TSG RAN Meeting #18   **RP-020745**
New Orleans, Louisiana, USA, 3 - 6 December, 2002

Title	**RAN3 Early UE CR 1 (R99 only) on Transfer of Faults Bitmap over Iu for the handling of early mobiles**
Source	**TSG RAN WG3**
Agenda Item	**8.7.11**

The following CR is one of 5 CRs (provided in different RAN Tdocs) which:
- **address the topic 'Early UE Handling in UTRAN' which is currently a Study Item in TSG RAN,**
- **have the status 'technically correct' at RAN WG3 instead of 'agreed' by RAN WG3,**
- **are provided to TSG RAN to give TSG RAN a base for agreeing about a solution,**
- **will need mirror CRs (REL-4, REL5) as soon as a solution is agreed at TSG RAN.**

Note: 'technically correct' means 'correct' from a RAN WG3 point of view without making statements about the status of completeness of the solution regarding other RAN WGs (like RAN2) or TSGs (like CN1, CN4, GERAN).

RAN3 Tdoc	Spec	curr. Vers.	new Vers.	REL	CR	Rev	Cat	Title	Work item
R3-022497	25.413	3.11.1	3.12.0	R99	520	1	F	Transfer of Faults Bitmap over Iu for the handling of early mobiles	RANimp-FSEarlyUE

CR-Form-v7

CHANGE REQUEST

⌘   **25.413 CR 520**   ⌘**rev 1** ⌘   Current version: **3.11.1** ⌘

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

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

Title: ⌘	Transfer of Faults Bitmap over Iu for the handling of early mobiles
Source: ⌘	RAN WG3
Work item code: ⌘ RANimp-FSEarlyUE	***Date:*** ⌘ 13/11/2002

Category: ⌘ **F**	***Release:*** ⌘ R99

Use <u>one</u> of the following categories:
     F *(correction)*
     A *(corresponds to a correction in an earlier release)*
     B *(addition of feature),*
     C *(functional modification of feature)*
     D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
     2   *(GSM Phase 2)*
     R96   *(Release 1996)*
     R97   *(Release 1997)*
     R98   *(Release 1998)*
     R99   *(Release 1999)*
     Rel-4   *(Release 4)*
     Rel-5   *(Release 5)*
     Rel-6   *(Release 6)*

Reason for change: ⌘	TBD.
Summary of change: ⌘	TBD.
Consequences if not approved: ⌘	TBD.

Clauses affected: ⌘	2, 8.7, 8.16, 8.23, 9.1.10, 9.1.24, 9.1.34, 9.2.1.x2 (new), 9.3.3, 9.3.4 and 9.3.6.

	Y	N		
Other specs ⌘	X		Other core specifications ⌘	TS 25.413 REL-4, CRnum TS 25.413 REL-5, CRnum other specs e.g. 29.060, BSSAP over MAP/E interface, should be discussed in responsible groups
affected:		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	Suggestions for new numbers: • new reference number in Rel99, x1=24a • new section number in Rel99, 9.2.1.x2=9.2.1.42a • new ASN.1 id, x3, for id-UESpecificBehaviourBitmap should be allocated by the rapporteur when the final version of the CR is presented for approval.

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply".

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR 23.930: "Iu Principles".

[2]   3GPP TS 25.410: "UTRAN Iu Interface: General Aspects and Principles".

[3]   3GPP TS 25.401: "UTRAN Overall Description".

[4]   3GPP TR 25.931: "UTRAN Functions, Examples on Signalling Procedures".

[5]   3GPP TS 25.412: "UTRAN Iu interface signalling transport".

[6]   3GPP TS 25.415: "UTRAN Iu interface user plane protocols".

[7]   3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".

[8]   3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".

[9]   3GPP TS 25.414: "UTRAN Iu interface data transport and transport signalling".

[10]   3GPP TS 25.331: "Radio Ressource Control (RRC) protocol specification".

[11]   3GPP TS 08.08: "Mobile services Switching Centre - Base Station System (MSC-BSS) interface; Layer 3 specification".

[12]   3GPP TS 12.08: "Subscriber and equipment trace".

