-iu-transport-association (65)
} (65..80)


CriticalityDiagnostics ::= SEQUENCE {
    procedureCode           ProcedureCode           OPTIONAL,
    triggeringMessage       TriggeringMessage       OPTIONAL,
    procedureCeriticalityResponse      Criticality           OPTIONAL,
    iEsCriticalityDiagnosticsResponses     CriticalityDiagnostics-IE-List  OPTIONAL,
    iE-Extensions           ProtocolExtensionContainer { {CriticalityDiagnostics-ExtIEs} } OPTIONAL,
    ...
}

CriticalityDiagnostics-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1..maxNrOfErrors)) OF
    SEQUENCE {
        iECeriticalityResponse     Criticality,
        iE-ID               ProtocolIE-ID,
        repetitionNumber        RepetitionNumber        OPTIONAL,
        iE-Extensions           ProtocolExtensionContainer { {CriticalityDiagnostics-IE-List-ExtIEs} } OPTIONAL,
        ...
    }

CriticalityDiagnostics-IE-List-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

CGI ::= SEQUENCE {
    pLMN-ID             PLMN-ID,
    lAC             LAC,
    cI              CI,
    iE-Extensions           ProtocolExtensionContainer { {CGI-ExtIEs} } OPTIONAL
}

CGI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

ChosenEncryptionAlgorithm       ::= EncryptionAlgorithm

ChosenIntegrityProtectionAlgorithm  ::= IntegrityProtectionAlgorithm

CI              ::= OCTET STRING (SIZE (2))
```

3GPP

```
ClassmarkInformation2          ::= OCTET STRING

ClassmarkInformation3          ::= OCTET STRING

CN-DomainIndicator ::= ENUMERATED {
    cs-domain,
    ps-domain
}


CN-BroadcastArea ::= CHOICE {
    lAI              LAI,
    rAI              RAI,
    sAI              SAI,
    geographicalArea        GeographicalArea,
    ...
}
```

<Editor's note: The rest of the module is skipped.>

10.3.4 Not comprehended IE/IE group

10.3.4.1 Procedure Code

The receiving node shall treat the different types of received criticality information of the *Procedure Code* according to the following:

Reject IE:

- If a message is received with a *Procedure Code* marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall reject the procedure using the Error Indication procedure.

Ignore IE and Notify Sender:

- If a message is received with a *Procedure Code* marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the procedure and initiate the Error Indication procedure.

Ignore IE:

- If a message is received with a *Procedure Code* marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the procedure.

When using the Error Indication procedure to reject a procedure or to report an ignored procedure it shall include the *Procedure Code* IE, the *Triggering Message* IE, and the *Procedure Criticality* IE in the *Criticality Diagnostics* IE.

10.3.4.2 IEs other than the Procedure Code

The receiving node shall treat the different types of received criticality information of an IEs/IE group other than the *Procedure Code* according to the following:

Reject IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE group marked with "*Reject IE*" which the receiving node does not comprehend; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the rejection of one or more IEs/IE group using the message normally used to report unsuccessful outcome of the procedure.

- If a message *initiating* a procedure that does not have a message to report unsuccessful outcome is received containing one or more IEs/IE groups marked with "*Reject IE*" which the receiving node does not comprehend, the receiving node shall initiate the Error Indication procedure.

- If a *response* message is received containing one or more IEs marked with "*Reject IE*", that the receiving node does not comprehend, the receiving node shall initiate local error handling.

Ignore IE and Notify Sender:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and report in the response message of the procedure that one or more IEs/IE groups have been ignored.

- if a message *initiating* a procedure that does not have a message to report the outcome of the procedure is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups, continue with the procedure as if the not comprehended IEs/IE groups were not received (except for the reporting) using the understood IEs/IE groups, and initiate the Error Indication procedure to report that one or more IEs/IE groups have been ignored.

- If a *response* message is received containing one or more IEs/IE groups marked with "*Ignore IE and Notify Sender*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and initiate the Error Indication procedure.

Ignore IE:

- If a message *initiating* a procedure is received containing one or more IEs/IE groups marked with "*Ignore IE*" which the receiving node does not comprehend, the receiving node shall ignore the content of the not comprehended IEs/IE groups and continue with the procedure as if the not comprehended IEs/IE groups were not received using the understood IEs/IE groups.

When reporting not comprehended IEs/IE groups marked with "*Reject IE*" or "*Ignore IE and Notify Sender*" using a response message defined for the procedure, the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. The *Repetition Number* IE shall be included in the *Information Element Criticality Diagnostics* IE if the reported IE/IE group was part of a "SEQUENCE OF" definition.

When reporting not comprehended IEs/IE groups marked with "*Reject IE*" or "*Ignore IE and Notify Sender*" using the Error Indication procedure, the *Procedure Code* IE, the *Triggering Message* IE, *Procedure Criticality* IE, and the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group. The *Repetition Number* IE shall be included in the *Information Element Criticality Diagnostics* IE if the reported IE/IE group was part of a "SEQUENCE OF" definition.

10.3.5 Missing IE or IE group

The receiving node shall treat the missing IE/IE group according to the criticality information for the missing IE/IE group in the received message specified in the version of this specification used by the receiver:

Reject IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Reject IE*"; none of the functional requests of the message shall be executed. The receiving node shall reject the procedure and report the missing IEs/IE groups using the message normally used to report unsuccessful outcome of the procedure.

- if a received message *initiating* a procedure that does not have a message to report unsuccessful outcome is missing one or more IEs/IE groups with specified criticality "*Reject IE*", the receiving node shall initiate the Error Indication procedure.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Reject IE*, the receiving node shall initiate local error handling.

Ignore IE and Notify Sender:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and report in the response message of the procedure that one or more IEs/IE groups were missing.

- if a received message *initiating* a procedure that does not have a message to report the outcome of the procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message and initiate the Error Indication procedure to report that one or more IEs/IE groups were missing.

- if a received *response* message is missing one or more IEs/IE groups with specified criticality "*Ignore IE and Notify Sender*", the receiving node shall initiate the Error Indication procedure.

Ignore IE:

- if a received message *initiating* a procedure is missing one or more IEs/IE groups with specified criticality "*Ignore IE*", the receiving node shall continue with the procedure based on the other IEs/IE groups present in the message.

When reporting missing IEs/IE groups with specified criticality "*Reject IE*" or "*Ignore IE and Notify Sender*" using a response message defined for the procedure, the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group.

When reporting missing IEs/IE groups with specified criticality "*Reject IE*" or "*Ignore IE and Notify Sender*" using the Error Indication procedure, the *Procedure Code* IE, the *Triggering Message* IE, *Procedure Criticality* IE, and the *Information Element Criticality Diagnostics* IE shall be included in the *Criticality Diagnostics* IE for each reported IE/IE group.

CHANGE REQUEST

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25.413	CR	**190**		Current Version:	**3.3.0**		

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to:	**TSG RAN #10**	for approval	**X**	strategic		(for SMG
list expected approval meeting # here ↑		for information		non-strategic		use only)

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ]   ME [ ]   UTRAN / Radio [**X**]   Core Network [**X**]
(at least one should be marked with an X)

Source:	R-WG3	**Date:**	October 2000

Subject:	Protocol specification principles

Work item:	

Category:	F	Correction		**X**	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release				Release 96	
(only one category	B	Addition of feature				Release 97	
shall be marked	C	Functional modification of feature				Release 98	
with an X)	D	Editorial modification				Release 99	**X**
						Release 00	

| **Reason for change:** | This group of CR's clarifies the protocol specification principles that are used in the specification.

If this group of CR's is not accepted, unclearity in the specifications could lead to interoperability problems. |
|---|---|

Clauses affected:	4.1.

| **Other specs affected:** | Other 3G core specifications | **X** | → List of CRs: | TS 25.423 CR210
TS 25.433 CR260 |
|---|---|---|---|---|
| | Other GSM core specifications | | → List of CRs: | |
| | MS test specifications | | → List of CRs: | |
| | BSS test specifications | | → List of CRs: | |
| | O&M specifications | | → List of CRs: | |

Other comments:	

4 General

4.1 Procedure Specification Principles

The principle for specifying the procedure logic is to specify the functional behaviour of the RNC exactly and completely. The CN functional behaviour is left unspecified. The EPs Relocation Preparation, Reset and Overload Control are exceptions from this principle.

The following specification principles have been applied for the procedure text in chapter 8:

- The procedure text discriminates between:

    1) Functionality which "shall" be executed

    The procedure text indicates that the receiving node "shall" perform a certain function Y under a certain condition. If the receiving node supports procedure X but cannot perform functionality Y requested in the REQUEST message of a Class 1 of Class 3 EP, the receiving node shall respond with the message used to report unsuccessful outcome for this procedure, containing an appropriate cause value.

    2) Functionality which "shall, if supported" be executed

    The procedure text indicates that the receiving node "shall, if supported," perform a certain function Y under a certain condition. If the receiving node supports procedure X, but does not support functionality Y, the receiving node shall proceed with the execution of the EP, possibly informing the requesting node about the not supported functionality.

- Any required inclusion of an optional IE in a response message is explicitly indicated in the procedure text. If the procedure text does not explicitly indicate that an optional IE shall be included in a response message, the optional IE shall not be included.

CHANGE REQUEST

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25.413 CR **191**   Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	TSG RAN#10	for approval	X		strategic		*(for SMG use only)*
list expected approval meeting # here ↑		for information			non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3	**Date:**	October 6, 2000

Subject:	Editorial Modifications

Work item:	

Category: F Correction   ☐   **Release:** Phase 2   ☐
          A Corresponds to a correction in an earlier release   ☐   Release 96   ☐
(only one category   B Addition of feature   ☐   Release 97   ☐
shall be marked   C Functional modification of feature   ☐   Release 98   ☐
with an X)   D Editorial modification   **X**   Release 99   **X**
          Release 00   ☐

Reason for change:	There are many grammatical and spelling mistakes that are corrected.

Clauses affected:	8.7.2, 8.7.5, 8.8.4, 8.9.4, 8.10.2, 8.16.2, 9.2.1.3, 9.2.1.23, 9.2.3.11, 9.2.3.15,

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:	
	Other GSM core specifications	☐	→ List of CRs:	
	MS test specifications	☐	→ List of CRs:	
	BSS test specifications	☐	→ List of CRs:	
	O&M specifications	☐	→ List of CRs:	

Other comments:	

help.doc

<---------- double-click here for help and instructions on how to create a CR.
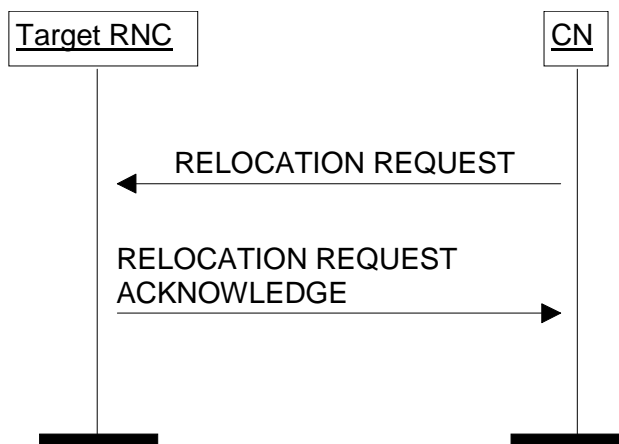
8.7.2   Successful Operation

Figure 1: Relocation Resource Allocation procedure. Successful operation.

The CN shall initiate the procedure by generating RELOCATION REQUEST message. This message shall contain the information (if any) required by the UTRAN to build the same RAB configuration as existing for the UE before the relocation.

The CN shall transmit the RELOCATION REQUEST message to target RNC and the CN shall start the timer $T_{RELOCalloc}$.

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources. The following information elements received in RELOCATION REQUEST message require special actions in the RNC:

-   RAB-ID

-   User plane mode

-   Priority level, queuing and pre-emption indication

-   Iu signalling connection identifier

The actions are the same as specified for the same IEs in the RAB Assignment procedure.

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

The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN, and which the RNC is required to store and remember for the duration of the Iu connection.

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

If *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 for *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 *RelocationType* 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 exist(s) and can be used for the RAB by the target RNC.

- If existing radio bearers are not related to any RAB that is accepted by target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by radio interface protocols after completion of relocation of SRNS.

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

After all necessary resources for accepted RABs including the Iu user plane, are successfully allocated, the target RNC shall send RELOCATION REQUEST ACKNOWLEDGE message to the CN. 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 received by the CN may optionally contain a transparent container, which shall be transferred by CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

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

8.7.5 Co-ordination of Two Iu Signalling Connections

Co-ordination of two Iu signalling connections during Relocation Resource Allocation procedure shall be executed by the target RNC when the *Number of Iu Instancies* IE received in the *Source RNC to Target RNC Transparent Container* IE in the RELOCATION REQUEST message indicates that two CN domains are involved in relocation of SRNS.

If two CN domains are involved, the following actions shall be taken by the target RNC:

-   The target RNC shall utilise the *Permanent NAS UE Identity* IE, received explicitly by each CN domain within RELOCATION REQUEST message, to co-ordinate both Iu signalling connections.

-   The target RNC shall generate and send RELOCATION REQUEST ACKNOWLEDGE message only after all expected RELOCATION REQUEST messages are received and analysed.

-   The target RNC shall ensure that there is no conflicting information in *Target RNC to Source RNC Transparent Container* IE in RELOCATION REQUEST ACKNOWLEDGE messages transmitted via different Iu signalling connections and related to the same relocation of SRNS.

-   The selection of signalling connection utilised for the *Target RNC to Source RNC Transparent Container* IE in RELOCATION REQUEST ACKNOWLEDGE message need not to be dependent on the signalling connection via which the *Source RNC to Target RNC Transparent Container* IE in RELOCATION REQUEST message was received.

8.8.4 Co-ordination of Multiple Iu Signalling Connections

When Relocation Detect procedure is to be initiated by the target RNC, the target RNC shall initiate the Relocation Detect procedure on all Iu signalling connections existing for the UE between the target RNC and the CN.

8.9.4 Co-ordination of Multiple Iu Signalling Connections

When Relocation Complete procedure is to be initiated by target RNC, target RNC shall initiate the Relocation Complete procedure on all Iu signalling connections existing for the UE between target RNC and CN.

8.10.2   Successful Operation
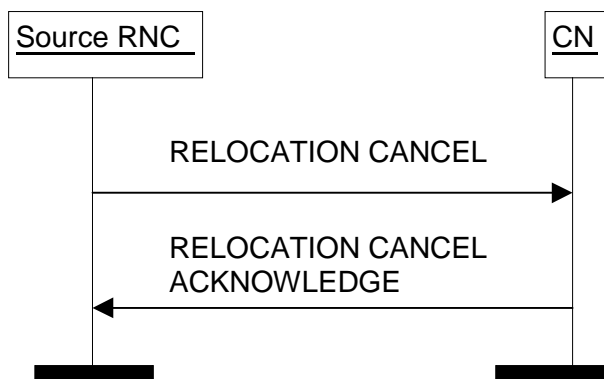
Figure 2: Relocation Cancel procedure. Successful Operation

RNC shall initiate the procedure by sending RELOCATION CANCEL message to CN. This message shall indicate the reason for cancelling the relocation of SRNS by appropriate value of the *Cause* IE. Upon reception of RELOCATION CANCEL message, CN shall send RELOCATION CANCEL ACKNOWLEDGE message to source RNC.

Transmission and reception of RELOCATION CANCEL ACKNOWLEDGE message terminates the procedure in CN and source RNC respectively. After this, the source RNC does not have a Prepared Relocation for that Iu signalling connection.

Interactions with Relocation Preparation:

Upon reception of RELOCATION CANCEL message from source RNC, CN shall locally terminate the possibly ongoing Relocation Preparation procedure towards that RNC and abandon the relocation of SRNS.

If source RNC receives RELOCATION COMMAND message from CN after Relocation Cancel procedure is initiated, source RNC shall ignore the received RELOCATION COMMAND message.

8.16.2   Successful Operation

Figure 3: Common ID procedure

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

9.2.1.3 RAB Parameters

The purpose of the *RAB parameters* IE group and other parameters within the *RAB parameters* IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	**Desc.:** This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	**Desc.:** This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <Nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	**Desc.:** This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s **Usage**: When Nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C-iftrafficConv-Stream	0 to <Nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	**Desc.:** This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s **Usage:** 1. When Nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: • Set to lowest rate controllable RAB Subflow Combination rate given by the largest RAB Subflow Combination SDU size, when present and calculated Iu Transmission Interval • Set to N/A (=0) when traffic class indicates Interactive or Background

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	**Desc:** This IE indicates that whether the RAB shall provide in-sequence SDU delivery or not **Usage:** Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU size	M		INTEGER (0..32768)	**Desc.:** This IE indicates the maximum allowed SDU size The unit is: bit. **Usage:** Conditional value: set to largest RAB Subflow Combination compound SDU size when present among the different RAB Subflow Combination
>SDU parameters		1 to \<maxRABSubflows>	See below	**Desc.:** This IE contains the parameters characterizing the RAB SDUs **Usage** Given per subflow with first occurence corresponding to subflow#1 etc…
>Transfer Delay	C-iftrafficConv-Stream		INTEGER (0..65535)	**Desc.:** This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. **Usage:** -
>Traffic Handling priority	C - iftrafficInteractiv		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0…15)	**Desc.:** This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers **Usage:** -
>Allocation/Retention priority	O		See below	**Desc.:** This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. **Usage:** If this IE is not received, the request is regarded as it cannot trigger the preemption process and it is vulnerable to the preemption process.
>Source Statistics descriptor	C-iftrafficConv-Stream		ENUMERATED (speech, unknown, …)	**Desc.:** This IE specifies characteristics of the source of submitted SDUs **Usage:** -

Range Bound	Explanation
Nbr-SeparateTrafficDirection	Number of Traffic Directions being signalled separately

Range Bound	Explanation
MaxRABSubflows	Number of RAB Subflows

Condition	Explanation
IftrafficConv-Stream	This IE is only present when traffic class indicates "Conversational" or "Streaming"
IftrafficInteractiv	This IE is only present when traffic class indicates "Interactiv"

IE/Group Name	Presence	Range	IE type and reference	Semantics description
SDU parameters				
>SDU Error Ratio	C-ifErrorneousSDU			**Desc.:** This IE indicates the fraction of SDUs lost or detected as erroneous. This is a Reliability attribute **Usage:** The attribute is coded as follows: Mantissa $* 10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..6)	
>Residual Bit Error Ratio	M			**Desc.:** This IE indicates the undetected bit error ratio for each subflow in the delivered SDU. This is a Reliability attribute. **Usage:** The attribute is coded as follows: Mantissa $* 10^{-\text{exponent}}$
>>Mantissa	M		INTEGER (1..9)	
>>Exponent	M		INTEGER (1..8)	
>Delivery of Erroneous SDU	M		ENUMERATED (yes, no, no-error-detection-consideration)	**Desc.:** This IE indicates whether SDUs with detected errors shall be delivered or not. In case of unequal error protection, the attribute is set per subflow This is a Reliability attribute **Usage:** Yes: error detection applied, erroneous SDU delivered No. Error detection is applied , erroneous SDU discarded no-error-detection-consideration: SDUs delivered without considering error detection
>SDU format information Parameter	C - ifratecontrollableRAB	1 to <maxRABSubflow Combinations>	See below	**Desc.:** This IE contains the list of possible exact sizes of SDUs and/or RAB Subflow Combination bitrates

9.2.1.23 Relocation Type

This information element indicates whether the relocation of SRNS is to be executed with or without involvement of the UE. If the UE is involved then a radio interface handover command shall be sent to the UE to trigger the execution of the relocation. If the UE is not involved then the relocation execution is triggered via Iur.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Relocation Type	M		ENUMERATED (UE not involved in relocation of SRNS,UE involved in relocation of SRNS)	