[13]   ITU-T Recommendation X.691 (12/1997): "Information technology - ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)".

[14]   ITU-T Recommendation X.680 (12/1997): "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[15]   ITU-T Recommendation X.681 (12/1997): "Information technology - Abstract Syntax Notation One (ASN.1): Information object specification".

[16]   3GPP TS 23.110: "UMTS Access Stratum Services and Functions".

[17]   3GPP TS 25.323: "Packet Data Convergence Protocol (PDCP) specification".

[18]   3GPP TR 25.921: "Guidelines and principles for protocol description and error handling".

[19]   3GPP TS 23.003: "Numbering, addressing and identification".

[20]   3GPP TS 23.032: "Universal Geographical Area Description (GAD)".

[21]   3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[22]   3GPP TS 29.108: "Application of the Radio Access Network Application Part (RANAP) on the E-interface".

[23]   3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[24]   3GPP TS 12.20: "Base Station System (BSS) management information".

[x1]   3GPP TR ab.cde: "Recommended infrastructure measures to overcome specific Mobile Station (MS) faults" (or equivalent document).

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.
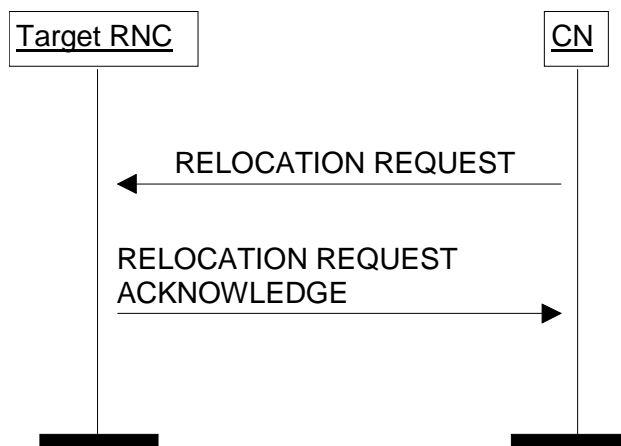
8.7.2 Successful Operation

Figure 7: Relocation Resource Allocation procedure. Successful operation.

The CN shall initiate the procedure by generating RELOCATION REQUEST message. In a UTRAN to UTRAN relocation, this message shall contain the information (if any) required by the UTRAN to build the same set of RABs as existing for the UE before the relocation.

The CN 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 RELOCATION REQUEST message shall contain following IEs

- *Permanent NAS UE Identity* (if available)

- *Cause*

- *CN Domain Indicator.*

- *Source RNC To Target RNC Transparent Container*

- *Iu Signalling Connection Identifier*

- *Integrity Protection Information* (if available)

- *UE Specific Behaviour Bitmap* (if available).

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

- *RAB-ID*

- *NAS Synchronisation Indicator* (if the relevant NAS information is provided by the CN)

- *RAB parameters*

- *User Plane Information*

-   *Transport Layer Address*

-   *Iu Transport Association*

-   *Data Volume Reporting Indication* (only for PS)

-   *PDP Type Information* (only for PS)

The RELOCATION REQUEST message may include following IEs:

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

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

-   *Service Handover*

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

-   RAB-ID

-   User plane Information

-   Priority level, queuing and pre-emption indication

-   Service Handover

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

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

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

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

If the RELOCATION REQUEST message includes the *UE Specific Behaviour Bitmap* IE defined in [x1], the RNC should take it into account.

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

The *Permitted Encryption Algorithms* IE within the *Encryption Information IE* may contain "no encryption" within an element of its list in order to allow the RNC not to cipher the respective connection. This can be done either by not starting ciphering or by using the UEA0 algorithm. In the absence of the *Encryption Information* IE, the RNC shall not start ciphering.

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

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

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

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

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

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

- The target RNC may accept a requested RAB only if the RAB can be supported by the target RNC.

- Other RABs shall be rejected by the target RNC in the RELOCATION REQUEST ACKNOWLEDGE message with an appropriate value 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 the *Relocation Type* IE is set to "UE not involved in relocation of SRNS":

- The target RNC may accept a RAB only if the radio bearer(s) for the RAB either exist(s) already, and can be used for the RAB by the target RNC, or does not exist before the relocation but can be established in order to support the RAB in the target RNC.