## 9.2.3.11	Geographical Area

Geographical Area IE is used to identify an area, as seen from the CN, using geographical coordinates. The reference system is the same as the one used in UMTS 23.032.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Geographical Area**				
>Point			See below	Ellipsoid point
>Point with uncertainty			See below	Ellipsoid point with uncertainty circle
>Polygon			See below	List of Ellipsoid points

9.2.3.15 Information Priority

This element is the priority of the corresponding Information piece. This IE is used by UTRAN to schedule the NAS Broadcast Information.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Information Priority	M		INTEGER (0..15)	spare (0), highest (1), lowest (14), no priority used (15)} (0..15)

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	**CR**	**194r1**		Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	**RAN#10**	for approval	**X**	strategic		(for SMG
list expected approval meeting # here ↑		for information		non-strategic		use only)

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio **X** Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3		**Date:**	18.10.2000

Subject:	Handling Unknown Signalling Connection Identifiers in Reset Resource Procedure

Work item:	

Category: F   Correction **[X]**   **Release:** Phase 2 ☐
   A   Corresponds to a correction in an earlier release ☐   Release 96 ☐
(only one category   B   Addition of feature ☐   Release 97 ☐
shall be marked   C   Functional modification of feature ☐   Release 98 ☐
with an X)   D   Editorial modification ☐   Release 99 **[X]**
   Release 00 ☐

| **Reason for change:** | The current RANAP specification does not clearly state how a receiving node should react in case unknown signalling connection identifiers are requested to be released. It is proposed that unknown signalling connection identifiers shall always be reported released, since they should also be vacant if they are not known at all. Also terminology "Identifier" is used consistently instead of "Identity".

If this correction is not made, it is possible that the unknown signalling connection identifiers are not reported as released, and the requesting node could try to release them again several times. |
|---|---|

Clauses affected:	8.29.1.1, ~~and~~ 8.29.1.2, 9.1.10, 9.1.44, 9.1.45 and 9.2.1.38

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:	
	Other GSM core specifications	☐	→ List of CRs:	
	MS test specifications	☐	→ List of CRs:	
	BSS test specifications	☐	→ List of CRs:	
	O&M specifications	☐	→ List of CRs:	

Other comments:	

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8.29 Reset resource

8.29.1 General

The purpose of the Reset resource release procedure is to initialise part of the UTRAN in the event of an abnormal failure in the CN or vice versa (e.g. Signalling Transport processor reset). The procedure uses connectionless signalling.

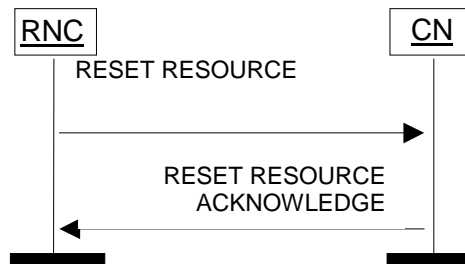### 8.29.1.1 Reset Resource procedure initiated from the RNC

Figure 1: RNC initiated Reset Resource procedure

The RNC initiates this procedure by sending a RESET RESOURCE message to the CN.

On reception of this message the CN shall release locally the resources and references (i.e. resources and Iu signalling connection identitiesidentifiers) associated to the Iu signalling connection identitiesidentifiers indicated in the received message. The CN shall always return the RESET RESOURCE ACKNOWLEDGE message to the RNC when all Iu-related resources and references have been released. The list of Iu signalling connection identifiers within the RESET RESOURCE ACKNOWLEDGE message shall be in the same order as received in the RESET RESOURCE message. Unknown signalling connection identifiers shall be reported as released.

Both CN and RNC shall provide means to prevent the immediate re-assignment of released Iu signalling connection identifiers to minimise the risk that the Reset Resource procedure releases the same Iu signalling connection identifiers re-assigned to new Iu connections.

8.29.1.2 Reset Resource procedure initiated from the CN
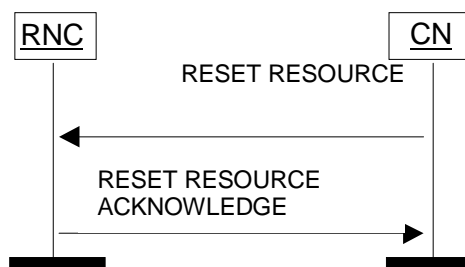
Figure 2: CN initiated Reset Resource procedure

The CN initiates this procedure by sending a RESET RESOURCE message to the RNC.

On reception of this message the RNC shall release locally the resources and references (i.e. radio resources and Iu signalling connection identitiesidentifiers) associated to the Iu signalling connection identitiesidentifiers indicated in the received message. The RNC shall always return the RESET RESOURCE ACKNOWLEDGE message to the CN when all Iu-related resources and references have been released. The list of Iu signalling connection identifiers within the RESET RESOURCE ACKNOWLEDGE message shall be in the same order as received in the RESET RESOURCE message. Unknown signalling connection identifiers shall be reported as released.

Both RNC and CN shall provide means to prevent the immediate re-assignment of released Iu signalling connection identifiers to minimise the risk that the Reset Resource procedure releases the same Iu signalling connection identifiers re-assigned to new Iu connections.

NEXT MODIFIED SECTION

9.1.10 RELOCATION REQUEST

This message is sent by the CN to request the target RNC to allocate necessary resources for a relocation.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Permanent NAS UE Identity	C – ifAvail		9.2.3.1		YES	ignore
Cause	M		9.2.1.4		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Source RNC to target RNC transparent container	M		9.2.1.28		YES	reject
RABs to be setup		0 to <maxnoofRABs>			EACH	reject
>RAB ID	M		9.2.1.2		-	
>NAS Synchronisation Indicator	C-ifNASInfoProvided		9.2.3.18		-	
>RAB parameters	M		9.2.1.3		-	
>Data Volume Reporting Indication	C – ifPS		9.2.1.17		-	
> PDP Type Information	C – ifPS		9.2.1.40		-	
>User Plane Information	M				-	
>>User Plane mode	M		9.2.1.18		-	
>>UP Mode Versions	M		9.2.1.19		–	
>Transport Layer Address	M		9.2.2.1		–	
>Iu Transport Association	M		9.2.2.2		-	
Integrity Protection Information	C – ifAvail		9.2.1.11	Integrity Protection Information includes key and permitted algorithms.	YES	ignore
Encryption Information	O		9.2.1.12	Encryption Information includes key and permitted algorithms.	YES	ignore
Iu ~~s~~Signalling ~~c~~Connection ~~i~~Identifier	M		9.2.1.38		YES	ignore

Condition	Explanation
ifAvail	This IE is only present if available at the sending side.
IfPS	This IE is only present for RABs towards the PS domain.
IfNASInfoProvided	This IE is present if the relevant NAS information is provided by the CN.

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

NEXT MODIFIED SECTION

9.1.44 RESET RESOURCE

This message is sent by either CN or RNC. The sending entity informs the receiving entity that the sending requests the receiving entity to release resources and references associated to Iu signalling connection ~~identities~~identifiers in the message.

Direction: CN $\leftarrow\rightarrow$ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Cause	M		9.2.1.4		YES	ignore
Iu signalling connections to be released		1 to <maxnoofIu SigConIds			EACH	ignore
>Iu ~~s~~Signalling ~~c~~Connection ~~i~~Identifier	M		9.2.1.38		-	
Global RNC-ID	C - ifUL		9.2.1.39		YES	ignore

Condition	Explanation
IfUL	This IE is always used in uplink direction

Range bound	Explanation
MaxnoofIuSigConIds	Maximum no. of Iu signalling connection ~~identities~~identifiers. Value is 1000.

9.1.45   RESET RESOURCE ACKNOWLEDGE

This message is sent by either the CN or RNC inform the CN or RNC that the RESET RESOURCE message has been received.

Direction: CN ←→ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Iu signalling connections released		1 to <maxnoofIu SigConIds		This list shall be in the same order as the list received in the RESET RESOURCE message.	EACH	ignore
>Iu sSignalling cConnection iIdentifier	M		9.2.1.38		-	
Global RNC-ID	C - ifUL		9.2.1.39		YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore

Condition	Explanation
IfUL	This IE is always used in uplink direction

Range bound	Explanation
MaxnoofIuSigConIds	Maximum no. of Iu signalling connection identitiesidentifiers. Value is 1000.

NEXT MODIFIED SECTION

9.2.1.38 Iu sSignalling cConnection iIdentifier

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Iu sSignalling cConnection iIdentifier	M		BIT STRING (SIZE(24))	The most significant bit of this IE shall indicate the node, that has assigned the value. MSB = "0": assigned by the RNC MSB = "1": assigned by the CN

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR **195r2**   Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to:	TSG RAN#10	for approval	**X**		strategic		(for SMG
list expected approval meeting # here ↑		for information			non-strategic		*use only)*

R-WG3

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ]   ME [ ]   UTRAN / Radio [**X**]   Core Network [**X**]
(at least one should be marked with an X)

Source: R-WG3   **Date:** Nov 22, 2000

Subject: Usage of cause values in RANAP.

Work item:

Category: F   Correction   **Release:**   Phase 2   [ ]
             A   Corresponds to a correction in an earlier release   Release 96   [ ]
(only one category   B   Addition of feature   Release 97   [ ]
shall be marked   C   Functional modification of feature   Release 98   [ ]
with an X)   D   Editorial modification   [**X**]   Release 99   [**X**]
                 Release 00   [ ]

Reason for change: It was agreed in R3#15 to add a separate table in xxxAP protocols describing the usage of cause values. The table is to be added after tabular format presentation of *Cause* IE. This CR adds the agreed table in RANAP.

Clauses affected: 9.2.1.4

Other specs affected:	Other 3G core specifications	[ ]	→ List of CRs:	
	Other GSM core specifications	[ ]	→ List of CRs:	
	MS test specifications	[ ]	→ List of CRs:	
	BSS test specifications	[ ]	→ List of CRs:	
	O&M specifications	[ ]	→ List of CRs:	

Other comments: The other CRs affecting cause values should be taken in to account when implementing this CR.

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<--------- double-click here for help and instructions on how to create a CR.

9.2.1.4 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the RANAP protocol.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), Unable to Establish During Relocation(8), Unknown Target RNC(9), Relocation Cancelled(10), Successful Relocation(11), Requested Ciphering and/or Integrity Protection Algorithms not Supported(12), Change of Ciphering and/or Integrity Protection is not supported(13), Failure in the Radio Interface Procedure(14), Release due to UTRAN Generated Reason(15), User Inactivity(16), Time Critical Relocation(17), Requested Traffic Class not Available(18), Invalid RAB Parameters Value(19), Requested Maximum Bit Rate	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			not Available(20),	
			Requested Maximum Bit Rate for DL not Available(33),	
			Requested Maximum Bit Rate for UL not Available(34),	
			Requested Guaranteed Bit Rate not Available(21),	
			Requested Guaranteed Bit Rate for DL not Available(35),	
			Requested Guaranteed Bit Rate for UL not Available(36),	
			Requested Transfer Delay not Achievable(22),	
			Invalid RAB Parameters Combination(23),	
			Condition Violation for SDU Parameters(24),	
			Condition Violation for Traffic Handling Priority(25),	
			Condition Violation for Guaranteed Bit Rate(26),	
			User Plane Versions not Supported(27),	
			Iu UP Failure(28),	
			TRELOCalloc Expiry (7),	
			Relocation Failure in Target CN/RNC or Target System (29),	
			Invalid RAB ID(30),	
			No remaining RAB(31),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Interaction with other procedure(32),	
			Repeated Integrity Checking Failure(37),	
			Requested Report Type not supported(38),	
			Request superseded(39),	
			Release due to UE generated signalling connection release(40),	
			Resource Optimisation Relocation(41),	
			Requested Information Not Available(42),	
			Relocation desirable for radio reasons (43),	
			Relocation not supported in Target RNC or Target system(44)	
			…)	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Transport Layer Cause			INTEGER (Logical Error: Unknown Iu Transport Association(65), …)	Value range is 65 – 80.
>NAS Cause			INTEGER (User Restriction Start Indication(81), User Restriction End Indication(82), Normal Release(83), …)	Value range is 81 – 96.
>Protocol Cause			INTEGER (Transfer Syntax Error(97), Semantic Error (98), Message not compatible with receiver state (99), Abstract Syntax Error (Reject) (100), Abstract Syntax Error (Ignore and Notify) (101), Abstract Syntax Error (Falsely Constructed Message) (102), …)	Value range is 97 – 112.
>Miscellaneous Cause			INTEGER (O&M Intervention(113), No Resource Available(114), Unspecified Failure(115), Network Optimisation(116), …)	Value range is 113 – 128.
>Non-standard Cause			INTEGER (…)	Value range is 129 – 256.

The meaning of the different cause values is described in the following table. In general, "not supported" cause values indicate that the concerning capability is missing. On the other hand, "not available" cause values indicate that the concerning capability is present, but insufficient resources were available to perform the requested action.

Radio Network Layer cause	Meaning
Change Of Ciphering And/Or Integrity Protection Is Not Supported	The UTRAN and/or the UE are/is unable to support the requested change of ciphering and/or integrity protection algorithms.
Condition Violation For Guaranteed Bit Rate	The requested action was not performed due to condition violation for guaranteed bit rate.
Condition Violation For SDU Parameters	The requested action was not performed due to condition violation for SDU parameters.
Condition Violation For Traffic Handling Priority	The requested action was not performed due to condition violation for traffic handling priority.
Failure In The Radio Interface Procedure	Radio interface security control procedure has faileds.
Interaction With Other Procedure	Relocation was cancelled becausedue to interaction with another procedure was initiated at the same time.
Invalid RAB ID	The requested action failed because the RAB ID is unknown in the RNC.
Invalid RAB Parameters Combination	AnThe action failed due to invalid RAB parameters combination.
Invalid RAB Parameters Value	AnThe action failed due to invalid RAB parameters value.
Iu UP Failure	AnThe action failed due to Iu UP failure.
No remaining RAB	No RABs will remain after the requested action.The reason for the action is no remaining RAB.
RAB Pre-empted	The reason for requestedthe action is that RAB is pre-empted.
Release Due To UE Generated Signalling Connection Release	Release requested due to UE generated signalling connection release.
Release Due To UTRAN Generated Reason	Release is initiated due to UTRAN generated reason.
Relocation Cancelled	The reason for requestedthe action is relocation cancellation.
Relocation Desirable for Radio Reasons	The reason for requesting relocation is for radio relatedreasons.
Relocation Failure In Target CN/RNC Or Target System	Relocation failed due to a failure in target CN/RNC or target system.
Relocation Not Supported In Target RNC Or Target System	Relocation failed because relocation was not supported in target RNC or target system.
Relocation Triggered	The requested action failed duringdue to relocation preparation.
Repeated Integrity Checking Failure	The action is requested due to repeated failure in integrity checking.
Request Superseded	The requested action failed because there was a second request on the same RAB.
Requested Ciphering And/Or Integrity Protection Algorithms Not Supported	The UTRAN or the UE is unable to support the requested ciphering and/or integrity protection algorithms.
Requested Guaranteed Bit Rate For DL Not Available	AnThe action failed because requested guaranteed bit rate for DL is not available.
Requested Guaranteed Bit Rate For UL Not Available	AnThe action failed because requested guaranteed bit rate for UL is not available.
Requested Guaranteed Bit Rate Not Available	AnThe action failed because requested guaranteed bit rate is not available.
Requested Information Not Available	AnThe action failed because requested information is not available.
Requested Maximum Bit Rate For DL Not Available	AnThe action failed because requested maximum bit rate for DL is not available.
Requested Maximum Bit Rate For UL Not Available	AnThe action failed because requested maximum bit rate for UL is not available.
Requested Maximum Bit Rate Not Available	AnThe action failed because requested maximum bit rate is not available.
Requested Report Type Not Supported	The RNC is not supporting the requested location report type.
Requested Traffic Class Not Available	AnThe action failed because requested traffic class is not available.
Requested Transfer Delay Not Achievable	AnThe action failed because requested transfer delay is not availableachievable.
Resource Optimisation Relocation	The reason for requesting relocation is resource optimisation.
Successful Relocation	The reason for requestedthe action is completion of successful relocation.
Time Critical Relocation	Relocation is-is requested for time critical reason.
T$_{QUEUING}$ Expiry	The requested action failed due to expiry of the timer

	$T_{QUEUING}$.
$T_{RELOCalloc}$ Expiry	Relocation Resource Allocation procedure failed due to expiry of the timer $T_{RELOCalloc}$.
$T_{RELOCcomplete}$ Expiry	The reason for ~~requested~~the action is expiry of timer $T_{RELOCcomplete}$.
$T_{RELOCoverall}$ Expiry	The reason for ~~requested~~the action is expiry of timer $T_{RELOCoverall}$.
$T_{RELOCprep}$ Expiry	Relocation Preparation procedure is cancelled when timer $T_{RELOCprep}$ expires.
Unable To Establish During Relocation	~~Those RABs rejected during relocation that~~RAB failed to establish during relocation because it cannot be supported ~~by~~in the target RNC.
Unknown Target RNC	Relocation rejected because the target RNC is not known to the CN.
User Inactivity	The action is requested due to user inactivity.
User Plane Versions Not Supported	~~An~~The action failed because requested user plane versions were not supported.

Transport Layer cause	**Meaning**
Logical Error: Unknown Iu Transport Association	The reason for a protocol error is ~~locigal~~logical error: unknown Iu transport association.

NAS cause	**Meaning**
Normal Release	The release is normal.
User Restriction Start Indication	A location report is generated due to entering a classified area set by O&M.
User Restriction End Indication	A location report is generated due to leaving a classified area set by O&M.

Protocol cause	**Meaning**
Abstract Syntax Error (Reject)	The received message included an abstract syntax error and the concerning criticality indicated "reject".
Abstract Syntax Error (Ignore And Notify)	The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify".
Abstract Syntax Error (Falsely Constructed Message)	The received message contained IEs or IE groups in wrong order or with too many occurrences.
Message Not Compatible With Receiver State	The received message was not compatible with the receiver state.
Semantic Error	The received message included a semantic error.
Transfer Syntax Error	The received message included a transfer syntax error.

Miscellan~~i~~eous cause	**Meaning**
Network Optimisation	The ~~requested~~ action is performed for network optimisation.
No Resource Available	No requested resource is available.
O&M Intervention	The ~~requested~~ action is due to O&M intervention.
Unspecified Failure	Sent when none of the specified cause values applies.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR **196r1**	Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	TSG RAN#10	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects:
(at least one should be marked with an X)
(U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**

Source	R-WG3	**Date:**	Oct 20, 2000

Subject: Reducing the maximum number of signalling connection identities.

Work item:

Category:	F	Correction	**X**	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification			Release 99	**X**
					Release 00	

Reason for change:
In RANAP v 3.3.0 the maximum allowed number of Iu signalling connection identities in the Reset Resource message is too large to fit into the signalling transport. In R3#15 it was agreed to reduce this number from 1000 to 500 to make it fit into one connectionless SCCP message. This CR makes the agreed change.

If this change is not done it may cause problems in signalling transport due to too large message.

r1: For coding reasons there is a need to reduce the maximum number of Iu signalling connection identities further down to 250.

Clauses affected: 9.1.44, 9.1.45, 9.3.6

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:

help.doc

<-------- double-click here for help and instructions on how to create a CR.

9.1.44   RESET RESOURCE

This message is sent by either CN or RNC. The sending entity informs the receiving entity that the sending requests the receiving entity to release resources and references associated to Iu signalling connection identities in the message.

Direction: CN ←→ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Cause	M		9.2.1.4		YES	ignore
Iu signalling connections to be released		1 to <maxnoofIuSigConIds			EACH	ignore
>Iu signalling connection identifier	M		9.2.1.38		-	
Global RNC-ID	C - ifUL		9.2.1.39		YES	ignore

Condition	Explanation
IfUL	This IE is always used in uplink direction

Range bound	Explanation
MaxnoofIuSigConIds	Maximum no. of Iu signalling connection identities. Value is ~~1000~~~~500~~250.

9.1.45   RESET RESOURCE ACKNOWLEDGE

This message is sent by either the CN or RNC inform the CN or RNC that the RESET RESOURCE message has been received.

Direction: CN $\leftarrow \rightarrow$ RNC.

Signalling bearer mode: Connectionless.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Iu signalling connections released		1 to <maxnoofIuSigConIds		This list shall be in the same order as the list received in the RESET RESOURCE message.	EACH	ignore
>Iu signalling connection identifier	M		9.2.1.38		-	
Global RNC-ID	C - ifUL		9.2.1.39		YES	ignore
Criticality Diagnostics	O		9.2.1.35		YES	ignore

Condition	Explanation
IfUL	This IE is always used in uplink direction

Range bound	Explanation
MaxnoofIuSigConIds	Maximum no. of Iu signalling connection identities. Value is ~~1000~~~~500~~250.

NEXT MODIFIED SECTION

9.3.6   Constant Definitions

```
-- *************************************************************
--
-- Constant definitions
--
-- *************************************************************

RANAP-Constants {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *************************************************************
--
-- Elementary Procedures
--
-- *************************************************************

id-RAB-Assignment               INTEGER ::= 0
id-Iu-Release                   INTEGER ::= 1
id-RelocationPreparation        INTEGER ::= 2
id-RelocationResourceAllocation INTEGER ::= 3
id-RelocationCancel             INTEGER ::= 4
id-SRNS-ContextTransfer         INTEGER ::= 5
id-SecurityModeControl          INTEGER ::= 6
id-DataVolumeReport             INTEGER ::= 7
id-CN-InformationBroadcast      INTEGER ::= 8
id-Reset                        INTEGER ::= 9
id-RAB-ReleaseRequest           INTEGER ::= 10
id-Iu-ReleaseRequest            INTEGER ::= 11
id-RelocationDetect             INTEGER ::= 12
id-RelocationComplete           INTEGER ::= 13
id-Paging                       INTEGER ::= 14
id-CommonID                     INTEGER ::= 15
id-CN-InvokeTrace               INTEGER ::= 16
id-LocationReportingControl     INTEGER ::= 17
id-LocationReport               INTEGER ::= 18
id-InitialUE-Message            INTEGER ::= 19
id-DirectTransfer               INTEGER ::= 20
id-OverloadControl              INTEGER ::= 21
id-ErrorIndication              INTEGER ::= 22
id-SRNS-DataForward             INTEGER ::= 23
id-ForwardSRNS-Context          INTEGER ::= 24
```

```
id-privateMessage                    INTEGER ::= 25
id-CN-DeactivateTrace                INTEGER ::= 26
id-ResetResource                     INTEGER ::= 27
id-RANAP-Relocation                  INTEGER ::= 28


-- ************************************************************
--
-- Extension constants
--
-- ************************************************************


maxPrivateIEs                        INTEGER ::= 65535
maxProtocolExtensions                INTEGER ::= 65535
maxProtocolIEs                       INTEGER ::= 65535


-- ************************************************************
--
-- Lists
--
-- ************************************************************


maxNrOfDTs                           INTEGER ::= 15
maxNrOfErrors                        INTEGER ::= 256
maxNrOfIuSigConIds                   INTEGER ::= 1000500250
maxNrOfPDPDirections                 INTEGER ::= 2
maxNrOfPieces                        INTEGER ::= 16
maxNrOfPoints                        INTEGER ::= 15
maxNrOfRABs                          INTEGER ::= 256
maxNrOfSeparateTrafficDirections     INTEGER ::= 2
maxNrOfVol                           INTEGER ::= 2

maxRAB-Subflows                      INTEGER ::= 7
maxRAB-SubflowCombination            INTEGER ::= 64


-- ************************************************************
--
-- IEs
--
-- ************************************************************


id-AreaIdentity                      INTEGER ::= 0
id-CN-BroadcastInformationPiece      INTEGER ::= 1
id-CN-BroadcastInformationPieceList  INTEGER ::= 2
id-CN-DomainIndicator                INTEGER ::= 3
id-Cause                             INTEGER ::= 4
id-ChosenEncryptionAlgorithm         INTEGER ::= 5
id-ChosenIntegrityProtectionAlgorithm INTEGER ::= 6
id-ClassmarkInformation2             INTEGER ::= 7
id-ClassmarkInformation3             INTEGER ::= 8
id-CriticalityDiagnostics            INTEGER ::= 9
id-DL-GTP-PDU-SequenceNumber         INTEGER ::= 10
```

```
id-EncryptionInformation                        INTEGER ::= 11
id-IntegrityProtectionInformation               INTEGER ::= 12
id-IuTransportAssociation                       INTEGER ::= 13
id-L3-Information                               INTEGER ::= 14
id-LAI                                          INTEGER ::= 15
id-NAS-PDU                                      INTEGER ::= 16
id-NonSearchingIndication                       INTEGER ::= 17
id-NumberOfSteps                                INTEGER ::= 18
id-OMC-ID                                       INTEGER ::= 19
id-OldBSS-ToNewBSS-Information                  INTEGER ::= 20
id-PagingAreaID                                 INTEGER ::= 21
id-PagingCause                                  INTEGER ::= 22
id-PermanentNAS-UE-ID                           INTEGER ::= 23
id-RAB-ContextItem                              INTEGER ::= 24
id-RAB-ContextList                              INTEGER ::= 25
id-RAB-DataForwardingItem                       INTEGER ::= 26
id-RAB-DataForwardingItem-SRNS-CtxReq           INTEGER ::= 27
id-RAB-DataForwardingList                       INTEGER ::= 28
id-RAB-DataForwardingList-SRNS-CtxReq           INTEGER ::= 29
id-RAB-DataVolumeReportItem                     INTEGER ::= 30
id-RAB-DataVolumeReportList                     INTEGER ::= 31
id-RAB-DataVolumeReportRequestItem              INTEGER ::= 32
id-RAB-DataVolumeReportRequestList              INTEGER ::= 33
id-RAB-FailedItem                               INTEGER ::= 34
id-RAB-FailedList                               INTEGER ::= 35
id-RAB-ID                                       INTEGER ::= 36
id-RAB-QueuedItem                               INTEGER ::= 37
id-RAB-QueuedList                               INTEGER ::= 38
id-RAB-ReleaseFailedList                        INTEGER ::= 39
id-RAB-ReleaseItem                              INTEGER ::= 40
id-RAB-ReleaseList                              INTEGER ::= 41
id-RAB-ReleasedItem                             INTEGER ::= 42
id-RAB-ReleasedList                             INTEGER ::= 43
id-RAB-ReleasedList-IuRelComp                   INTEGER ::= 44
id-RAB-RelocationReleaseItem                    INTEGER ::= 45
id-RAB-RelocationReleaseList                    INTEGER ::= 46
id-RAB-SetupItem-RelocReq                       INTEGER ::= 47
id-RAB-SetupItem-RelocReqAck                    INTEGER ::= 48
id-RAB-SetupList-RelocReq                       INTEGER ::= 49
id-RAB-SetupList-RelocReqAck                    INTEGER ::= 50
id-RAB-SetupOrModifiedItem                      INTEGER ::= 51
id-RAB-SetupOrModifiedList                      INTEGER ::= 52
id-RAB-SetupOrModifyItem                        INTEGER ::= 53
id-RAB-SetupOrModifyList                        INTEGER ::= 54
id-RAC                                          INTEGER ::= 55
id-RelocationType                               INTEGER ::= 56
id-RequestType                                  INTEGER ::= 57
id-SAI                                          INTEGER ::= 58
id-SAPI                                         INTEGER ::= 59
id-SourceID                                     INTEGER ::= 60
id-SourceRNC-ToTargetRNC-TransparentContainer   INTEGER ::= 61
```

```
id-TargetID                                         INTEGER ::= 62
id-TargetRNC-ToSourceRNC-TransparentContainer       INTEGER ::= 63
id-TemporaryUE-ID                                   INTEGER ::= 64
id-TraceReference                                   INTEGER ::= 65
id-TraceType                                        INTEGER ::= 66
id-TransportLayerAddress                            INTEGER ::= 67
id-TriggerID                                        INTEGER ::= 68
id-UE-ID                                            INTEGER ::= 69
id-UL-GTP-PDU-SequenceNumber                        INTEGER ::= 70
id-RAB-FailedtoReportItem                           INTEGER ::= 71
id-RAB-FailedtoReportList                           INTEGER ::= 72
id-KeyStatus                                        INTEGER ::= 75
id-DRX-CycleLengthCoefficient                       INTEGER ::= 76
id-IuSigConIdList                                   INTEGER ::= 77
id-IuSigConIdItem                                   INTEGER ::= 78
id-IuSigConId                                       INTEGER ::= 79
id-DirectTransferInformationItem-RANAP-RelocInf     INTEGER ::= 80
id-DirectTransferInformationList-RANAP-RelocInf     INTEGER ::= 81
id-RAB-ContextItem-RANAP-RelocInf                   INTEGER ::= 82
id-RAB-ContextList-RANAP-RelocInf                   INTEGER ::= 83
id-RAB-ContextFailedtoTransferItem                  INTEGER ::= 84
id-RAB-ContextFailedtoTransferList                  INTEGER ::= 85
id-GlobalRNC-ID                                     INTEGER ::= 86
id-RAB-ReleasedItem-IuRelComp                       INTEGER ::= 87