- If existing radio bearers are not related to any RAB that is accepted by 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.

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

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

- *RAB ID*

- *Transport Layer Address* (only for PS)

- *Iu Transport Association* (only for PS)

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

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

The RNC shall include the *Chosen Integrity Protection Algorithm* IE (*Chosen Encryption Algorithm* IE respectively) within the RELOCATION REQUEST ACKNOWLEDGE message, if, and only if the *Integrity Protection Information* IE (*Encryption Information* IE respectively) was included in the RELOCATION REQUEST message.

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

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

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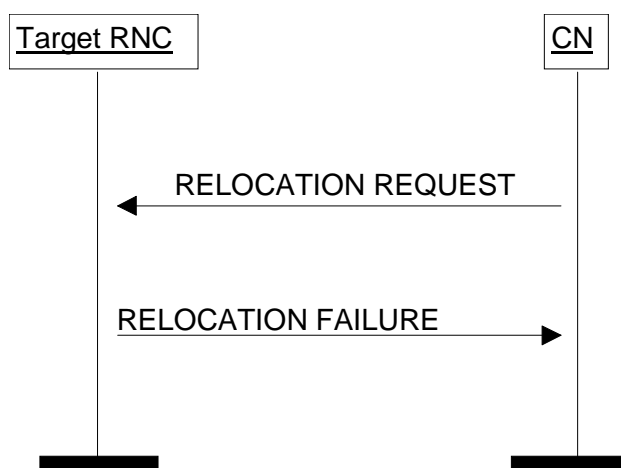
8.7.3 Unsuccessful Operation

Figure 8: Relocation Resource Allocation procedure: Unsuccessful operation.

If the target RNC can not even partially accept the relocation of SRNS or a failure occurs during the Relocation Resource Allocation procedure in the target RNC, the target RNC shall send RELOCATION FAILURE message to the CN.

If the target RNC cannot support any of the integrity protection (ciphering respectively) alternatives provided in the *Integrity Protection Information* IE or *Encryption Information* IE, it shall return a RELOCATION FAILURE message with the cause "Requested Ciphering and/or Integrity Protection algorithms not supported".

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

When CN has received RELOCATION FAILURE message from target RNC, CN shall stop timer $T_{RELOCalloc}$ and shall assume possibly allocated resources within target RNC completely released.

8.7.4 Abnormal Conditions

If after reception of the RELOCATION REQUEST message, the target RNC receives another RELOCATION REQUEST message on the same Iu connection, then the target RNC shall discard the latter message and the original Relocation Resource Allocation procedure shall continue normally.

If the target RNC receives a *Source RNC -to-Target RNC Transparent Container* IE containing *Chosen Integrity Protection* (*Encryption* respectively) *Algorithm* IE without *Integrity Protection* (*Ciphering* respectively) *Key* IE, it shall return RELOCATION FAILURE message with the cause "Conflict with already existing Integrity protection and/or Ciphering information".

NOTE: In case two CN domains are involved in the SRNS Relocation Resource Allocation procedure, the Target RNC may check whether the content of the two *Source RNC to Target RNC Transparent Container* IE is the same. In case the Target RNC receives two different *Source RNC to Target RNC Transparent Container* IE, the RNC behaviour is left implementation specific.

Interactions with Iu Release procedure:

If the CN decides to not continue the Relocation Resource Allocation procedure (e.g. due to $T_{RELOCalloc}$ expiry) before the Relocation Resource Allocation procedure is completed, the CN shall stop timer $T_{RELOCalloc}$ (if timer $T_{RELOCalloc}$ has not already expired) and the CN shall, if the Iu signalling connection has been established or later becomes established, initiate the Iu Release procedure towards the target RNC with an appropriate value for the *Cause* IE, e.g. "Relocation Cancelled".

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 Instances* 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.

When both the CS and PS user data *Chosen Encryption Algorithm* IE are received within the *Source RNC-to-Target RNC transparent container* IE and if these two received *Chosen Encryption Algorithm* IE are not the same, the target RNC shall fail the Relocation Resource Allocation procedure by sending back the RELOCATION FAILURE message.