END
```

3GPP TSG RAN WG3 Meeting #16
Windsor, UK, 16-20 October 2000

Document **R3-002784**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	CR	**197r1**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to: **RAN#10**
list expected approval meeting # here ↑

for approval	**X**	strategic		*(for SMG use only)*
for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3	**Date:**	18.10.2000

Subject:	Correction to the Initiation of Relocation Cancel

Work item:	

Category: F   Correction   **X**
(only one category shall be marked with an X)

			Release:	
F	Correction	**X**	Phase 2	
A	Corresponds to a correction in an earlier release		Release 96	
B	Addition of feature		Release 97	
C	Functional modification of feature		Release 98	
D	Editorial modification		Release 99	**X**
			Release 00	

Reason for change:
Current specification of initiation of Relocation Cancel procedure allows the initiation of the procedure at a stage which could result into conflicting stage information in source and target RNC. This CR sets clear rules when the Relocation Cancel can be initiated by source RNC.

If this correction is not made, the source RNC might initiate Relocation Cancel procedure after it is too late to cancel the ongoing Relocation

Clauses affected:	8.10.1

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:	

help.doc

<----------- double-click here for help and instructions on how to create a CR.

8.10 Relocation Cancel

8.10.1 General

The purpose of the Relocation Cancel procedure is to enable source RNC to cancel an ongoing relocation of SRNS. The Relocation Cancel procedure ~~can~~may be sent by the source RNC during and after the Relocation Preparation procedure ~~as long as the relocation of SRNS is ongoing.~~ if either of the following conditions is fulfilled:

1. Source RNC has not yet initiated the execution of relocation of SRNS ~~Relocation.~~, i.e. before transmission of the SRNS Relocation Commit via Iur towards target RNC in "UE not involved" relocation of SRNS ~~Relocation~~ or before initiating the air interface RRC procedure used to execute the "UE involved" relocation of SRNS ~~Relocation~~.

2. After having initiated the execution of relocation of SRNS ~~Relocation~~ the UE has returned to ~~S~~source RNC by transmitting an RRC message which indicates that the UE considers the source RNC as its ~~S~~serving RNC.

The procedure shall be co-ordinated in all Iu signalling connections existing for the UE. The procedure uses connection oriented signalling.

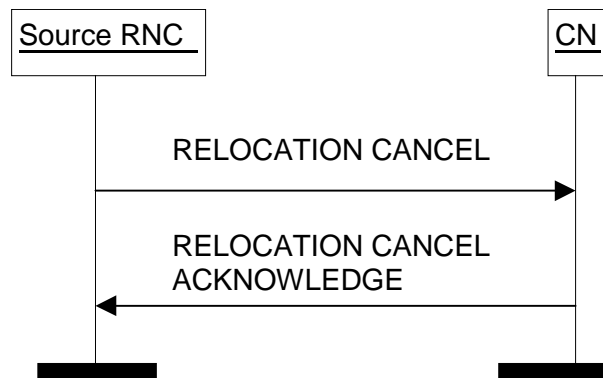## 8.10.2 Successful Operation

Figure 1: Relocation Cancel procedure. Successful Operation

RNC shall initiate the procedure by sending RELOCATION CANCEL message to CN. This message shall indicate the reason for canceling the relocation of SRNS by appropriate value of the *Cause* IE. Upon reception of RELOCATION CANCEL message, CN shall send RELOCATION CANCEL ACKNOWLEDGE message to source RNC.

Transmission and reception of RELOCATION CANCEL ACKNOWLEDGE message terminates the procedure in CN and source RNC respectively. After this, the source RNC does not have a Prepared Relocation for that Iu signalling connection.

Interactions with Relocation Preparation:

Upon reception of RELOCATION CANCEL message from source RNC, CN shall locally terminate the possibly ongoing Relocation Preparation procedure towards that RNC and abandon the relocation of SRNS.

If source RNC receives RELOCATION COMMAND message from CN after Relocation Cancel procedure is initiated, source RNC shall ignore the received RELOCATION COMMAND message.

8.10.3 Unsuccessful Operation

8.10.4 Abnormal Conditions

8.10.5 Co-ordination of Two Iu Signalling Connections

If Relocation Cancel procedure is to be initiated due to other reasons than reception of RELOCATION PREPARATION FAILURE message, Relocation Cancel procedure shall be initiated on all Iu signalling connections existing for the UE in which the Relocation Preparation procedure has not terminated unsuccessfully.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

| **25.413** | CR | **198** | Current Version: | 3.3.0 |

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to: **RAN#10**   for approval   **X**   strategic   *(for SMG*
list expected approval meeting # here   for information   non-strategic   *use only)*
↑

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

| **Source:** | R-WG3 | | **Date:** | 2000-10-08 |

| **Subject:** | RRC container references |

| **Work item:** | |

Category:	F	Correction		**X**	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release				Release 96	
(only one category	B	Addition of feature				Release 97	
shall be marked	C	Functional modification of feature				Release 98	
with an X)	D	Editorial modification				Release 99	**X**
						Release 00	

Reason for change:	The approved CR 422 on 25.331 (R2-001347) introduced changes to the RRC container structure that outdated the current references from the tabular format in RANAP. This CR proposes to align the references with the approved changes to RRC.
	Consequence if not accepted:
	If this CR is not accepted, the misleading reference to the information conveyed in the RRC container may lead to misunderstandings and faulty implementations.

| **Clauses affected:** | 9.2.1.28, 9.2.1.30 |

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:	
	Other GSM core specifications	☐	→ List of CRs:	
	MS test specifications	☐	→ List of CRs:	
	BSS test specifications	☐	→ List of CRs:	
	O&M specifications	☐	→ List of CRs:	

| **Other comments:** | |

help.doc

<---------- double-click here for help and instructions on how to create a CR.

9.2.1.28 Source RNC to Target RNC Transparent Container

Source RNC to Target RNC Transparent Container IE is an information element that is produced by Source RNC and is transmitted to target RNC. In inter system relocation the IE is transmitted from external relocation source to target RNC.

This IE is transparent to CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RRC Container	M		OCTET STRING	~~Either~~ "RRC Information~~initialisation information, source RNC~~ to target RNC" ~~or "RRC initialisation information, source system to target RNC"~~ as defined in TS 25.331 [10]
Number of Iu Instances	M		INTEGER (1...2)	
Relocation Type	M		9.2.1.23	
Chosen Integrity Protection Algorithm	C – ifIntraUMT SandAvail		9.2.1.13	Indicates which integrity protection algorithm that has been used by the source RNC.
Integrity Protection Key	C – ifIntraUMT SandAvail		Bit String (128)	Indicates which integrity protection key that has been used by the source RNC.
Chosen Encryption Algorithm	C - ifIntraUMT SandCiph		9.2.1.14	Indicates which algorithm that has been used by the source RNC for ciphering of signalling data.
Ciphering Key	C - ifIntraUMT SandCiph		Bit String (128)	Indicates which ciphering key that has been used by the source RNC for ciphering of signalling data.
Chosen Encryption Algorithm	C - ifIntraUMT SandCiph		9.2.1.14	Indicates which algorithm that has been used by the source RNC for ciphering of CS user data.
Chosen Encryption Algorithm	C - ifIntraUMT SandCiph		9.2.1.14	Indicates which algorithm that has been used by the source RNC for ciphering of PS user data.
d-RNTI	C - ifUEnotinvolved		INTEGER (0..1048575)	
Target Cell ID	C - ifUEinvolved		INTEGER (0..268435455)	This information element identifies a cell unambiguously within a PLMN.
RAB TrCH mapping	C – ifUEnotinvolvedandRABsUseDCHorDSCHorUSCH	1 to <MaxnoofRABs>		
>RAB ID	M		9.2.1.2	
>**RAB Subflow**	M	1 to <MaxRAB-Subflows>		The RAB Subflows shall be presented in an order that corresponds to the order in which the RBs are presented per RAB in the RRC container included in this IE.
>> **Transport Channel Ids**				
>>>**DCH ID**	C-atleastone		INTEGER (0..255)	The DCH ID is the identifier of an active dedicated transport channel. It is unique for each active DCH among the active DCHs simultaneously allocated for the same UE.
>>>**DSCH ID**	C-atleastone		INTEGER (0..255)	The DSCH ID is the identifier of an active downlink shared transport channel. It is unique for each DSCH among the

				active DSCHs simultaneously allocated for the same UE.
>>>**USCH ID**	C-atleastone		INTEGER (0..255)	The USCH ID is the identifier of an active uplink shared transport channel. It is unique for each USCH among the active USCHs simultaneously allocated for the same UE.

Condition	Explanation
IfIntraUMTSandAvail	Must be present for intra UMTS Handovers if available
IfIntraUMTSandCiph	Must be present for intra UMTS Handovers if ciphering is active
IfUEnotinvolved	Included for SRNS Relocation without UE involvement
IfUEinvolved	Included for SRNS Relocation with UE involvement
IfUEnotinvolvedandRABsUseDCHorDSCHorUSCH	Included for SRNS Relocation without UE involvement and if RABs are carried on DCH, USCH or DSCH transport channels.
AtLeastOne	At least one of these IEs shall be included

Range bound	Explanation
MaxnoofRABs	Maximum no. of RABs for one UE. Value is 256.
MaxRABSubflows	Maximum no. of subflows per RAB. Value is 7.

9.2.1.29   Old BSS to New BSS Information

The coding of this element is described in GSM 08.08 [11].

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Old BSS to New BSS Information	M		OCTET STRING	Contents defined in GSM 08.08 [11].

9.2.1.30   Target RNC to Source RNC Transparent Container

Target RNC to Source RNC Transparent Container IE is an information element that is produced by Target RNC and is transmitted to Source RNC. In inter system relocation the IE is transmitted from target RNC to the external relocation source.

This IE is transparent to CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RRC Container	M		OCTET STRING	Either "RRC information, target RNC to source RNC" or "RRC Information, target RNC to source system" as defined in TS 25.331 [10]
d-RNTI	O		INTEGER (0..1048575)	May be included to allow the triggering of the Relocation Detect procedure from the Iur Interface

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	CR	**199**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	RAN#10	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3		**Date:**	2000-10-08

Subject:	Description of Target Cell ID

Work item:	

Category:

(only one category shall be marked with an X)

			Release:	
F	Correction	**X**	Phase 2	
A	Corresponds to a correction in an earlier release		Release 96	
B	Addition of feature		Release 97	
C	Functional modification of feature		Release 98	
D	Editorial modification		Release 99	**X**
			Release 00	

Reason for change:	The structure for the IE Target Cell ID needs to be better explained.
	If this CR is not approved, the structure of the IE Target Cell ID will be undefined which may lead to misunderstandings and incompatible implementations.

Clauses affected:	9.2.1.28

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

help.doc

<---------- double-click here for help and instructions on how to create a CR.

9.2.1.28 Source RNC to Target RNC Transparent Container

Source RNC to Target RNC Transparent Container IE is an information element that is produced by Source RNC and is transmitted to target RNC. In inter system relocation the IE is transmitted from external relocation source to target RNC.

This IE is transparent to CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RRC Container	M		OCTET STRING	Either "RRC initialisation information, source RNC to target RNC" or "RRC initialisation information, source system to target RNC" as defined in TS 25.331 [10]
Number of Iu Instances	M		INTEGER (1...2)	
Relocation Type	M		9.2.1.23	
Chosen Integrity Protection Algorithm	C – ifIntraUMT SandAvail		9.2.1.13	Indicates which integrity protection algorithm that has been used by the source RNC.
Integrity Protection Key	C – ifIntraUMT SandAvail		Bit String (128)	Indicates which integrity protection key that has been used by the source RNC.
Chosen Encryption Algorithm	C - ifIntraUMT SandCiph		9.2.1.14	Indicates which algorithm that has been used by the source RNC for ciphering of signalling data.
Ciphering Key	C - ifIntraUMT SandCiph		Bit String (128)	Indicates which ciphering key that has been used by the source RNC for ciphering of signalling data.
Chosen Encryption Algorithm	C - ifIntraUMT SandCiph		9.2.1.14	Indicates which algorithm that has been used by the source RNC for ciphering of CS user data.
Chosen Encryption Algorithm	C - ifIntraUMT SandCiph		9.2.1.14	Indicates which algorithm that has been used by the source RNC for ciphering of PS user data.
d-RNTI	C - ifUEnotinv olved		INTEGER (0..1048575)	
Target Cell ID	C - ifUEinvolve d		INTEGER (0..268435455)	This information element identifies a cell ~~unambiguously~~ uniquely within ~~a PLMN~~UTRAN and consists of RNC-ID (12 bits) and C-ID (16 bits) as defined in TS 25.401 [3].
RAB TrCH mapping	C – ifUEnotinv olvedandR ABsUseDC HorDSCHo rUSCH	1 to <MaxnoofRAB s>		
>RAB ID	M		9.2.1.2	
>**RAB Subflow**	M	1 to <MaxRAB-Subflows>		The RAB Subflows shall be presented in an order that corresponds to the order in which the RBs are presented per RAB in the RRC container included in this IE.
>> **Transport Channel Ids**				
>>>**DCH ID**	C-atleastone		INTEGER (0..255)	The DCH ID is the identifier of an active dedicated transport channel. It is unique for each active DCH among the active DCHs simultaneously allocated for the same UE.
>>>**DSCH ID**	C-		INTEGER	The DSCH ID is the identifier

	atleastone		(0..255)	of an active downlink shared transport channel. It is unique for each DSCH among the active DSCHs simultaneously allocated for the same UE.
>>>**USCH ID**	C-atleastone		INTEGER (0..255)	The USCH ID is the identifier of an active uplink shared transport channel. It is unique for each USCH among the active USCHs simultaneously allocated for the same UE.

Condition	Explanation
IfIntraUMTSandAvail	Must be present for intra UMTS Handovers if available
IfIntraUMTSandCiph	Must be present for intra UMTS Handovers if ciphering is active
IfUEnotinvolved	Included for SRNS Relocation without UE involvement
IfUEinvolved	Included for SRNS Relocation with UE involvement
IfUEnotinvolvedandRABsUseDCHorDSCHorUSCH	Included for SRNS Relocation without UE involvement and if RABs are carried on DCH, USCH or DSCH transport channels.
AtLeastOne	At least one of these IEs shall be included

Range bound	Explanation
MaxnoofRABs	Maximum no. of RABs for one UE. Value is 256.
MaxRABSubflows	Maximum no. of subflows per RAB. Value is 7.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR	**201r1**		Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to:	RAN#10	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM [ ]   ME [ ]   UTRAN / Radio [X]   Core Network [X]
(at least one should be marked with an X)

Source	R-WG3	**Date:**	2000-10-18

Subject: Cause values not only for RAB modification

Work item:

Category: F   Correction **[X]**   **Release:**   Phase 2 [ ]

(only one category shall be marked with an X)

A	Corresponds to a correction in an earlier release		Release 96 [ ]
B	Addition of feature		Release 97 [ ]
C	Functional modification of feature		Release 98 [ ]
D	Editorial modification		Release 99 **[X]**
			Release 00 [ ]

Reason for change: The cause values used when requested RAB Parameters can not be supported, shall be used also at RAB establishment and not only at RAB modification as is stated in 25.413 today.

If this CR is not approved, there will be no cause values defined to be used at failure of RAB establishment.

Clauses affected: 8.2.2

Other specs affected:	Other 3G core specifications	[ ]	→ List of CRs:	
	Other GSM core specifications	[ ]	→ List of CRs:	
	MS test specifications	[ ]	→ List of CRs:	
	BSS test specifications	[ ]	→ List of CRs:	
	O&M specifications	[ ]	→ List of CRs:	

Other comments:

help.doc

<---------- double-click here for help and instructions on how to create a CR.

8.2 RAB Assignment

8.2.1 General

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

8.2.2 Successful Operation

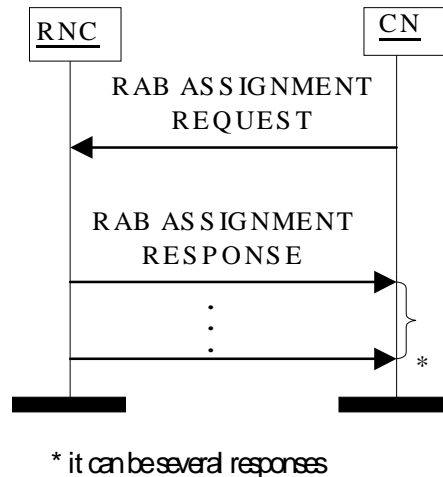

* it can be several responses

Figure 1: RAB Assignment procedure

The CN shall initiate 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 UTRAN to:

- establish;

- modify;

- release.

One or several RABs with one RAB ASSIGNMENT REQUEST message.

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 establish or modify, the message shall contain:

- RAB ID.

- RAB parameters (including e.g. Allocation/Retention Priority).

- Data Volume Reporting Indication (only for PS).

- User Plane Mode.

- UP Mode Versions.

- PDP Type Information (only for PS)

- Transport Layer Address.

- Iu Transport Association.

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- DL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

- UL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

For each RAB request to release, the message shall contain:

- RAB ID.

- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message UTRAN shall execute the requested RAB configuration.

The RAB ID shall identify uniquely the RAB for the specific CN domain 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 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.

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

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 so requires, 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 allowed to pre-empt and the resource situation so requires, RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB vulnerable for pre-emption. 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 "can trigger pre-emption", then this allocation request may trigger the pre-emption procedure.

  3. If the *Pre-emption Capability* IE is set to "cannot trigger pre-emption", then this allocation request may not trigger the pre-emption procedure.

  4. If the *Pre-emption Vulnerability* IE is set to "vulnerable to pre-emption", then this connection shall be included in the pre-emption process.

  5. If the *Pre-emption Vulnerability* IE is set to "not vulnerable to pre-emption", then this connection shall not be included in the pre-emption process.

6. If the *Priority Level* IE is set to "no priority used" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "cannot trigger pre-emption" and "not vulnerable to pre-emption" 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 shall be vulnerable to pre-emption 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 can be done for RABs belonging to the same UE or to other UEs.

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

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

- List of RABs successfully established.

- List of RABs successfully modified RABs.

- List of RABs released.

- List of RABs failed to establish or modify or release.

- List of RABs queued.

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".

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 the transfer to the UE.

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 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 UTRAN.

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

For each RAB that is queued the following outcomes shall be possible:

- successfully established or modified;

- failed to establish or modify;

- failed due to expiry of the timer $T_{QUEUING}$.

For the queued RABs, indicated in the first RAB ASSIGNMENT RESPONSE message, 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. 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 CN and UTRAN when all RABs have been responded to.

When CN receives the response that one or several RABs are queued, CN shall expect 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 not reported RABs shall be considered as failed.

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

UTRAN shall report the outcome of a specific RAB to establish or modify only after the transport network control plane signalling, which is needed for RAB establishment or modification, has been executed. The transport network control plane signalling shall use the *Transport Layer Address* IE and *Iu Transport Association* IE.

After reporting the outcome of a specific RAB to establish or modify, the RNC shall initiate the user plane mode as requested by the CN in the *User Plane Mode* IE. This initialisation is described in ref.[6].

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.

When UTRAN reports unsuccessful establishment/modification of a RAB configuration, 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".

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	CR	**203r1**	Current Version:	3.3.0	

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	RAN#10	for approval	X	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**

Source:	R-WG3	**Date:**	2000-10-18

Subject:	Initialisation of User Plane at RAB establishment

Work item:	

Category: *(only one category shall be marked with an X)*	F Correction	X	**Release:**	Phase 2	
	A Corresponds to a correction in an earlier release			Release 96	
	B Addition of feature			Release 97	
	C Functional modification of feature			Release 98	
	D Editorial modification			Release 99	X
				Release 00	

Reason for change:	The CN needs to know when a RAB can be used for user data transmission. In the current specification no real indication of when the Iu UP is set up is given. This CR proposes to change when the RAB assignment response is sent from UTRAN. Also a clarification to the Relocation preparation procedure is proposed. The change would align the RAB establishment procedure handling with the relocation procedure. For relocation it is specified that the Iu User Plane is allocated before the relocation request acknowledge is sent. The change would also make the RAB assignment response similar for both Transparent mode and Support mode, i.e. that CN knows that the Iu bearer is ready for user data at RAB assignment response. If this CR is not accepted, then there are problems in establishing a user data connection. The Initialisation may have failed (or be delayed) without CN knowing this, resulting in a RAB that cannot transmit user data.

Clauses affected:	8.2.2, 8.7.2

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

help.doc

<---------- double-click here for help and instructions on how to create a CR.

8.2.2 Successful Operation
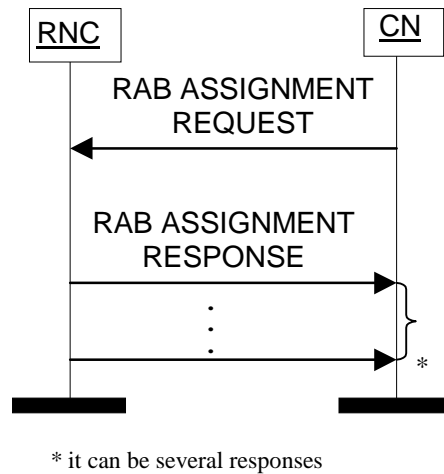

* it can be several responses

Figure 1: RAB Assignment procedure

The CN shall initiate 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 UTRAN to:

- establish;

- modify;

- release.

One or several RABs with one RAB ASSIGNMENT REQUEST message.

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 establish or modify, the message shall contain:

- RAB ID.

- RAB parameters (including e.g. Allocation/Retention Priority).

- Data Volume Reporting Indication (only for PS).

- User Plane Mode.

- UP Mode Versions.

- PDP Type Information (only for PS)

- Transport Layer Address.

- Iu Transport Association.

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- DL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

- UL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

For each RAB request to release, the message shall contain:

- RAB ID.

- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message UTRAN shall execute the requested RAB configuration.

The RAB ID shall identify uniquely the RAB for the specific CN domain 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 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.

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

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 so requires, 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 allowed to pre-empt and the resource situation so requires, RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB vulnerable for pre-emption. 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 "can trigger pre-emption", then this allocation request may trigger the pre-emption procedure.

  3. If the *Pre-emption Capability* IE is set to "cannot trigger pre-emption", then this allocation request may not trigger the pre-emption procedure.

  4. If the *Pre-emption Vulnerability* IE is set to "vulnerable to pre-emption", then this connection shall be included in the pre-emption process.

  5. If the *Pre-emption Vulnerability* IE is set to "not vulnerable to pre-emption", then this connection shall not be included in the pre-emption process.

  6. If the *Priority Level* IE is set to "no priority used" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "cannot trigger pre-emption" and "not vulnerable to pre-emption" 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 shall be vulnerable to pre-emption 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 can be done for RABs belonging to the same UE or to other UEs.

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

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

- List of RABs successfully established.

- List of RABs successfully modified RABs.

- List of RABs released.

- List of RABs failed to establish or modify or release.

- List of RABs queued.

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".

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 the transfer to the UE.

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 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 UTRAN.

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

For each RAB that is queued the following outcomes shall be possible:

- successfully established or modified;

- failed to establish or modify;

- failed due to expiry of the timer $T_{QUEUING}$.

For the queued RABs, indicated in the first RAB ASSIGNMENT RESPONSE message, 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. 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 CN and UTRAN when all RABs have been responded to.

When CN receives the response that one or several RABs are queued, CN shall expect 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 not reported RABs shall be considered as failed.

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

UTRAN shall report the outcome of a specific RAB to establish or modify only after the transport network control plane signalling, which is needed for RAB establishment or modification, has been executed. The transport network control plane signalling shall use the *Transport Layer Address* IE and *Iu Transport Association* IE.

After Before reporting the outcome of a specific RAB to establish or modify, the RNC shall have executed the initialisation of initiated the user plane mode as requested by the CN in the *User Plane Mode* IE. This initialisation is described in ref.[6].

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.

When UTRAN reports unsuccessful modification of RAB configuration the cause value should be precise enough to enable the core network to know the reason for unsuccessful 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".
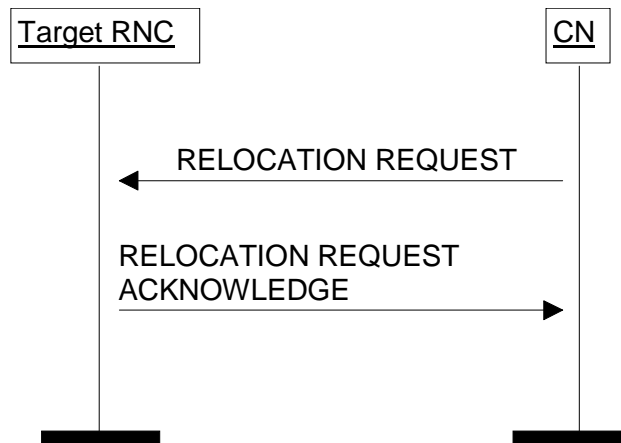
8.7.2 Successful Operation

Figure 2: Relocation Resource Allocation procedure. Successful operation.

The CN shall initiate the procedure by generating RELOCATION REQUEST message. This message shall contain the information (if any)required by the UTRAN to build the same RAB configuration as existing for the UE before the relocation.

The CN shall transmit the RELOCATION REQUEST message to target RNC and the CN shall start the timer $T_{RELOCalloc.}$

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources. The following information elements received in RELOCATION REQUEST message require special actions in the RNC:

- RAB-ID

- User plane mode

- Priority level, queuing and pre-emption indication

- Iu signalling connection identifier

The actions are the same as specified for the same IEs in the RAB Assignment procedure.

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

The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN, and which the RNC is required to store and remember for the duration of the Iu connection.

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

If *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 for *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 *RelocationType* 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 exist(s) and can be used for the RAB by the target RNC.

- If existing radio bearers are not related to any RAB that is accepted by target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by radio interface protocols after completion of relocation of SRNS.

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

After all necessary resources for accepted RABs including the initialised~~initiated~~ Iu user plane, are successfully allocated, the target RNC shall send RELOCATION REQUEST ACKNOWLEDGE message to the CN. 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 received by the CN may optionally contain a transparent container, which shall be transferred by CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

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

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	CR	**204r1**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	RAN#10	for approval	X		strategic		*(for SMG*
list expected approval meeting # here ↑		for information			non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3		**Date:**	2000-11-20

Subject:	Clarification of DRX Cycle Length Coefficient range

Work item:	

Category:

	F	Correction	**X**	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			Release 97	
shall be marked	C	Functional modification of feature			Release 98	
with an X)	D	Editorial modification			Release 99	**X**
					Release 00	

Reason for change:	The CN domain specific DRX cycle length coefficient in RRC can only have values between 6 and 12. This CR proposes to align the DRX Cycle Length Coefficient values with the current capabilities of RRC in order to clarify the value range that can be used by the CN. After liasing with R2 the lower value 6 was confirmed. R2 also requested an upper limit 9 to be used. Consequence if not accepted: If this CR is not accepted then CN implementations may send DRX Cycle Length Coefficient values that are not supported by RRC.

Clauses affected:	9.2.1.37, 9.3.4

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

help.doc

<---------- double-click here for help and instructions on how to create a CR.

9.2.1.37   DRX Cycle Length Coefficient

This IE indicates the DRX cycle length coefficient(k) as defined in TS25.331.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
DRX Cycle Length Coefficient	M		INTEGER (26...129)	

9.3.4   Information Element Definitions

```
-- ***************************************************************
--
-- Information Element Definitions
--
-- ***************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }
```

Lots of unaffected ASN1 not shown

```
D-RNTI                    ::= INTEGER (0..1048575)

DRX-CycleLengthCoefficient          ::= INTEGER (26..129)
DSCH-ID ::= INTEGER (0..255)