The integrity protection (ciphering respectively) alternatives provided in the *Integrity Protection Information* IE (*Encryption Information* IE respectively) of the RELOCATION REQUEST messages received from both CN domains shall have at least one common alternative, otherwise the Relocation Resource Allocation shall be failed by sending back the RELOCATION FAILURE message.

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.

- If the target RNC decides to send the *Target RNC to Source RNC Transparent Container* IE via the two CN domains, the target RNC shall ensure that the same *Target RNC to Source RNC Transparent Container* IE is included in RELOCATION REQUEST ACKNOWLEDGE messages transmitted via the two CN domains and related to the same relocation of SRNS.

8.16   Common ID

8.16.1   General

The purpose of the Common ID procedure is to inform the RNC about the permanent NAS UE Identity (i.e. IMSI) of a user. This is used by the RNC e.g. to create a reference between the permanent NAS UE identity of the user and the RRC connection of that user for UTRAN paging co-ordination. The procedure uses connection oriented signalling.

8.16.2   Successful Operation

Figure 17: Common ID procedure. Successful operation.

After having established an Iu signalling connection, and if the Permanent NAS UE identity (i.e. IMSI) is available, the CN shall send a COMMON ID message, containing the *Permanent NAS UE Identity* IE and if available, the *UE Specific Behaviour Bitmap* IE to the RNC. The RNC shall associate the permanent identity to the RRC Connection of that user and shall save it for the duration of the RRC connection. If the COMMON ID message includes the *UE Specific Behaviour Bitmap* IE defined in [x1], the RNC should take it into account.

8.16.3   Abnormal Conditions

Not applicable.

8.23 Direct Transfer

8.23.1 General

The purpose of the Direct Transfer procedure is to carry UE – CN signalling messages over the Iu Interface. The UE - CN signalling messages are not interpreted by the UTRAN, and their content (e.g. MM or CC message) is outside the scope of this specification (see [8]). The UE – CN signalling messages are transported as a parameter in the DIRECT TRANSFER messages. The procedure uses connection oriented signalling.

8.23.2 Successful Operation

8.23.2.1 CN Originated Direct Transfer

Figure 25: Direct Transfer, CN originated. Successful operation.

If a UE – CN signalling message has to be sent from the CN to the UE, the CN shall send a DIRECT TRANSFER message to the RNC including the UE – CN signalling message as a *NAS-PDU* IE.

If the DIRECT TRANSFER message is sent in the downlink direction it shall include the *SAPI* IE, may include - if available - the *UE Specific Behaviour Bitmap* IE, and shall not include the *LAI* + *RAC* IE and the *SAI* IE. The use of the *SAPI* IE included in the DIRECT TRANSFER message enables the UTRAN to provide specific service for the transport of the messages. If the DIRECT TRANSFER message includes the *UE Specific Behaviour Bitmap* IE defined in [x1], the RNC should take it into account.

8.23.2.2 UTRAN Originated Direct Transfer

Figure 26: Direct Transfer, RNC originated. Successful operation.

If a UE – CN signalling message has to be sent from the RNC to the CN without interpretation, the RNC shall send a DIRECT TRANSFER message to the CN including the UE – CN signalling message as a *NAS-PDU* IE.

If the DIRECT TRANSFER message shall be sent to the PS domain, RNC shall also add the *LAI* and the *RAC* IEs, which were the last LAI + RAC indicated to the UE by UTRAN via the current RRC connection, or if UTRAN had not yet indicated any LAI + RAC to the UE via the current RRC connection, then the LAI + RAC of the cell via which the current RRC connection was established. If the DIRECT TRANSFER message is sent to the PS domain, the RNC shall also add Service Area corresponding to at least one of the cells from which the UE is consuming radio resources. If the DIRECT TRANSFER message is sent in uplink direction the RNC shall not include the *SAPI* IE.

8.23.3 Abnormal Conditions

If the DIRECT TRANSFER message is sent by the RNC to the PS domain, and is missing any of the *LAI* IE, *RAC* IE, *SAI* IE, the CN shall continue with the Direct Transfer procedure, ignoring the missing IE.

If the DIRECT TRANSFER message is sent by the CN to the RNC without the *SAPI* IE, the RNC shall continue with the Direct Transfer procedure.

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	reject
Permanent NAS UE Identity	O		9.2.3.1		YES	ignore
Cause	M		9.2.1.4		YES	ignore
CN Domain Indicator	M		9.2.1.5		YES	reject
Source RNC To Target RNC Transparent Container	M		9.2.1.28		YES	reject
RABs To Be Setup List	O				YES	reject
>RABs To Be Setup Item IEs		1 to \<maxnoofRABs>			EACH	reject
>>RAB ID	M		9.2.1.2		-	
>>NAS Synchronisation Indicator	O		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		9.2.1.41		-	
Integrity Protection Information	O		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
UE Specific Behaviour Bitmap	O		9.2.1.x2		YES	ignore

Condition	Explanation
IfPS	This IE shall be present if the *CN domain indicator* IE is set to "PS domain".

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

9.1.24 COMMON ID

This message is sent by the CN to inform RNC about the permanent NAS UE identity for a user.

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	M		9.2.3.1		YES	ignore
UE Specific Behaviour Bitmap	O		9.2.1.x2		YES	ignore

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	O		9.2.3.6		YES	ignore
RAC	O		9.2.3.7		YES	ignore
SAI	O		9.2.3.9		YES	ignore
SAPI	O		9.2.3.8		YES	ignore
UE Specific Behaviour Bitmap	O		9.2.1.x2		YES	ignore

9.2.1 Radio Network Layer Related IEs

9.2.1.1 Message Type

Message Type IE uniquely identifies the message being sent. It is mandatory for all messages.

```
Lots of unaffected parts in 9.2.1 not shown
```

9.2.1.42 Message Structure

The *Message Structure* IE gives information for each level with assigned criticality in an hierachical message structure from top level down to the lowest level above the reported level for the occured error (reported in the *Information Element Criticality Diagnostics* IE).

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message structure		1 to <maxnooflevels>		The first repetition of the *Message Structure* IE corresponds to the top level of the message. The last repetition of the *Message Structure* IE corresponds to the level above the reported level for the occured error of the message.	GLOBAL	ignore
>IE ID	M		INTEGER (0..65535)	The IE ID of this level's IE containing the not understood or missing IE.	-	
>Repetition Number	O		INTEGER (1..256)	The *Repetition Number* IE gives, if applicable, the number of occurrences of this level's reported IE up to and including the occurrence containing the not understood or missing IE. Note: All the counted occurrences of the reported IE must have the same topdown hierachical message structure of IEs with assigned criticality above them.	-	

Range bound	Explanation
maxnooflevels	Maximum no. of message levels to report. The value for maxnooflevels is 256.

9.2.1.x2 UE Specific Behaviour Bitmap

Indicates to the RNC the UE specific behaviour defined in [x1].

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UE Specific Behaviour Bitmap	M		BIT STRING (exact size constraint or not)	Defined in [x1].

9.2.1.x2 UE Specific Behaviour Bitmap

Indicates to the RNC the UE specific behaviour defined in [x1].

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-DomainIndicator,
    Cause,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,
    DL-GTP-PDU-SequenceNumber,
    DL-N-PDU-SequenceNumber,
    DataVolumeReportingIndication,
    DRX-CycleLengthCoefficient,
    EncryptionInformation,
    UESpecificBehaviourBitmap,
    GlobalRNC-ID,
    IntegrityProtectionInformation,
    IuSignallingConnectionIdentifier,
    IuTransportAssociation,
    KeyStatus,
    L3-Information,
    LAI,
    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,
            maxNrOfRABs,
            maxNrOfVol,

            id-AreaIdentity,
            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-UESpecificBehaviourBitmap,
        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;
```