-- E
```

Lots of unaffected ASN1 not shown

```
END
```

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	**CR**	**205r2**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to: **RAN#10**   for approval **X**   strategic   *(for SMG*
list expected approval meeting # here   for information   non-strategic   *use only)*
            ↑

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source	R-WG3			**Date:**	2000-10-19

Subject: RAB configuration at modification

Work item:

Category: F Correction **X**   **Release:**   Phase 2
          A Corresponds to a correction in an earlier release   Release 96
(only one category   B Addition of feature   Release 97
shall be marked   C Functional modification of feature   Release 98
with an X)   D Editorial modification   Release 99 **X**
                    Release 00

Reason for change:

At a RAB modification it shall be possible to include in the RAB Assignment Request message only those IEs that contain values that have been changed compared to the existing RAB configuration. It is especially important to be able to indicate the NAS Syncronisation Indicator without having to include any other IEs. In this way it is e.g. possible to avoid that any transport layer control plane signalling will take place just as a result of setting the NAS Syncronisation Indicator.

If this CR is not approved, the RNC will always, at a RAB modification, have to scan through all included IEs in order to find out which IEs that have changed values. There is also a risk that a new user plane connection will be established when not necessary, e.g. when only the NAS Syncronisation Indicator shall be set.

Clauses affected: 8.2.2, 9.1.3, 9.3.3

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:	
Other GSM core specifications	☐	→ List of CRs:	
MS test specifications	☐	→ List of CRs:	
BSS test specifications	☐	→ List of CRs:	
O&M specifications	☐	→ List of CRs:	

Other comments:

There is an interdependancy between this CR and CR221 on 25.413 (Tdoc R3-002772), meaning that if this CR (i.e. CR205r1) is approved then the addition of NAS Syncronisation Indicator to the third bulletlist in chapter 8.2.2 as suggested in CR221 shall not be done.

help.doc

<----------- double-click here for help and instructions on how to create a CR.

8.2 RAB Assignment

8.2.1 General

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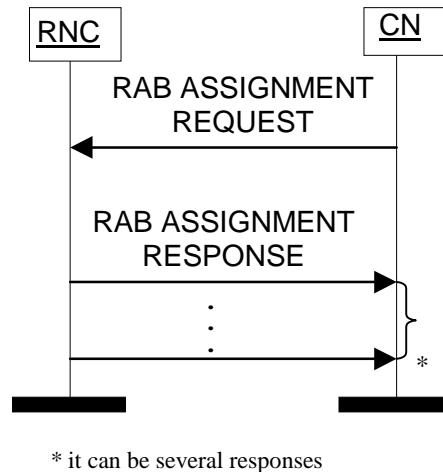
8.2.2 Successful Operation

* it can be several responses

Figure 1: RAB Assignment procedure

The CN shall initiate 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 UTRAN to:

- establish;

- modify;

- release.

One or several RABs with one RAB ASSIGNMENT REQUEST message.

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 establish or modify, the message shall contain:

- RAB ID.

- RAB parameters (including e.g. Allocation/Retention Priority).

- Data Volume Reporting Indication (only for PS).

- User Plane Mode.

- UP Mode Versions.

- PDP Type Information (only for PS)

- Transport Layer Address.

- Iu Transport Association.

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- DL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

- UL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

For each RAB requested to modify, the message may contain:

- RAB ID (mandatory).

- NAS Syncronisation Indicator.

- RAB parameters.

- Transport Layer Address.

- Iu Transport Association.

For each RAB request to release, the message shall contain:

- RAB ID.

- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message UTRAN shall execute the requested RAB configuration.

The RAB ID shall identify uniquely the RAB for the specific CN domain 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 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.

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

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 so requires, 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 allowed to pre-empt and the resource situation so requires, RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB vulnerable for pre-emption. 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 "can trigger pre-emption", then this allocation request may trigger the pre-emption procedure.

3. If the *Pre-emption Capability* IE is set to "cannot trigger pre-emption", then this allocation request may not trigger the pre-emption procedure.

4. If the *Pre-emption Vulnerability* IE is set to "vulnerable to pre-emption", then this connection shall be included in the pre-emption process.

5. If the *Pre-emption Vulnerability* IE is set to "not vulnerable to pre-emption", then this connection shall not be included in the pre-emption process.

6. If the *Priority Level* IE is set to "no priority used" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "cannot trigger pre-emption" and "not vulnerable to pre-emption" 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 shall be vulnerable to pre-emption 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 can be done for RABs belonging to the same UE or to other UEs.

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

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

- List of RABs successfully established.

- List of RABs successfully modified RABs.

- List of RABs released.

- List of RABs failed to establish or modify or release.

- List of RABs queued.

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".

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 the transfer to the UE.

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 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 UTRAN.

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

For each RAB that is queued the following outcomes shall be possible:

- successfully established or modified;

- failed to establish or modify;

- failed due to expiry of the timer $T_{QUEUING}$.

For the queued RABs, indicated in the first RAB ASSIGNMENT RESPONSE message, 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. 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 CN and UTRAN when all RABs have been responded to.

When CN receives the response that one or several RABs are queued, CN shall expect 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 not reported RABs shall be considered as failed.

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

UTRAN shall report the outcome of a specific RAB to establish or modify only after the transport network control plane signalling, which is needed for RAB establishment or modification, has been executed. The transport network control plane signalling shall use the *Transport Layer Address* IE and *Iu Transport Association* IE. At a RAB modification, it is up to the RNC to decide if any transport network control plane signalling shall be performed for the possibly included *Transport Layer Address* IE and *Iu Transport Association* IE or if the already existing transport bearer~~user plane connection~~ shall be used. If the RNC decides to establish a new transport bearer, then the switch over to this new transport bearer shall be done immediately after transport bearer establishment and initialisation of the user plane mode.

After reporting the outcome of a specific RAB to establish or modify, the RNC shall initiate the user plane mode as requested by the CN in the *User Plane Mode* IE. This initialisation is described in ref.[6].

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.

When UTRAN reports unsuccessful modification of RAB configuration the cause value should be precise enough to enable the core network to know the reason for unsuccessful 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".

9.1.3   RAB ASSIGNMENT REQUEST

This message is sent by the CN to request the establishment, modification or release of one or more RABs for the same UE.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
RABs to be setup or modified	C – ifNoOtherGroup	0 to \<maxnoofRABs>			EACH	ignore
>First setup or modify item	M			Grouping reason: same criticality	YES	reject
>>RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.	-	
>>NAS Synchronisation Indicator	C- ifModifandNASInfoProvided		9.2.3.18		-	
>>RAB parameters	~~M~~C - ifSetuporNewValues		9.2.1.3	Includes all necessary parameters for RABs (both for MSC and SGSN) including QoS.	-	
>>User Plane Information	~~M~~C - ifSetup				-	
>>>User Plane mode	M		9.2.1.18		–	
>>>UP Mode Versions	M		9.2.1.19		–	
>>Transport Layer Information	C- ifNotOnlyNSI				–	
>>>Transport Layer Address	M		9.2.2.1		-	
>>>Iu Transport Association	M		9.2.2.2		-	
>Second setup or modify item	M			Grouping reason: same criticality	YES	ignore
>> PDP Type Information	C - ifPSandSetup		9.2.1.40		-	
>>Data Volume Reporting Indication	C - ifPSandSetup		9.2.1.17		-	
>>DL GTP-PDU sequence number	C- ifAvailPSandSetup		9.2.2.3		-	
>>UL GTP-PDU sequence number	C- ifAvailPSandSetup		9.2.2.4		-	
>>DL N-PDU sequence number	C- ifAvailPSandSetup		9.2.1.33		-	
>>UL N-PDU sequence number	C- ifAvailPSandSetup		9.2.1.34		-	
RABs to be released	C - ifNoOtherGroup	0 to \<maxnoofRABs>			EACH	ignore
>RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.	-	

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
>Cause	M		9.2.1.4		-	

Condition	Explanation
IfPSandSetup	This IE is only present for RABs towards the PS domain at RAB establishment.
IfAvailPSandSetup	This IE is only present when available for RABs towards the PS domain at RAB establishment.
IfNoOtherGroup	This group must be present at least when no other group is present, i.e. at least one group must be present.
IfModifandNASInfoProvided	This IE is present at a RAB modification if the relevant NAS information is provided by the CN.
ifSetup	This IE or IE group is present only at a RAB establishment.
ifSetuporNewValue	This IE or IE group is present at a RAB establishment or when any previously set value shall be modified at a RAB modification.
ifNotOnlyNSI	This IE group must not be present if the only other IEs included at a RAB modification are the RAB ID and the NAS Syncronisation Indicator.

Range bound	Explanation
MaxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.3.3   PDU Definitions

```
-- *************************************************************
--
-- PDU definitions for RANAP.
--
-- *************************************************************

RANAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=
```

****   LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.3 REMOVED   ****

```
-- *************************************************************
--
-- RAB ASSIGNMENT ELEMENTARY PROCEDURE
--
-- *************************************************************

-- *************************************************************
--
-- RAB Assignment Request
--
-- *************************************************************

RAB-AssignmentRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RAB-AssignmentRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-AssignmentRequestExtensions} }         OPTIONAL,
    ...
}

RAB-AssignmentRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifyList           CRITICALITY ignore  TYPE RAB-SetupOrModifyList        PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --              } |
    { ID id-RAB-ReleaseList             CRITICALITY ignore  TYPE RAB-ReleaseList             PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --              },
    ...
}

RAB-SetupOrModifyList                   ::= RAB-IE-ContainerPairList { {RAB-SetupOrModifyItem-IEs} }

RAB-SetupOrModifyItem-IEs RANAP-PROTOCOL-IES-PAIR ::= {
    { ID id-RAB-SetupOrModifyItem           FIRST CRITICALITY  reject   FIRST TYPE  RAB-SetupOrModifyItemFirst
                        SECOND CRITICALITY ignore   SECOND TYPE RAB-SetupOrModifyItemSecond
```

```
                                                    PRESENCE mandatory  },
    ...
}

RAB-SetupOrModifyItemFirst ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    nAS-SynchronisationIndicator  NAS-SynchronisationIndicator    OPTIONAL
    -- This IE is present at a RAB modification if the relevant NAS information is provided by the CN --,
    rAB-Parameters              RAB-Parameters      OPTIONAL
    -- This IE is present at a RAB establishment or when any previously set value shall be modified at a RAB modification --,
    userPlaneInformation             UserPlaneInformation       OPTIONAL
    -- This IE is present only at a RAB establishment --,
    transportLayerAddresstransportLayerInformation        TransportLayerAddressTransportLayerInformation     OPTIONAL
    -- This IE must not be present if the only other IEs included at a RAB modification are the RAB ID and the NAS Syncronisation Indicator --,
    iuTransportAssociation              IuTransportAssociation,
    iE-Extensions               ProtocolExtensionContainer { {RAB-SetupOrModifyItemFirst-ExtIEs} }        OPTIONAL,
    ...
}

TranportLayerInformation ::= SEQUENCE {
    transportLayerAddress          TransportLayerAddress,
    iuTransportAssociation          IuTransportAssociation,
    iE-Extensions           ProtocolExtensionContainer { {TransportLayerInformation-ExtIEs} }         OPTIONAL,
    ...
}

TransportLayerInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-SetupOrModifyItemFirst-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-SetupOrModifyItemSecond ::= SEQUENCE {
    pDP-TypeInformation             PDP-TypeInformation         OPTIONAL
    -- This IE is only present for RABs towards the PS domain at RAB establishment --,
    dataVolumeReportingIndication          DataVolumeReportingIndication    OPTIONAL
    -- This IE, if applicable, is only present for RABs towards the PS domain at RAB establishment --,
    dl-GTP-PDU-SequenceNumber          DL-GTP-PDU-SequenceNumber    OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain at RAB establishment --,
    ul-GTP-PDU-SequenceNumber          UL-GTP-PDU-SequenceNumber    OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain at RAB establishment --,
    dl-N-PDU-SequenceNumber          DL-N-PDU-SequenceNumber      OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain at RAB establishment --,
    ul-N-PDU-SequenceNumber          UL-N-PDU-SequenceNumber      OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain at RAB establishment --,
    iE-Extensions               ProtocolExtensionContainer { {RAB-SetupOrModifyItemSecond-ExtIEs} }     OPTIONAL,
    ...
}

RAB-SetupOrModifyItemSecond-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
```

```
    ...
}

RAB-AssignmentRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- *************************************************************
--
-- RAB Assignment Response
--
-- *************************************************************

RAB-AssignmentResponse ::= SEQUENCE {
    protocolIEs          ProtocolIE-Container        { {RAB-AssignmentResponseIEs} },
    protocolExtensions        ProtocolExtensionContainer { {RAB-AssignmentResponseExtensions} }        OPTIONAL,
    ...
}

RAB-AssignmentResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifiedList          CRITICALITY ignore  TYPE RAB-SetupOrModifiedList        PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --          } |
    { ID id-RAB-ReleasedList            CRITICALITY ignore  TYPE RAB-ReleasedList            PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --          } |

    { ID id-RAB-QueuedList              CRITICALITY ignore  TYPE RAB-QueuedList            PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --          } |
    { ID id-RAB-FailedList              CRITICALITY ignore  TYPE RAB-FailedList            PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --          } |
    { ID id-RAB-ReleaseFailedList            CRITICALITY ignore  TYPE RAB-ReleaseFailedList        PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --          } |
    { ID id-CriticalityDiagnostics          CRITICALITY ignore  TYPE CriticalityDiagnostics      PRESENCE optional },
    ...
}

RAB-SetupOrModifiedList                  ::= RAB-IE-ContainerList { {RAB-SetupOrModifiedItemIEs} }

RAB-SetupOrModifiedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifiedItem          CRITICALITY ignore  TYPE RAB-SetupOrModifiedItem        PRESENCE mandatory  },
    ...
}

RAB-SetupOrModifiedItem ::= SEQUENCE {
    rAB-ID                  RAB-ID,
    transportLayerAddress            TransportLayerAddress   OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    iuTransportAssociation            IuTransportAssociation  OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    dl-dataVolumes                DataVolumeList      OPTIONAL
    -- This IE is only present if the RAB has been modified and --
    -- RAB data volume reporting for PS domain is required  --,
    iE-Extensions                ProtocolExtensionContainer { {RAB-SetupOrModifiedItem-ExtIEs} }        OPTIONAL,
```

```
    ...
}

RAB-SetupOrModifiedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleasedList                      ::= RAB-IE-ContainerList { {RAB-ReleasedItemIEs} }

RAB-ReleasedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleasedItem          CRITICALITY ignore  TYPE RAB-ReleasedItem          PRESENCE mandatory },
    ...
}

RAB-ReleasedItem ::= SEQUENCE {
    rAB-ID                    RAB-ID,
    dl-dataVolumes                    DataVolumeList      OPTIONAL
    -- This IE is only present if data volume reporting for PS domain is required --,
    dL-GTP-PDU-SequenceNumber         DL-GTP-PDU-SequenceNumber          OPTIONAL
    -- This IE is only present for RABs towards the PS domain when available and when the release is UTRAN initiated --   ,
    uL-GTP-PDU-SequenceNumber         UL-GTP-PDU-SequenceNumber          OPTIONAL
    -- This IE is only present for RABs towards the PS domain when available and when the release is UTRAN initiated --   ,
    iE-Extensions                     ProtocolExtensionContainer { {RAB-ReleasedItem-ExtIEs} }         OPTIONAL,
    ...
}

RAB-ReleasedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

DataVolumeList ::= SEQUENCE (SIZE (1..maxNrOfVol)) OF
    SEQUENCE {
        dl-UnsuccessfullyTransmittedDataVolume      UnsuccessfullyTransmittedDataVolume,
        dataVolumeReference               DataVolumeReference OPTIONAL,
        iE-Extensions                     ProtocolExtensionContainer { {DataVolumeList-ExtIEs} }     OPTIONAL,
        ...
    }

DataVolumeList-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-QueuedList                   ::= RAB-IE-ContainerList { {RAB-QueuedItemIEs} }

RAB-QueuedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-QueuedItem            CRITICALITY ignore  TYPE RAB-QueuedItem          PRESENCE mandatory  },
    ...
}

RAB-QueuedItem ::= SEQUENCE {
    rAB-ID                    RAB-ID,
    iE-Extensions                 ProtocolExtensionContainer { {RAB-QueuedItem-ExtIEs} }        OPTIONAL,
```

```
    ...
}

RAB-QueuedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleaseFailedList ::= RAB-FailedList

RAB-AssignmentResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

**** LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.3 REMOVED ****

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR **206r3**   Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to: **RAN#10**   for approval **X**   strategic ☐   *(for SMG*
list expected approval meeting # here   for information ☐   non-strategic ☐   *use only)*
↑

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source: R-WG3   **Date:** 2000-11-24

Subject: Service based inter-system handover

Work item:

Category: F Correction   **X**   **Release:**   Phase 2 ☐
                 A Corresponds to a correction in an earlier release   Release 96 ☐
(only one category   B Addition of feature   Release 97 ☐
shall be marked   C Functional modification of feature   Release 98 ☐
with an X)   D Editorial modification   Release 99 **X**
                                                                          Release 00 ☐

Reason for change:
The RNC has today no knowledge about which service a RAB is carrying and is thus lacking information on which to base a decision if handover to GSM is possible or not for the RAB in question. The core network must thus per RAB in the RAB ASSIGNMENT REQUEST message and in the RELOCATION REQUEST message inform the RNC if a handover to GSM is can be performed or not.

If this CR is not approved, there is a risk that RABs that carry traffic which can't be supported by a GSM system, will all the same be handed over to GSM.

More information regarding Service Based Handover can be found in Tdoc R3-003080.

Clauses affected: 8.2.2, 8.3.2, 8.7.2, 9.1.3, 9.1.10, 9.2.1.xx, 9.3.3, 9.3.4

Other specs affected:
Other 3G core specifications ☐ → List of CRs:
Other GSM core specifications ☐ → List of CRs:
MS test specifications ☐ → List of CRs:
BSS test specifications ☐ → List of CRs:
O&M specifications ☐ → List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

8.2 RAB Assignment

8.2.1 General

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

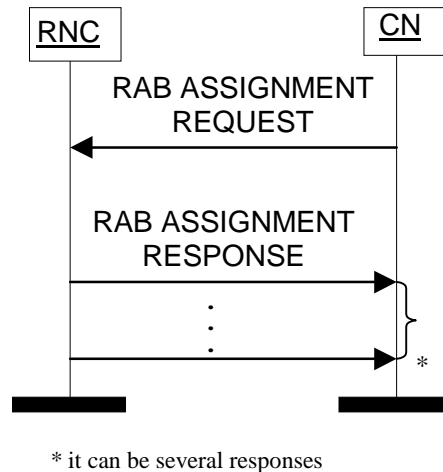## 8.2.2 Successful Operation

* it can be several responses

Figure 1: RAB Assignment procedure

The CN shall initiate 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 UTRAN to:

- establish;

- modify;

- release.

One or several RABs with one RAB ASSIGNMENT REQUEST message.

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 establish or modify, the message shall contain:

- RAB ID.

- RAB parameters (including e.g. Allocation/Retention Priority).

- Data Volume Reporting Indication (only for PS).

- User Plane Mode.

- UP Mode Versions.

- PDP Type Information (only for PS)

- Transport Layer Address.

- Iu Transport Association.

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- DL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

- UL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

For each RAB request to release, the message shall contain:

- RAB ID.

- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message UTRAN shall execute the requested RAB configuration.

The RAB ID shall identify uniquely the RAB for the specific CN domain 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 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.

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

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 so requires, 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 allowed to pre-empt and the resource situation so requires, RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB vulnerable for pre-emption. 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 "can trigger pre-emption", then this allocation request may trigger the pre-emption procedure.

  3. If the *Pre-emption Capability* IE is set to "cannot trigger pre-emption", then this allocation request may not trigger the pre-emption procedure.

  4. If the *Pre-emption Vulnerability* IE is set to "vulnerable to pre-emption", then this connection shall be included in the pre-emption process.

  5. If the *Pre-emption Vulnerability* IE is set to "not vulnerable to pre-emption", then this connection shall not be included in the pre-emption process.

6. If the *Priority Level* IE is set to "no priority used" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "cannot trigger pre-emption" and "not vulnerable to pre-emption" 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 shall be vulnerable to pre-emption 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 can be done for RABs belonging to the same UE or to other UEs.

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

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

- should be handed over to GSM, i.e. from NAS point of view, the RAB ~~shall~~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 UTRAN.

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

- shall not be handed over to GSM, i.e. the RAB shall never be handed over to GSM. This means that ~~if UTRAN still decides to perform a handover to GSM for the UE, this RAB shall be released~~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 handovers.

If the *Service Handover* IE is not included, ~~it shall be considered to have the value "shall not be handed over to GSM"~~the decision whether to perform a handover to GSM is only an internal UTRAN matter.

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

- List of RABs successfully established.

- List of RABs successfully modified RABs.

- List of RABs released.

- List of RABs failed to establish or modify or release.

- List of RABs queued.

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".

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 the transfer to the UE.

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 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 UTRAN.

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

For each RAB that is queued the following outcomes shall be possible:

- successfully established or modified;

- failed to establish or modify;

- failed due to expiry of the timer $T_{QUEUING}$.

For the queued RABs, indicated in the first RAB ASSIGNMENT RESPONSE message, 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. 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 CN and UTRAN when all RABs have been responded to.

When CN receives the response that one or several RABs are queued, CN shall expect 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 not reported RABs shall be considered as failed.

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

UTRAN shall report the outcome of a specific RAB to establish or modify only after the transport network control plane signalling, which is needed for RAB establishment or modification, has been executed. The transport network control plane signalling shall use the *Transport Layer Address* IE and *Iu Transport Association* IE.

After reporting the outcome of a specific RAB to establish or modify, the RNC shall initiate the user plane mode as requested by the CN in the *User Plane Mode* IE. This initialisation is described in ref.[6].

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.

When UTRAN reports unsuccessful modification of RAB configuration the cause value should be precise enough to enable the core network to know the reason for unsuccessful 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".

8.3 RAB Release Request

8.3.1 General

The purpose of the RAB Release Request procedure is to enable UTRAN to request the release of one or several radio access bearers. The procedure uses connection oriented signalling.

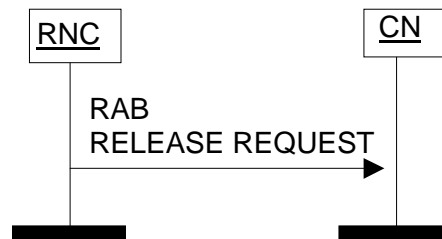## 8.3.2 Successful Operation

Figure 2: RAB Release Request procedure. Successful Operation

The RNC shall initiate the procedure by generating a RAB RELEASE REQUEST message towards the CN. The *RABs to be released* IE shall indicate the list of RABs requested to release and the *Cause* IE associated to each RAB shall indicate the reason for the release, e.g. "RAB pre-empted", "Release due to UTRAN Generated Reason".

Upon reception of the RAB RELEASE REQUEST message, the CN should initiate the appropriate release procedure for the identified RABs in the RAB RELEASE REQUEST message. It is up to the CN to decide how to react to the request.

Interaction with Iu Release Command:

If no RABs will remain according to the RAB RELEASE REQUEST message, the CN may decide to initiate the Iu Release procedure if it does not want to keep the Iu signalling connection. The cause value to use is "No remaining RAB".

Interaction with RAB Assignment (release RAB):

If the CN decides to release some or all indicated RABs, the CN may decide to invoke the RAB Assignment procedure (release RAB) to this effect.

8.7 Relocation Resource Allocation

8.7.1 General

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

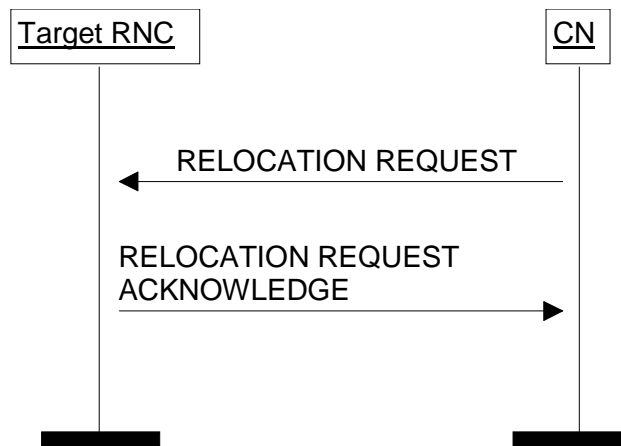## 8.7.2 Successful Operation

Figure 3: Relocation Resource Allocation procedure. Successful operation.

The CN shall initiate the procedure by generating RELOCATION REQUEST message. This message shall contain the information (if any)required by the UTRAN to build the same RAB configuration as existing for the UE before the relocation.

The CN shall transmit the RELOCATION REQUEST message to target RNC and the CN shall start the timer $T_{RELOCalloc}$.

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources. The following information elements received in RELOCATION REQUEST message require special actions in the RNC:

- RAB-ID

- User plane mode

- Priority level, queuing and pre-emption indication

- Iu signalling connection identifier

- Service Handover

The actions are the same as specified for the same IEs in the RAB Assignment procedure.

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

The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN, and which the RNC is required to store and remember for the duration of the Iu connection.

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

If *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 for *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 *RelocationType* 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 exist(s) and can be used for the RAB by the target RNC.

- If existing radio bearers are not related to any RAB that is accepted by target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by radio interface protocols after completion of relocation of SRNS.

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

After all necessary resources for accepted RABs including the Iu user plane, are successfully allocated, the target RNC shall send RELOCATION REQUEST ACKNOWLEDGE message to the CN. 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 received by the CN may optionally contain a transparent container, which shall be transferred by CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

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

9.1.3 RAB ASSIGNMENT REQUEST

This message is sent by the CN to request the establishment, modification or release of one or more RABs for the same UE.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
RABs to be setup or modified	C – ifNoOtherGroup	0 to \<maxnoofRABs>			EACH	ignore
>First setup or modify item	M			Grouping reason: same criticality	YES	reject
>>RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.	-	
>>NAS Synchronisation Indicator	C-ifNASInfoProvided		9.2.3.18		-	
>>RAB parameters	M		9.2.1.3	Includes all necessary parameters for RABs (both for MSC and SGSN) including QoS.	-	
>>User Plane Information	M				-	
>>>User Plane mode	M		9.2.1.18		–	
>>>UP Mode Versions	M		9.2.1.19		–	
>>Transport Layer Address	M		9.2.2.1		-	
>>Iu Transport Association	M		9.2.2.2		-	
>>Service Handover	O		9.2.1.xx		-	
>Second setup or modify item	M			Grouping reason: same criticality	YES	ignore
>> PDP Type Information	C - ifPS		9.2.1.40		-	
>>Data Volume Reporting Indication	C - ifPS		9.2.1.17		-	
>>DL GTP-PDU sequence number	C-ifAvailPS		9.2.2.3		-	
>>UL GTP-PDU sequence number	C-ifAvailPS		9.2.2.4		-	
>>DL N-PDU sequence number	C-ifAvailPS		9.2.1.33		-	
>>UL N-PDU sequence number	C-ifAvailPS		9.2.1.34		-	
RABs to be released	C - ifNoOtherGroup	0 to \<maxnoofRABs>			EACH	ignore
>RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.	-	
>Cause	M		9.2.1.4		-	

Condition	Explanation
IfPS	This IE is only present for RABs towards the PS domain.
IfAvailPS	This IE is only present when available for RABs towards the PS domain.
IfNoOtherGroup	This group must be present at least when no other group is present, i.e. at least one group must be present.
IfNASInfoProvided	This IE is present if the relevant NAS information is provided by the CN.

Range bound	Explanation
MaxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.1.10   RELOCATION REQUEST

This message is sent by the CN to request the target RNC to allocate necessary resources for a relocation.

Direction: CN → RNC.

Signalling bearer mode: Connection oriented.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Permanent NAS UE Identity	C – ifAvail		9.2.3.1		YES	ignore
Cause	M		9.2.1.4		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	ignore
Source RNC to target RNC transparent container	M		9.2.1.28		YES	reject
RABs to be setup		0 to <maxnoofRABs>			EACH	reject
>RAB ID	M		9.2.1.2		-	
>NAS Synchronisation Indicator	C- ifNASInfoProvided		9.2.3.18		-	
>RAB parameters	M		9.2.1.3		-	
>Data Volume Reporting Indication	C – ifPS		9.2.1.17		-	
> PDP Type Information	C – ifPS		9.2.1.40		-	
>User Plane Information	M				-	
>>User Plane mode	M		9.2.1.18		-	
>>UP Mode Versions	M		9.2.1.19		–	
>Transport Layer Address	M		9.2.2.1		–	
>Iu Transport Association	M		9.2.2.2		-	
>Service Handover	O		9.2.1.xx		-	
Integrity Protection Information	C – ifAvail		9.2.1.11	Integrity Protection Information includes key and permitted algorithms.	YES	ignore
Encryption Information	O		9.2.1.12	Encryption Information includes key and permitted algorithms.	YES	ignore
Iu signalling connection identifier	M		9.2.1.38		YES	ignore

Condition	Explanation
ifAvail	This IE is only present if available at the sending side.
IfPS	This IE is only present for RABs towards the PS domain.
IfNASInfoProvided	This IE is present if the relevant NAS information is provided by the CN.

Range bound	Explanation
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.2.1.xx Service Handover

This IE tells if intersystem handover to GSM should, should not, or shall not be performed for the RAB in question.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Service Handover	M		ENUMERATED (Handover to GSM should be performed, Handover to GSM should not be performed, Handover to GSM shall not be performed, …)	