```
                              Lots of unaffected ASN1 in 9.3.3 not shown
```

```
-- ****************************************************************
--
-- 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 optional     } |
    { ID id-Cause                       CRITICALITY ignore  TYPE Cause                   PRESENCE mandatory } |
    { ID id-CN-DomainIndicator          CRITICALITY reject  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 optional     } |
    { 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,
    rAB-Parameters              RAB-Parameters,
    dataVolumeReportingIndication           DataVolumeReportingIndication   OPTIONAL
    -- This IE shall be present if the CN domain indicator IE is set to "PS domain"--,
    pDP-TypeInformation             PDP-TypeInformation     OPTIONAL
    -- This IE shall be present if the CN domain indicator IE is set to "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 ::= {
-- Extension for Release 99 to enable the indication to the RNC of UE Specific Behaviour Bitmap --
    { ID id-UESpecificBehaviourBitmap   CRITICALITY ignore      EXTENSION UESpecificBehaviourBitmap    PRESENCE optional },
    ...
}
```

```
                                        Lots of unaffected ASN1 in 9.3.3 not shown
```

```
-- *************************************************************
--
-- COMMON ID ELEMENTARY PROCEDURE
--
-- *************************************************************

-- *************************************************************
--
-- Common ID
--
-- *************************************************************
```

```
CommonID ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {CommonID-IEs} },
    protocolExtensions     ProtocolExtensionContainer { {CommonIDExtensions} }                OPTIONAL,
    ...
}

CommonID-IEs RANAP-PROTOCOL-IES ::= {
    { ID id-PermanentNAS-UE-ID         CRITICALITY ignore  TYPE PermanentNAS-UE-ID           PRESENCE mandatory },
    ...
}

CommonIDExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 99 to enable the indication to the RNC of UE Specific Behaviour Bitmap --
    { ID id-UESpecificBehaviourBitmap   CRITICALITY ignore     EXTENSION UESpecificBehaviourBitmap    PRESENCE optional },
    ...
}
```

Lots of unaffected ASN1 in 9.3.3 not shown

```
-- *************************************************************
--
-- DIRECT TRANSFER ELEMENTARY PROCEDURE
--
-- *************************************************************


-- *************************************************************
--
-- Direct Transfer
--
-- *************************************************************

DirectTransfer ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {DirectTransferIEs} },
    protocolExtensions     ProtocolExtensionContainer { {DirectTransferExtensions} }           OPTIONAL,
    ...
}

DirectTransferIEs RANAP-PROTOCOL-IES ::= {
    { ID id-NAS-PDU             CRITICALITY ignore  TYPE NAS-PDU                    PRESENCE mandatory} |
    { ID id-LAI                 CRITICALITY ignore  TYPE LAI                 PRESENCE optional} |
    { ID id-RAC                 CRITICALITY ignore  TYPE RAC                 PRESENCE optional} |
    { ID id-SAI                 CRITICALITY ignore  TYPE SAI                 PRESENCE optional} |
    { ID id-SAPI                CRITICALITY ignore  TYPE SAPI                   PRESENCE optional      },
    ...
}

DirectTransferExtensions RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 99 to enable the indication to the RNC of UE Specific Behaviour Bitmap --
    { ID id-UESpecificBehaviourBitmap   CRITICALITY ignore     EXTENSION UESpecificBehaviourBitmap    PRESENCE optional },
    ...
}
```

Lots of unaffected ASN1 in 9.3.3 not shown

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,
    maxNrOfLevels,

    id-MessageStructure,
    id-TypeOfError

FROM RANAP-Constants

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

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

-- A
```

Lots of unaffected ASN1 in 9.3.4 not shown

```
-- F

UESpecificBehaviourBitmap              ::= BIT STRING (SIZE (exact size constraint or not))
-- Reference: ab.cde

-- G
```

Lots of unaffected ASN1 in 9.3.4 not shown

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-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 ::= 250
    maxNrOfPDPDirections                   INTEGER ::= 2
    maxNrOfPoints                          INTEGER ::= 15
    maxNrOfRABs                            INTEGER ::= 256
    maxNrOfSeparateTrafficDirections       INTEGER ::= 2
    maxNrOfVol                             INTEGER ::= 2
    maxNrOfLevels                          INTEGER ::= 256

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

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

    id-AreaIdentity                        INTEGER ::= 0
    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
id-MessageStructure                         INTEGER ::= 88
id-TypeOfError                              INTEGER ::= 93
id-UESpecificBehaviourBitmap                INTEGER ::= x3

END
```