9.3.3   PDU Definitions

```
-- *************************************************************
--
-- PDU definitions for RANAP.
--
-- *************************************************************

RANAP-PDU-Contents {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- *************************************************************
--
-- IE parameter types from other modules.
--
-- *************************************************************

IMPORTS
    DataVolumeReference,
    AreaIdentity,
    CN-BroadcastArea,
    CN-DomainIndicator,
    Cause,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,
    DL-GTP-PDU-SequenceNumber,
    DL-N-PDU-SequenceNumber,
    DataVolumeReportingIndication,
    DRX-CycleLengthCoefficient,
    EncryptionInformation,
    GlobalRNC-ID,
    IntegrityProtectionInformation,
    IuSignallingConnectionIdentifier,
    IuTransportAssociation,
    KeyStatus,
    L3-Information,
    LAI,
    NAS-BroadcastInformation,
    InformationIdentity,
    InformationPriority,
```

```
        InformationControl,
        NAS-PDU,
        NAS-SynchronisationIndicator,
        NonSearchingIndication,
        NumberOfSteps,
        OMC-ID,
        OldBSS-ToNewBSS-Information,
        PagingAreaID,
        PagingCause,
        PDP-TypeInformation,
        PermanentNAS-UE-ID,
        RAB-ID,
        RAB-Parameters,
        RAC,
        RelocationType,
        RequestType,
        SAI,
        SAPI,
        Service-Handover,
        SourceID,
        SourceRNC-ToTargetRNC-TransparentContainer,
        TargetID,
        TargetRNC-ToSourceRNC-TransparentContainer,
        TemporaryUE-ID,
        TraceReference,
        TraceType,
        UnsuccessfullyTransmittedDataVolume,
        TransportLayerAddress,
        TriggerID,
        UE-ID,
        UL-GTP-PDU-SequenceNumber,
        UL-N-PDU-SequenceNumber,
        UP-ModeVersions,
        UserPlaneMode
FROM RANAP-IEs


        PrivateIE-Container{},
        ProtocolExtensionContainer{},
        ProtocolIE-ContainerList{},
        ProtocolIE-ContainerPair{},
        ProtocolIE-ContainerPairList{},
        ProtocolIE-Container{},
        RANAP-PRIVATE-IES,
        RANAP-PROTOCOL-EXTENSION,
        RANAP-PROTOCOL-IES,
        RANAP-PROTOCOL-IES-PAIR
FROM RANAP-Containers

        maxNrOfDTs,
        maxNrOfErrors,
```

```
        maxNrOfIuSigConIds,
        maxNrOfPieces,
        maxNrOfRABs,
        maxNrOfVol,

        id-AreaIdentity,
        id-CN-BroadcastInformationPiece,
        id-CN-BroadcastInformationPieceList,
        id-CN-DomainIndicator,
        id-Cause,
        id-ChosenEncryptionAlgorithm,
        id-ChosenIntegrityProtectionAlgorithm,
        id-ClassmarkInformation2,
        id-ClassmarkInformation3,
        id-CriticalityDiagnostics,
        id-DRX-CycleLengthCoefficient,
        id-DirectTransferInformationItem-RANAP-RelocInf,
        id-DirectTransferInformationList-RANAP-RelocInf,
        id-DL-GTP-PDU-SequenceNumber,
        id-EncryptionInformation,
        id-GlobalRNC-ID,
        id-IntegrityProtectionInformation,
        id-IuSigConId,   id-IuSigConIdItem,
        id-IuSigConIdList,
        id-IuTransportAssociation,
        id-KeyStatus,
        id-L3-Information,
        id-LAI,
        id-NAS-PDU,
        id-NonSearchingIndication,
        id-NumberOfSteps,
        id-OMC-ID,
        id-OldBSS-ToNewBSS-Information,
        id-PagingAreaID,
        id-PagingCause,
        id-PermanentNAS-UE-ID,
        id-RAB-ContextItem,
        id-RAB-ContextList,
        id-RAB-ContextFailedtoTransferItem,
        id-RAB-ContextFailedtoTransferList,
        id-RAB-ContextItem-RANAP-RelocInf,
        id-RAB-ContextList-RANAP-RelocInf,
        id-RAB-DataForwardingItem,
        id-RAB-DataForwardingItem-SRNS-CtxReq,
        id-RAB-DataForwardingList,
        id-RAB-DataForwardingList-SRNS-CtxReq,
        id-RAB-DataVolumeReportItem,
        id-RAB-DataVolumeReportList,
        id-RAB-DataVolumeReportRequestItem,
        id-RAB-DataVolumeReportRequestList,
        id-RAB-FailedItem,
```

```
        id-RAB-FailedList,
        id-RAB-FailedtoReportItem,
        id-RAB-FailedtoReportList,
        id-RAB-ID,
        id-RAB-QueuedItem,
        id-RAB-QueuedList,
        id-RAB-ReleaseFailedList,
        id-RAB-ReleaseItem,
        id-RAB-ReleasedItem-IuRelComp,
        id-RAB-ReleaseList,
        id-RAB-ReleasedItem,
        id-RAB-ReleasedList,
        id-RAB-ReleasedList-IuRelComp,
        id-RAB-RelocationReleaseItem,
        id-RAB-RelocationReleaseList,
        id-RAB-SetupItem-RelocReq,
        id-RAB-SetupItem-RelocReqAck,
        id-RAB-SetupList-RelocReq,
        id-RAB-SetupList-RelocReqAck,
        id-RAB-SetupOrModifiedItem,
        id-RAB-SetupOrModifiedList,
        id-RAB-SetupOrModifyItem,
        id-RAB-SetupOrModifyList,
        id-RAC,
        id-RelocationType,
        id-RequestType,
        id-SAI,
        id-SAPI,
        id-SourceID,
        id-SourceRNC-ToTargetRNC-TransparentContainer,
        id-TargetID,
        id-TargetRNC-ToSourceRNC-TransparentContainer,
        id-TemporaryUE-ID,
        id-TraceReference,
        id-TraceType,
        id-TransportLayerAddress,
        id-TriggerID,
        id-UE-ID,
        id-UL-GTP-PDU-SequenceNumber
FROM RANAP-Constants;

-- **************************************************************
--
-- Common Container Lists
--
-- **************************************************************

RAB-IE-ContainerList                  { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfRABs,   {IEsSetParam} }
RAB-IE-ContainerPairList              { RANAP-PROTOCOL-IES-PAIR : IEsSetParam } ::= ProtocolIE-ContainerPairList { 1, maxNrOfRABs,   {IEsSetParam} }
ProtocolError-IE-ContainerList        { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfRABs,   {IEsSetParam} }
CN-BroadcastInfPiece-IE-ContainerList { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList     { 1, maxNrOfPieces, {IEsSetParam} }
```

```
IuSigConId-IE-ContainerList            { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList    { 1, maxNrOfIuSigConIds,
{IEsSetParam} }
DirectTransfer-IE-ContainerList  { RANAP-PROTOCOL-IES      : IEsSetParam } ::= ProtocolIE-ContainerList    { 1, maxNrOfDTs,    {IEsSetParam} }
```

```
  ****     LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.3 REMOVED    ****
```

```
-- ************************************************************
--
-- RELOCATION RESOURCE ALLOCATION ELEMENTARY PROCEDURE
--
-- ************************************************************


-- ************************************************************
--
-- Relocation Request
--
-- ************************************************************

RelocationRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {RelocationRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationRequestExtensions} }            OPTIONAL,
    ...
}

RelocationRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-PermanentNAS-UE-ID           CRITICALITY ignore  TYPE PermanentNAS-UE-ID           PRESENCE conditional
    -- This IE is only present if available at the sending side --                                  } |
    { ID id-Cause                  CRITICALITY ignore  TYPE Cause                  PRESENCE mandatory } |
    { ID id-CN-DomainIndicator         CRITICALITY ignore  TYPE CN-DomainIndicator           PRESENCE mandatory } |
    { ID id-SourceRNC-ToTargetRNC-TransparentContainer
                        CRITICALITY reject  TYPE SourceRNC-ToTargetRNC-TransparentContainer PRESENCE mandatory } |
    { ID id-RAB-SetupList-RelocReq         CRITICALITY reject  TYPE RAB-SetupList-RelocReq       PRESENCE optional } |
    { ID id-IntegrityProtectionInformation     CRITICALITY ignore  TYPE IntegrityProtectionInformation     PRESENCE conditional
    -- This IE is only present if available at the sending side --                                  } |
    { ID id-EncryptionInformation          CRITICALITY ignore  TYPE EncryptionInformation        PRESENCE optional } |
    { ID id-IuSigConId  CRITICALITY ignore TYPE IuSignallingConnectionIdentifier  PRESENCE mandatory },
    ...
}


RAB-SetupList-RelocReq                 ::= RAB-IE-ContainerList { {RAB-SetupItem-RelocReq-IEs} }

RAB-SetupItem-RelocReq-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupItem-RelocReq           CRITICALITY reject  TYPE RAB-SetupItem-RelocReq       PRESENCE mandatory   },
    ...
}

RAB-SetupItem-RelocReq ::= SEQUENCE {
```

```
    rAB-ID                          RAB-ID,
    nAS-SynchronisationIndicator    NAS-SynchronisationIndicator    OPTIONAL
    -- This IE is present if the relevant NAS information is provided by the CN --,
    rAB-Parameters                  RAB-Parameters,
    dataVolumeReportingIndication           DataVolumeReportingIndication   OPTIONAL
    -- This IE is only present if available at the sending side --,
    pDP-TypeInformation             PDP-TypeInformation    OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    userPlaneInformation            UserPlaneInformation,
    transportLayerAddress           TransportLayerAddress,
    iuTransportAssociation          IuTransportAssociation,
    service-Handover                Service-Handover        OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupItem-RelocReq-ExtIEs} }        OPTIONAL,
    ...
}

RAB-SetupItem-RelocReq-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

UserPlaneInformation ::= SEQUENCE {
    userPlaneMode                   UserPlaneMode,
    uP-ModeVersions                 UP-ModeVersions,
    iE-Extensions                   ProtocolExtensionContainer { {UserPlaneInformation-ExtIEs} }        OPTIONAL,
    ...
}

UserPlaneInformation-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RelocationRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- ***************************************************************
--
-- Relocation Request Acknowledge
--
-- ***************************************************************

RelocationRequestAcknowledge ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {RelocationRequestAcknowledgeIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationRequestAcknowledgeExtensions} }        OPTIONAL,
    ...
}

RelocationRequestAcknowledgeIEs RANAP-PROTOCOL-IES ::= {
    { ID id-TargetRNC-ToSourceRNC-TransparentContainer
                        CRITICALITY ignore  TYPE TargetRNC-ToSourceRNC-TransparentContainer PRESENCE conditional
    -- Must be included if applicapble and if not sent via the other CN --                                  } |
```

```
    { ID id-RAB-SetupList-RelocReqAck      CRITICALITY ignore  TYPE RAB-SetupList-RelocReqAck       PRESENCE optional} |
    { ID id-RAB-FailedList                 CRITICALITY ignore  TYPE RAB-FailedList                  PRESENCE optional }|
    { ID id-ChosenIntegrityProtectionAlgorithm  CRITICALITY ignore  TYPE ChosenIntegrityProtectionAlgorithm    PRESENCE conditional
    -- This IE is only present if available at the sending side --                                  } |
    { ID id-ChosenEncryptionAlgorithm      CRITICALITY ignore  TYPE ChosenEncryptionAlgorithm       PRESENCE optional } |
    { ID id-CriticalityDiagnostics         CRITICALITY ignore  TYPE CriticalityDiagnostics          PRESENCE optional },
    ...
}

RAB-SetupList-RelocReqAck              ::= RAB-IE-ContainerList { {RAB-SetupItem-RelocReqAck-IEs} }

RAB-SetupItem-RelocReqAck-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupItem-RelocReqAck      CRITICALITY reject  TYPE RAB-SetupItem-RelocReqAck       PRESENCE mandatory   },
    ...
}

RAB-SetupItem-RelocReqAck ::= SEQUENCE {
    rAB-ID                        RAB-ID,
    transportLayerAddress              TransportLayerAddress   OPTIONAL,
    --This IE is only present for RABS towards the PS Domain
    iuTransportAssociation             IuTransportAssociation   OPTIONAL,
    --This IE is only present for RABS towards the PS Domain
    iE-Extensions                      ProtocolExtensionContainer { {RAB-SetupItem-RelocReqAck-ExtIEs} }         OPTIONAL,
    ...
}

RAB-SetupItem-RelocReqAck-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-FailedList                    ::= RAB-IE-ContainerList { {RAB-FailedItemIEs} }

RAB-FailedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-FailedItem             CRITICALITY ignore  TYPE RAB-FailedItem            PRESENCE mandatory   },
    ...
}

RAB-FailedItem ::= SEQUENCE {
    rAB-ID                        RAB-ID,
    cause                         Cause,
    iE-Extensions                      ProtocolExtensionContainer { {RAB-FailedItem-ExtIEs} }       OPTIONAL,
    ...
}

RAB-FailedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RelocationRequestAcknowledgeExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
-- *************************************************************
--
-- Relocation Failure
--
-- *************************************************************

RelocationFailure ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RelocationFailureIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RelocationFailureExtensions} }            OPTIONAL,
    ...
}

RelocationFailureIEs RANAP-PROTOCOL-IES ::= {
    { ID id-Cause                    CRITICALITY ignore  TYPE Cause                   PRESENCE mandatory } |
    { ID id-CriticalityDiagnostics        CRITICALITY ignore  TYPE CriticalityDiagnostics         PRESENCE optional },
    ...
}

RelocationFailureExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
****    LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.3 REMOVED    ****
```

```
-- *************************************************************
--
-- RAB ASSIGNMENT ELEMENTARY PROCEDURE
--
-- *************************************************************

-- *************************************************************
--
-- RAB Assignment Request
--
-- *************************************************************

RAB-AssignmentRequest ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container       { {RAB-AssignmentRequestIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-AssignmentRequestExtensions} }        OPTIONAL,
    ...
}

RAB-AssignmentRequestIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifyList          CRITICALITY ignore  TYPE RAB-SetupOrModifyList       PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --            } |
    { ID id-RAB-ReleaseList            CRITICALITY ignore  TYPE RAB-ReleaseList            PRESENCE conditional
```

```
    -- This group must be present at least when no other group is present, ie. at least one group must be present --          },
    ...
}

RAB-SetupOrModifyList                    ::= RAB-IE-ContainerPairList { {RAB-SetupOrModifyItem-IEs} }

RAB-SetupOrModifyItem-IEs RANAP-PROTOCOL-IES-PAIR ::= {
    { ID id-RAB-SetupOrModifyItem              FIRST CRITICALITY  reject   FIRST TYPE  RAB-SetupOrModifyItemFirst
                            SECOND CRITICALITY ignore   SECOND TYPE RAB-SetupOrModifyItemSecond
                                                        PRESENCE mandatory  },
    ...
}

RAB-SetupOrModifyItemFirst ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    nAS-SynchronisationIndicator    NAS-SynchronisationIndicator    OPTIONAL
    -- This IE is present if the relevant NAS information is provided by the CN --,
    rAB-Parameters                  RAB-Parameters,
    userPlaneInformation            UserPlaneInformation,
    transportLayerAddress           TransportLayerAddress,
    iuTransportAssociation          IuTransportAssociation,
    service-Handover                Service-Handover            OPTIONAL,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupOrModifyItemFirst-ExtIEs} }        OPTIONAL,
    ...
}

RAB-SetupOrModifyItemFirst-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-SetupOrModifyItemSecond ::= SEQUENCE {
    pDP-TypeInformation             PDP-TypeInformation         OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    dataVolumeReportingIndication           DataVolumeReportingIndication   OPTIONAL
    -- This IE, if applicable, is only present for RABs towards the PS domain --,
    dl-GTP-PDU-SequenceNumber           DL-GTP-PDU-SequenceNumber   OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain --,
    ul-GTP-PDU-SequenceNumber           UL-GTP-PDU-SequenceNumber   OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain --,
    dl-N-PDU-SequenceNumber             DL-N-PDU-SequenceNumber     OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain --,
    ul-N-PDU-SequenceNumber             UL-N-PDU-SequenceNumber     OPTIONAL
    -- This IE, if available, is only present for RABs towards the PS domain --,
    iE-Extensions                   ProtocolExtensionContainer { {RAB-SetupOrModifyItemSecond-ExtIEs} }      OPTIONAL,
    ...
}

RAB-SetupOrModifyItemSecond-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
RAB-AssignmentRequestExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

-- ***************************************************************
--
-- RAB Assignment Response
--
-- ***************************************************************

RAB-AssignmentResponse ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container      { {RAB-AssignmentResponseIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RAB-AssignmentResponseExtensions} }        OPTIONAL,
    ...
}

RAB-AssignmentResponseIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifiedList         CRITICALITY ignore  TYPE RAB-SetupOrModifiedList        PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --        } |
    { ID id-RAB-ReleasedList            CRITICALITY ignore  TYPE RAB-ReleasedList            PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --        } |

    { ID id-RAB-QueuedList            CRITICALITY ignore  TYPE RAB-QueuedList           PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --        } |
    { ID id-RAB-FailedList            CRITICALITY ignore  TYPE RAB-FailedList           PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --        } |
    { ID id-RAB-ReleaseFailedList          CRITICALITY ignore  TYPE RAB-ReleaseFailedList        PRESENCE conditional
    -- This group must be present at least when no other group is present, ie. at least one group must be present --        } |
    { ID id-CriticalityDiagnostics         CRITICALITY ignore  TYPE CriticalityDiagnostics     PRESENCE optional },
    ...
}

RAB-SetupOrModifiedList                ::= RAB-IE-ContainerList { {RAB-SetupOrModifiedItemIEs} }

RAB-SetupOrModifiedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-SetupOrModifiedItem         CRITICALITY ignore  TYPE RAB-SetupOrModifiedItem        PRESENCE mandatory  },
    ...
}

RAB-SetupOrModifiedItem ::= SEQUENCE {
    rAB-ID                  RAB-ID,
    transportLayerAddress              TransportLayerAddress   OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    iuTransportAssociation             IuTransportAssociation  OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    dl-dataVolumes               DataVolumeList     OPTIONAL
    -- This IE is only present if the RAB has been modified and --
    -- RAB data volume reporting for PS domain is required  --,
    iE-Extensions                ProtocolExtensionContainer { {RAB-SetupOrModifiedItem-ExtIEs} }       OPTIONAL,
    ...
}
```

```
RAB-SetupOrModifiedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleasedList                       ::= RAB-IE-ContainerList { {RAB-ReleasedItemIEs} }

RAB-ReleasedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ReleasedItem           CRITICALITY ignore  TYPE RAB-ReleasedItem           PRESENCE mandatory },
    ...
}

RAB-ReleasedItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    dl-dataVolumes              DataVolumeList    OPTIONAL
    -- This IE is only present if data volume reporting for PS domain is required --,
    dL-GTP-PDU-SequenceNumber   DL-GTP-PDU-SequenceNumber         OPTIONAL
    -- This IE is only present for RABs towards the PS domain when available and when the release is UTRAN initiated --   ,
    uL-GTP-PDU-SequenceNumber   UL-GTP-PDU-SequenceNumber         OPTIONAL
    -- This IE is only present for RABs towards the PS domain when available and when the release is UTRAN initiated --   ,
    iE-Extensions               ProtocolExtensionContainer { {RAB-ReleasedItem-ExtIEs} }        OPTIONAL,
    ...
}

RAB-ReleasedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

DataVolumeList ::= SEQUENCE (SIZE (1..maxNrOfVol)) OF
    SEQUENCE {
        dl-UnsuccessfullyTransmittedDataVolume     UnsuccessfullyTransmittedDataVolume,
        dataVolumeReference         DataVolumeReference OPTIONAL,
        iE-Extensions               ProtocolExtensionContainer { {DataVolumeList-ExtIEs} }      OPTIONAL,
        ...
    }

DataVolumeList-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-QueuedList                       ::= RAB-IE-ContainerList { {RAB-QueuedItemIEs} }

RAB-QueuedItemIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-QueuedItem              CRITICALITY ignore  TYPE RAB-QueuedItem             PRESENCE mandatory  },
    ...
}

RAB-QueuedItem ::= SEQUENCE {
    rAB-ID                      RAB-ID,
    iE-Extensions               ProtocolExtensionContainer { {RAB-QueuedItem-ExtIEs} }        OPTIONAL,
    ...
```

```
}

RAB-QueuedItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ReleaseFailedList ::= RAB-FailedList

RAB-AssignmentResponseExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

****   LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.3 REMOVED   ****

9.3.4   Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage
FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{},
    RANAP-PROTOCOL-EXTENSION
FROM RANAP-Containers;
```

```
    ****    LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.4 REMOVED    ****
```

```
-- S

SAC                 ::= OCTET STRING (SIZE (2))

SAI ::= SEQUENCE {
    pLMN-ID             PLMN-ID,
    lAC             LAC,
    sAC             SAC,
```

```
    iE-Extensions            ProtocolExtensionContainer { {SAI-ExtIEs} } OPTIONAL
}

SAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SAPI ::= ENUMERATED {
    sapi-0,
    sapi-3,
    ...
}

SDU-ErrorRatio ::= SEQUENCE {
    mantissa             INTEGER (1..9),
    exponent             INTEGER (1..6),
    iE-Extensions            ProtocolExtensionContainer { {SDU-ErrorRatio-ExtIEs} } OPTIONAL
}
-- SDU-ErrorRatio = mantissa * 10^-exponent

SDU-ErrorRatio-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
SDU-FormatInformationParameters ::= SEQUENCE (SIZE (1..maxRAB-SubflowCombination)) OF
    SEQUENCE {
        subflowSDU-Size         SubflowSDU-Size     OPTIONAL
        -- This IE is only present for RABs that have predefined SDU size(s) --,
        rAB-SubflowCombinationBitRate   RAB-SubflowCombinationBitRate   OPTIONAL
        -- At least either of subflowSDU-Size or rABsubflowCombinationBitRate --
        -- shall be present when SDUformatInformationParameter is present --,
        iE-Extensions           ProtocolExtensionContainer { {SDU-FormatInformationParameters-ExtIEs} } OPTIONAL,
        ...
    }

SDU-FormatInformationParameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SDU-Parameters ::= SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    SEQUENCE {
        sDU-ErrorRatio          SDU-ErrorRatio OPTIONAL
        -- This IE is not present when DeliveryOfErroneousSDU is set to no-error-detection-consideration --,
        residualBitErrorRatio       ResidualBitErrorRatio,
        deliveryOfErroneousSDU      DeliveryOfErroneousSDU,
        sDU-FormatInformationParameters SDU-FormatInformationParameters OPTIONAL
        -- When signalled, this IE indicates that the RAB is rate controllable --,
        iE-Extensions           ProtocolExtensionContainer { {SDU-Parameters-ExtIEs} } OPTIONAL,
        ...
    }

SDU-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
```

```
    ...
}

Service-Handover ::= ENUMERATED {
    handover-to-GSM-should-be-performed,
    handover-to-GSM-should-not-be-performed,
    handover-to-GSM-shall-not-be-performed,
    ...
}


SourceID ::= CHOICE {
    sourceRNC-ID            SourceRNC-ID, -- If UMTS target
    sAI             SAI,          -- if GSM target
    ...
}


SourceRNC-ID ::= SEQUENCE {
    pLMN-ID            PLMN-ID,
    rNC-ID            RNC-ID,
    iE-Extensions            ProtocolExtensionContainer { {SourceRNC-ID-ExtIEs} } OPTIONAL
}

SourceRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SourceRNC-ToTargetRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container            RRC-Container,
    numberOfIuInstances      NumberOfIuInstances,
    relocationType           RelocationType,
    chosenIntegrityProtectionAlgorithm ChosenIntegrityProtectionAlgorithm   OPTIONAL
    -- Must be present for intra UMTS Handovers if available --,
    integrityProtectionKey      IntegrityProtectionKey         OPTIONAL
    -- Must be present for intra UMTS Handovers if available --,
    chosenEncryptionAlgorithmForSignalling ChosenEncryptionAlgorithm     OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    cipheringKey            EncryptionKey            OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    chosenEncryptionAlgorithmForCS   ChosenEncryptionAlgorithm        OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    chosenEncryptionAlgorithmForPS   ChosenEncryptionAlgorithm        OPTIONAL
    -- Must be present for intra UMTS Handovers if ciphering is active --,
    d-RNTI            D-RNTI          OPTIONAL
    -- Included for SRNS Relocation without UE involvement --,
    targetCellId          TargetCellId            OPTIONAL
    -- Included for SRNS Relocation with UE involvement --,
    rAB-TrCH-Mapping            RAB-TrCH-Mapping            OPTIONAL
    -- Included for SRNS Relocation without UE involvement and      --
    -- if RABs are carried on DCH, USCH or DSCH transport channels --,
```

```
    iE-Extensions              ProtocolExtensionContainer { {SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}

SourceRNC-ToTargetRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

SourceStatisticsDescriptor ::= ENUMERATED {
    speech,
    unknown,
    ...
}

SubflowSDU-Size             ::= INTEGER (0..4095)
-- Unit is bit


-- T

TargetCellId                ::= INTEGER (0..268435455)

TargetID ::= CHOICE {
    targetRNC-ID         TargetRNC-ID, -- If UMTS target
    cGI           CGI,         -- If GSM target
    ...
}




TargetRNC-ID ::= SEQUENCE {
    lAI           LAI,
    rAC           RAC         OPTIONAL
    -- Must always be present towards the PS domain and never towards the CS domain --,
    rNC-ID            RNC-ID,
    iE-Extensions              ProtocolExtensionContainer { {TargetRNC-ID-ExtIEs} } OPTIONAL
}

TargetRNC-ID-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TargetRNC-ToSourceRNC-TransparentContainer ::= SEQUENCE {
    rRC-Container           RRC-Container,
    d-RNTI               D-RNTI             OPTIONAL
    -- May be included to allow the triggering of the Relocation Detect procedure from the Iur Interface --,
    iE-Extensions              ProtocolExtensionContainer { {TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs} } OPTIONAL,
    ...
}
```

```
TargetRNC-ToSourceRNC-TransparentContainer-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

TBCD-STRING                    ::= OCTET STRING

TemporaryUE-ID ::= CHOICE {
    tMSI               TMSI,
    p-TMSI             P-TMSI,
    ...
}

TMSI                   ::= OCTET STRING (SIZE (4))

TraceReference             ::= OCTET STRING (SIZE (2..3))

TraceType              ::= OCTET STRING (SIZE (1))
-- Reference: GSM TS 12.08

TrafficClass ::= ENUMERATED {
    conversational,
    streaming,
    interactive,
    background,
    ...
}

TrafficHandlingPriority        ::= INTEGER { spare (0), highest (1), lowest (14), no-priority-used (15) } (0..15)

TransferDelay              ::= INTEGER (0..65535)
-- Unit is millisecond

UnsuccessfullyTransmittedDataVolume ::= INTEGER (0..4294967295)

TransportLayerAddress          ::= BIT STRING (SIZE (1..160, ...))

TrCH-ID ::= SEQUENCE {
    dCH-ID          DCH-ID     OPTIONAL
    -- At least one of these IEs shall be included --,
    dSCH-ID         DSCH-ID    OPTIONAL
    -- At least one of these IEs shall be included --,
    uSCH-ID         USCH-ID    OPTIONAL
    -- At least one of these IEs shall be included --,
    ...
}

TrCH-ID-List ::=  SEQUENCE (SIZE (1..maxRAB-Subflows)) OF
    TrCH-ID

TriggerID              ::= OCTET STRING (SIZE (3..22))
```

```
-- U

UE-ID ::= CHOICE {
    imsi                IMSI,
    imei                IMEI,
    ...
}

UL-GTP-PDU-SequenceNumber       ::= INTEGER (0..65535)

UL-N-PDU-SequenceNumber         ::= INTEGER (0..65535)

UP-ModeVersions             ::= BIT STRING (SIZE (16))

USCH-ID                     ::= INTEGER (0..255)

UserPlaneMode ::= ENUMERATED {
    transparent-mode,
    support-mode-for-predefined-SDU-sizes,
    ...
}

END
```

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413 CR **207r1**   Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to: **RAN#10**   for approval **X**   strategic ☐   *(for SMG*
list expected approval meeting # here ↑   for information ☐   non-strategic ☐   *use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source: R-WG3   **Date:**   2000-10-18

Subject: Clarification on rules for using the tabular format.

Work item:

Category: F Correction   **X**   **Release:**   Phase 2 ☐
      A Corresponds to a correction in an earlier release ☐   Release 96 ☐
(only one category   B Addition of feature ☐   Release 97 ☐
shall be marked   C Functional modification of feature ☐   Release 98 ☐
with an X)   D Editorial modification ☐   Release 99 **X**
            Release 00 ☐

Reason for change: There is currently no explanation of deviations from the "25.921 sort of tabular format style" for the "Range" and "Assigned Criticality" column.

If this CR is not approved there might be confusion on what is meant by the "Range" and the "Assigned Criticality" columns.

Clauses affected: 9.1.2.x (new), 9.1.2.y (new)

Other specs affected: Other 3G core specifications ☐   → List of CRs:
      Other GSM core specifications ☐   → List of CRs:
      MS test specifications ☐   → List of CRs:
      BSS test specifications ☐   → List of CRs:
      O&M specifications ☐   → List of CRs:

Other comments:

help.doc

<---------- double-click here for help and instructions on how to create a CR.

9.1.2.x   Range

The Range ~~columne~~column indicates the allowed number of copies of repetitive IEs/IE groups.

9.1.2.y   Assigned Criticality

This column provides the actual criticality information as defined in chapter 10.3.2, if applicable.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	**CR**	**210r2**		Current Version:	3.3.0	

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to: **RAN#10**   for approval   **X**   strategic   ☐   *(for SMG*
list expected approval meeting # here   for information   ☐   non-strategic   ☐   *use only)*
↑

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source:	R-WG3	**Date:**	2000-11-15

Subject:	Directed Retry UMTS -> GSM

Work item:	

Category: F   Correction   **X**   **Release:**   Phase 2   ☐
                    A   Corresponds to a correction in an earlier release   ☐   Release 96   ☐
(only one category   B   Addition of feature   ☐   Release 97   ☐
shall be marked   C   Functional modification of feature   ☐   Release 98   ☐
with an X)   D   Editorial modification   ☐   Release 99   **X**
                                                                                           Release 00   ☐

Reason for change:	Directed retry is the trigger of relocation at RAB assignment. In UMTS, the procedures to execute directed retry are already defined: RAB assignment, and Relocation preparation. GSM has defined directed retry from GSM to UMTS and the current text needs to be updated to reflect that. A new cause value "directed retry" is also added to the existing RANAP cause values so that the UMTS to GSM directed retry can use a specific cause value. If this is not included, the text in the RANAP standards will restrict the supported scenarios and will prevent execution of Directed Retry scenarios for inter-system handovers, including the GSM to UMTS case which has been defined in GSM.

Clauses affected:	3.1, 8.2.2, 8.2.4, 8.6.2, 8.7.2, 9.2.1.4, 9.3.4

Other specs   Other 3G core specifications   ☐   → List of CRs:
affected: Other GSM core   ☐   → List of CRs:
                  specifications
               MS test specifications   ☐   → List of CRs:
               BSS test specifications   ☐   → List of CRs:
               O&M specifications   ☐   → List of CRs:

Other comments:	If CR 195 is approved, then the "Directed Retry" cause value proposed in this CR needs to be added to the table in CR 195. The following text should be added to the meaning column for this cause value: "*The reason for action is Directed Retry*"

help.doc

<--------- double-click here for help and instructions on how to create a CR

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Relocation of SRNS: relocation of SRNS is a UMTS functionality used to relocate the serving RNS role from one RNS to another RNS. This UMTS functionality is realised by several elementary procedures executed in several interfaces and by several protocols and it may involve a change in the radio resources used between UTRAN and UE

It is also possible to relocate the serving RNS role from:

- one RNS within UMTS to another relocation target external to UMTS;

- functionality equivalent to the serving RNS role from another relocation source external to UMTS to another RNS.

Serving RNS (SRNS): role an RNS can take with respect to a specific connection between an UE and UTRAN. There is one Serving RNS for each UE that has a connection to UTRAN. The Serving RNS is in charge of the radio connection between a UE and the UTRAN. The Serving RNS terminates the Iu for this UE

Serving RNC (SRNC): SRNC is the RNC belonging to SRNS

SRNC-ID: see [3] for definition

S-RNTI: see [3] for definition

Source RNS: role, with respect to a specific connection between UTRAN and CN, that RNS takes when it decides to initiate a relocation of SRNS

Source RNC: source RNC is the RNC belonging to source RNS

Target RNS: role an RNS gets with respect to a specific connection between UTRAN and CN when it is being a subject of a relocation of SRNS which is being made towards that RNS

Target RNC: target RNC is the RNC belonging to target RNS

Directed retry: Directed retry is the process of assigning a User Equipment to a radio resource that does not belong to the serving RNC e.g. in situations of congestion. It is triggered by the RAB Assignment procedure and employs relocation procedures.

Elementary Procedure: RANAP protocol consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between the RNS and the CN. These Elementary Procedures are defined separately and are intended to be used to build up complete sequences in a flexible manner. If the independence between some EPs is restricted, it is described under the relevant EP description. Unless otherwise stated by the restrictions, the EPs may be invoked independently of each other as stand alone procedures, which can be active in parallel

An EP consists of an initiating message and possibly a response message. Three kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success and/or failure).

- **Class 2:** Elementary Procedures without response.

- **Class 3:** Elementary Procedures with possibility of multiple responses.

For Class 1 EPs, the types of responses can be as follows:

Successful:

- A signalling message explicitly indicates that the elementary procedure successfully completed with the receipt of the response.

Unsuccessful:

- A signalling message explicitly indicates that the EP failed.

- On time supervision expiry (i.e. absence of expected response).

Successful and Unsuccessful:

- One signalling message reports both successful and unsuccessful outcome for the different included requests.

Class 2 EPs are considered always successful.

Class 3 EPs have one or several response messages reporting both successful, unsuccessful outcome of the requests and temporary status information about the requests. This type of EP only terminates through response(s) or EP timer expiry.

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

8.2.2 Successful Operation

* it can be several responses

Figure 1: RAB Assignment procedure

The CN shall initiate 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 UTRAN to:

- establish;

- modify;

- release.

One or several RABs with one RAB ASSIGNMENT REQUEST message.

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 establish or modify, the message shall contain:

- RAB ID.

- RAB parameters (including e.g. Allocation/Retention Priority).

- Data Volume Reporting Indication (only for PS).

- User Plane Mode.

- UP Mode Versions.

- PDP Type Information (only for PS)

- Transport Layer Address.

- Iu Transport Association.

- DL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- UL GTP-PDU sequence number (only when GTP-PDU sequence number is available in cases of handover from GPRS to UMTS or when establishing a RAB for an existing PDP context).

- DL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

- UL N-PDU sequence number (only when N-PDU sequence number is available in case of handover from GPRS to UMTS).

For each RAB request to release, the message shall contain:

- RAB ID.

- Cause.

Upon reception of the RAB ASSIGNMENT REQUEST message UTRAN shall execute the requested RAB configuration.

The RAB ID shall identify uniquely the RAB for the specific CN domain 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 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.

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

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 so requires, 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 allowed to pre-empt and the resource situation so requires, RNC may trigger the pre-emption procedure which may then cause the forced release of a lower priority RAB vulnerable for pre-emption. 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 "can trigger pre-emption", then this allocation request may trigger the pre-emption procedure.

  3. If the *Pre-emption Capability* IE is set to "cannot trigger pre-emption", then this allocation request may not trigger the pre-emption procedure.

  4. If the *Pre-emption Vulnerability* IE is set to "vulnerable to pre-emption", then this connection shall be included in the pre-emption process.

  5. If the *Pre-emption Vulnerability* IE is set to "not vulnerable to pre-emption", then this connection shall not be included in the pre-emption process.

  6. If the *Priority Level* IE is set to "no priority used" the given values for the *Pre-emption Capability* IE and *Pre-emption Vulnerability* IE shall not be considered. Instead the values "cannot trigger pre-emption" and "not vulnerable to pre-emption" 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 shall be vulnerable to pre-emption 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 can be done for RABs belonging to the same UE or to other UEs.

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

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

- List of RABs successfully established.

- List of RABs successfully modified RABs.

- List of RABs released.

- List of RABs failed to establish or modify or release.

- List of RABs queued.

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 RAB ASSIGNMENT RESPONSE message with a RAB ID included in the list of RABs failed to setup and a cause value of "Directed Retry".

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 the transfer to the UE.

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 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 UTRAN.

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

For each RAB that is queued the following outcomes shall be possible:

- successfully established or modified;

- failed to establish or modify;

- failed due to expiry of the timer $T_{QUEUING}$.

For the queued RABs, indicated in the first RAB ASSIGNMENT RESPONSE message, 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. 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 CN and UTRAN when all RABs have been responded to.

When CN receives the response that one or several RABs are queued, CN shall expect 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 not reported RABs shall be considered as failed.

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

UTRAN shall report the outcome of a specific RAB to establish or modify only after the transport network control plane signalling, which is needed for RAB establishment or modification, has been executed. The transport network control plane signalling shall use the *Transport Layer Address* IE and *Iu Transport Association* IE.

After reporting the outcome of a specific RAB to establish or modify, the RNC shall initiate the user plane mode as requested by the CN in the *User Plane Mode* IE. This initialisation is described in ref.[6].

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.

When UTRAN reports unsuccessful modification of RAB configuration the cause value should be precise enough to enable the core network to know the reason for unsuccessful 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".

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

Interactions with Relocation Preparation:

If the relocation becomes ~~absolutely~~ necessary during the RAB Assignment ~~in order to keep the communication with the UE~~, 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 this outcome of the procedure in one RAB ASSIGNMENT RESPONSE message.

4. The RNC shall invoke relocation by sending the 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~~1 RAB only, a directed retry 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 this outcome of the procedure in one RAB ASSIGNMENT RESPONSE message.

3. The RNC shall invoke relocation by sending the 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

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******** NEXT MODIFIED SECTION ********
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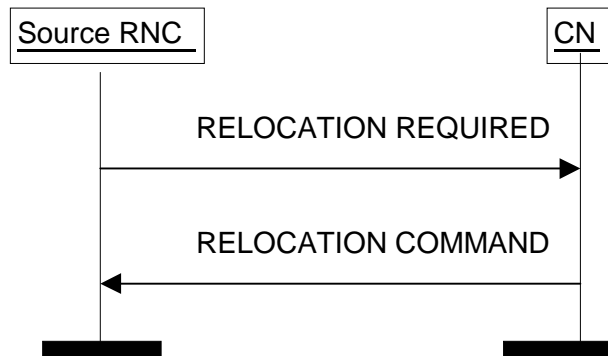
8.6.2 Successful Operation

Figure 2: Relocation Preparation procedure. Successful operation

The source RNC shall initiate the procedure by generating RELOCATION REQUIRED message. The source RNC shall decide whether to initiate the intra-system Relocation or the inter-system Relocation. In case of intra-system Relocation the source RNC shall indicate in the *Source ID* IE the RNC-ID of the source RNC and in the *Target ID* IE the RNC-ID of the target RNC. In case of inter-system Relocation the source RNC shall indicate in the *Source ID* IE the Service Area Identifier and in the *Target ID* IE the cell global identity of the target system. The source RNC shall indicate the appropriate cause value for the Relocation in the *Cause* IE. Typical cause values are "Time critical Relocation", "Resource optimisation relocation", "Relocation desirable for radio reasons", "Directed Retry".

The source RNC shall determine whether the relocation of SRNS shall be executed with or without involvement of UE. The source RNC shall set the *Relocation Type* IE accordingly to "UE involved" or "UE not involved".

The source RNC shall indicate in the RELOCATION REQUIRED message the amount of Iu signalling connections existing for the UE by setting correctly the *Number of Iu Instances* IE included in the *Source to Target RNC Transparent Containe*r IE. This container may also include the necessary information for Relocation co-ordination, security procedures and the handling of UE Capabilities. The container may include the RRC context to be relocated within the *RRC Container* IE. When the *Relocation Type* IE is set to "UE not involved in relocation of SRNS" and the UE is using DCH(s), DSCH(s) or USCH(s), the container shall include the mapping between each RAB subflow and transport channel identifier(s). When the RAB is carried on a DCH(s), the DCH ID(s) shall be included, and when it is carried on DSCH(s) or USCH(s), the DSCH ID(s) or USCH ID(s) respectively shall be included.

The source RNC shall send the RELOCATION REQUIRED message to the CN and the source RNC shall start the timer $T_{RELOCprep.}$

When the preparation including resource allocation in the target system is ready and the CN has decided to continue the relocation of SRNS, the CN shall send RELOCATION COMMAND message to the source RNC and the CN shall start the timer $T_{RELOCcompl.}$

For each RAB originating from the PS domain, the RELOCATION COMMAND message may contain Iu transport address and Iu transport association to be used for the forwarding of the DL N-PDU duplicates towards the relocation target. Upon reception of the RELOCATION COMMAND message from the PS domain, the source RNC shall start the timer $T_{DATAfwd.}$

The Relocation Preparation procedure is terminated in the CN by transmission of RELOCATION COMMAND message.

If *Relocation Type* IE was set to "UE involved" by the source RNC and if the target system does not support all existing RABs, the RELOCATION COMMAND message shall contain a list of RABs indicating all the RABs that are not supported by the target system. The source RNC shall pass this information to the radio protocols. The resources

associated with these not supported RABs shall not be released 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.

Upon reception of RELOCATION COMMAND message the source RNC shall stop the timer $T_{RELOCprep}$, RNC shall start the timer $T_{RELOCOverall}$ and RNC shall terminate the Relocation Preparation procedure. The source RNC is then defined to have a Prepared Relocation for that Iu signalling connection.

When Relocation Preparation procedure is terminated successfully and when the source RNC is ready, the source RNC should trigger the execution of relocation of SRNS.

In case of intersystem handover to GSM the RNC shall include *MS Classmark 2* and *MS Classmark 3* IEs received from the UE in the RELOCATION REQUIRED message to the CN.

Interactions with other procedures:

If, after RELOCATION REQUIRED message is sent and before the Relocation Preparation procedure is terminated, the source RNC receives a RANAP message initiating an other connection oriented RANAP class 1 or class 3 procedure (except IU RELEASE COMMAND message, which shall be handled normally) via the same Iu signalling connection, the source RNC shall either:

1. cancel the Relocation Preparation procedure i.e. execute Relocation Cancel procedure with an appropriate value for the *Cause* IE, e.g. "Interaction with other procedure", and after successful completion of Relocation Cancel procedure, the source RNC shall continue the initiated RANAP procedure;

    or

2. terminate the initiated RANAP procedure without any changes in UTRAN by sending appropriate response message with the cause value "Relocation Triggered" to the CN. The source RNC shall then continue the relocation of SRNS.

If during the Relocation Preparation procedure the source RNC receives a DIRECT TRANSFER message it shall be handled normally.

If during the Relocation Preparation procedure the source RNC receives connection oriented RANAP class 2 messages (with the exception of DIRECT TRANSFER message) it shall decide to either execute the procedure immediately or suspend it. In the case the relocation is cancelled the RNC shall resume any suspended procedures (if any)

After Relocation Preparation procedure is terminated successfully, all RANAP messages (except IU RELEASE COMMAND message, which shall be handled normally) received via the same Iu signalling bearer shall be ignored by the source RNC.

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

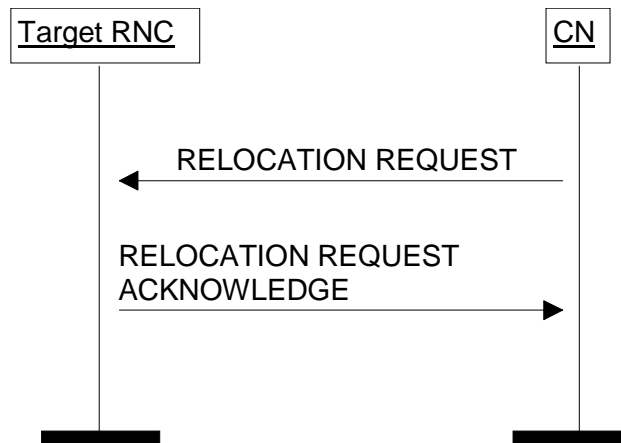## 8.7.2   Successful Operation

Figure 3: Relocation Resource Allocation procedure. Successful operation.

The CN shall initiate the procedure by generating RELOCATION REQUEST message. In a UTRAN to UTRAN relocation, Tthis message shall contain the information (if any)required by the UTRAN to build the same RAB configuration as existing for the UE before the relocation.

The CN shall transmit the RELOCATION REQUEST message to target RNC and the CN shall start the timer $T_{RELOCalloc.}$

Upon reception of the RELOCATION REQUEST message, the target RNC shall initiate allocation of requested resources. The following information elements received in RELOCATION REQUEST message require special actions in the RNC:

- RAB-ID

- User plane mode

- Priority level, queuing and pre-emption indication

- Iu signalling connection identifier

The actions are the same as specified for the same IEs in the RAB Assignment procedure.

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

The *Iu Signalling Connection Identifier* IE contains an Iu signalling connection identifier which is allocated by the CN, and which the RNC is required to store and remember for the duration of the Iu connection.

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

If *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 for *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 *RelocationType* 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 exist(s) and can be used for the RAB by the target RNC.

- If existing radio bearers are not related to any RAB that is accepted by target RNC, the radio bearers shall be ignored during the relocation of SRNS and the radio bearers shall be released by radio interface protocols after completion of relocation of SRNS.

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

After all necessary resources for accepted RABs including the Iu user plane, are successfully allocated, the target RNC shall send RELOCATION REQUEST ACKNOWLEDGE message to the CN. 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 received by the CN may optionally contain a transparent container, which shall be transferred by CN to the source RNC or the external relocation source while completing the Relocation Preparation procedure.

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

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

9.2.1.4   Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the RANAP protocol.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
>Radio Network Layer Cause			INTEGER (RAB pre-empted(1), Trelocoverall Expiry(2), Trelocprep Expiry(3), Treloccomplete Expiry(4), Tqueing Expiry(5), Relocation Triggered(6), Unable to Establish During Relocation(8), Unknown Target RNC(9), Relocation Cancelled(10), Successful Relocation(11), Requested Ciphering and/or Integrity Protection Algorithms not Supported(12), Change of Ciphering and/or Integrity Protection is not supported(13), Failure in the Radio Interface Procedure(14), Release due to UTRAN Generated Reason(15), User Inactivity(16), Time Critical Relocation(17), Requested Traffic Class not Available(18), Invalid RAB Parameters Value(19), Requested	Value range is 1 – 64.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			Maximum Bit Rate not Available(20),	
			Requested Maximum Bit Rate for DL not Available(33),	
			Requested Maximum Bit Rate for UL not Available(34),	
			Requested Guaranteed Bit Rate not Available(21),	
			Requested Guaranteed Bit Rate for DL not Available(35),	
			Requested Guaranteed Bit Rate for UL not Available(36),	
			Requested Transfer Delay not Achievable(22),	
			Invalid RAB Parameters Combination(23),	
			Condition Violation for SDU Parameters(24),	
			Condition Violation for Traffic Handling Priority(25),	
			Condition Violation for Guaranteed Bit Rate(26),	
			User Plane Versions not Supported(27),	
			Iu UP Failure(28),	
			TRELOCalloc Expiry (7),	
			Relocation Failure in Target CN/RNC or Target System (29),	
			Invalid RAB ID(30),	

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Cause**				
			No remaining RAB(31), Interaction with other procedure(32), Repeated Integrity Checking Failure(37), Requested Report Type not supported(38), Request superseded(39), Release due to UE generated signalling connection release(40), Resource Optimisation Relocation(41), Requested Information Not Available(42), Relocation desirable for radio reasons (43), Relocation not supported in Target RNC or Target system(44), Directed Retry (45) …)	

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

9.3.4 Information Element Definitions

```
-- ***************************************************************
--
-- Information Element Definitions
--
-- ***************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS
    maxNrOfErrors,
    maxNrOfPDPDirections,
    maxNrOfPoints,
    maxNrOfRABs,
    maxNrOfSeparateTrafficDirections,
    maxRAB-Subflows,
    maxRAB-SubflowCombination

FROM RANAP-Constants

    Criticality,
    ProcedureCode,
    ProtocolIE-ID,
    TriggeringMessage
FROM RANAP-CommonDataTypes

    ProtocolExtensionContainer{},
    RANAP-PROTOCOL-EXTENSION
FROM RANAP-Containers;

-- A

AllocationOrRetentionPriority ::= SEQUENCE {
    priorityLevel           PriorityLevel,
    pre-emptionCapability        Pre-emptionCapability,
    pre-emptionVulnerability     Pre-emptionVulnerability,
    queuingAllowed          QueuingAllowed,
    iE-Extensions           ProtocolExtensionContainer { {AllocationOrRetentionPriority-ExtIEs} } OPTIONAL,
    ...
}

AllocationOrRetentionPriority-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
AreaIdentity ::= CHOICE {
    sAI             SAI,
    geographicalArea        GeographicalArea,
    ...
}

-- B

BindingID               ::= OCTET STRING (SIZE (4))

-- C


Cause ::= CHOICE {
    radioNetwork            CauseRadioNetwork,
    transmissionNetwork     CauseTransmissionNetwork,
    nAS             CauseNAS,
    protocol            CauseProtocol,
    misc                CauseMisc,
    non-Standard            CauseNon-Standard,
    ...
}

CauseMisc ::= INTEGER {
    om-intervention (113),
    no-resource-available (114),
    unspecified-failure (115),
    network-optimisation (116)
} (113..128)

CauseNAS ::= INTEGER {
    user-restriction-start-indication (81),
    user-restriction-end-indication (82),
    normal-release (83)
} (81..96)

CauseProtocol ::= INTEGER {
    transfer-syntax-error (97),
    semantic-error (98),
    message-not-compatible-with-receiver-state (99),
    abstract-syntax-error-reject (100),
    abstract-syntax-error-ignore-and-notify (101),
    abstract-syntax-error-falsely-constructed-message (102)

} (97..112)

CauseRadioNetwork ::= INTEGER {
    rab-pre-empted (1),
    trelocoverall-expiry (2),
    trelocprep-expiry (3),
    treloccomplete-expiry (4),
```

```
    tqueing-expiry (5),
    relocation-triggered (6),
    trellocalloc-expiry(7),
    unable-to-establish-during-relocation (8),
    unknown-target-rnc (9),
    relocation-cancelled (10),
    successful-relocation (11),
    requested-ciphering-and-or-integrity-protection-algorithms-not-supported (12),
    change-of-ciphering-and-or-integrity-protection-is-not-supported (13),
    failure-in-the-radio-interface-procedure (14),
    release-due-to-utran-generated-reason (15),
    user-inactivity (16),
    time-critical-relocation (17),
    requested-traffic-class-not-available (18),
    invalid-rab-parameters-value (19),
    requested-maximum-bit-rate-not-available (20),
    requested-guaranteed-bit-rate-not-available (21),
    requested-transfer-delay-not-achievable (22),
    invalid-rab-parameters-combination (23),
    condition-violation-for-sdu-parameters (24),
    condition-violation-for-traffic-handling-priority (25),
    condition-violation-for-guaranteed-bit-rate (26),
    user-plane-versions-not-supported (27),
    iu-up-failure (28),
    relocation-failure-in-target-CN-RNC-or-target-system(29),
    invalid-RAB-ID (30),
    no-remaining-rab (31),
    interaction-with-other-procedure (32),
    requested-maximum-bit-rate-for-dl-not-available (33),
    requested-maximum-bitr-ate-for-ul-not-available (34),
    requested-guaranteed-bit-rate-for-dl-not-available (35),
    requested-guaranteed-bit-rate-for-ul-not-available (36),
    repeated-integrity-checking-failure (37),
    requested-report-type-not-supported (38),
    request-superseded (39),
    release-due-to-UE-generated-signalling-connection-release (40),
    resource-optimisation-relocation (41),
    requested-information-not-available (42),
    relocation-desirable-for-radio-reasons (43),
    relocation-not-supported-in-target-RNC-or-target-system (44),
    directed-retry (45)
} (1..64)


CauseNon-Standard ::= INTEGER (129..256)

CauseTransmissionNetwork ::= INTEGER {
    logical-error-unknown-iu-transport-association (65)
} (65..80)
```