TSG-RAN Working Group 3 meeting #8 *TSGR3#8(99)D77*
Abiko, Japan, 25th – 29th of October 1999

Agenda Item:

Source: Ericsson

Title: **Tabular Format for Messages and Information Elements in RANAP**

Document for: Decision

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1. Introduction

In RANAP, a more formal description of included messages and information elements than what is included today is needed.

2. Description

In this contribution, the messages and information elements are described using Tabular Format according to [2]. This is done in a way similar to what is used for the RRC protocol description [3]. The reason for introducing this tabular format is to get rid of ambiguities concerning e.g. optional and conditional information elements, that exist with the present description. Once the messages and information elements have been agreed on in this form, this can be used as input when converting into ASN.1 format.

The transfer syntax is not described. This means that information like e.g. length of the different information elements is not included.

A short description of each message has been added.

3. Message and information element functional definition and contents

9.1 Message contents

For each message there is, a table listing the signalling elements in their order of appearance in the transmitted message.

All the RANAP messages are listed in the following table:

Message name	Reference
RAB ASSIGNMENT REQUEST	9.1.1
RAB ASSIGNMENT RESPONSE	9.1.2
RAB RELEASE REQUEST	9.1.3
IU RELEASE REQUEST	9.1.4
IU RELEASE COMMAND	9.1.5
IU RELEASE COMPLETE	9.1.6
RELOCATION REQUIRED	9.1.7
RELOCATION REQUEST	9.1.8
RELOCATION REQUEST ACKNOWLEDGE	9.1.9
RELOCATION COMMAND	9.1.10
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CN INFORMATION BROADCAST REQUEST	9.1.31
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CN INFORMATION BROADCAST REJECT	9.1.33
OVERLOAD	9.1.34
RESET	9.1.35
RESET ACKNOWLEDGE	9.1.36
ERROR INDICATION	9.1.37

Table 1. List of RANAP messages.

All information elements in the message descriptions below are marked mandatory, optional or conditional according to the following table:

Abbreviation	**Meaning**
M	IE's marked as Mandatory (M) will always be included in the message.
O	IE's marked as Optional (O) may or may not be included in the message.
C	IE's marked as Conditional (C) will be included in a message only if the condition is satisfied. Otherwise the IE is not included.

Table 2. Meaning of abbreviations used in RANAP messages.

9.1.1 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

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs to be setup or modified	C – if-NoOther-Group	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.
NAS Binding Information	M		9.2.3.1	
RAB parameters	M		9.2.1.3	Includes all necessary parameters for RABs (both for MSC and SGSN) including QoS. *It needs to be clarified how the re-ordering information as proposed in Tdoc 276 relates to QoS attribute SDU in-sequence delivery.*
Data Volume Reporting Indication	C - ifPS		9.2.1.21	
User Plane mode	M		9.2.1.22	
Transport Address	M		9.2.2.1	
Iu Transport Association	M		9.2.2.2	
Priority level, queuing and pre-emption indication	O		9.2.1.5	*It needs to be clarified how this parameter is in relation to priority parameters already included with the RAB parameters*
RAB linking	O		9.2.1.6	
RABs to be released	C - if-NoOther-Group	0 to <max-noofRABs>		
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.
ifNoOtherGroup	This group must be present at least when no other group is present, i.e. at least one group must be present.

Range bound	**Explanation**
maxnoofRABs	Maximum no. of RABs for one UE.

9.1.2 RAB ASSIGNMENT RESPONSE

This message is sent by the RNC to report the outcome of the request from the message RAB ASSIGNMENT REQUEST.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs setup or modified	C - if-NoOther-Group	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.
RAB parameters	O		9.2.1.3	Only needed if something has been changed compared to what was requested.
Transport Address	C - ifPS		9.2.2.1	
Iu Transport Association	C - ifPS		9.2.2.2	
RABs released	C - if-NoOther-Group	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.
Transmitted DL Data Volume	O		9.2.3.10	
RABs queued	C - if-NoOther-Group	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.
RABs failed to setup or modify	C - if-NoOther-Group	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	The same RAB ID must only be present in one group.
Cause	M		9.2.1.4	
RABs failed to release	C - if-NoOther-Group	0 to <max-noofRABs>		
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.
ifNoOtherGroup	This group must be present at least when no other group is present, i.e. at least one group must be present.

Range bound	**Explanation**
maxnoofRABs	Maximum no. of RABs for one UE.

9.1.3 RAB RELEASE REQUEST

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

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs to be released		1 to <max-noofRABs>		
RAB ID	M		9.2.1.2	
Cause	M		9.2.1.4	

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

9.1.4 IU RELEASE REQUEST

This message is sent by the RNC to request the CN to release the Iu connection.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	

9.1.5 IU RELEASE COMMAND

This message is sent by the CN to order RNC to release all resources related to the Iu connection.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	
RABs subject to data for-warding	C - ifPS	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	
Transport Address	M		9.2.2.1	
Iu Transport Association	M		9.2.2.2	

Condition	Explanation
ifPS	This Group is only present for RABs towards the PS domain.

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

9.1.6 IU RELEASE COMPLETE

This message is sent by the RNC as response to the IU RELEASE COMMAND message.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs Data Volume Report	C - ifPS	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	
Transmitted DL Data Volume	M		9.2.3.10	

Condition	**Explanation**
ifPS	This Group is only present for RABs towards the PS domain.

Range bound	**Explanation**
maxnoofRABs	Maximum no. of RABs for one UE.

9.1.7 RELOCATION REQUIRED

This message is sent by the source RNC to inform the CN that a relocation shall be performed.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	
Source ID	M		9.2.1.25	
Target ID	M		9.2.1.26	*The usage and format for this information element is FFS*
Source RNC to target RNC transparent container	M		9.2.1.27	

9.1.8 RELOCATION REQUEST

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

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	
Source RNC to target RNC transparent container	M		9.2.1.27	
RABs to be setup		1 to <max-noofRABs>		
RAB ID	M		9.2.1.2	
RAB parameters	M		9.2.1.3	
User Plane mode	M		9.2.1.22	
Transport Address	M		9.2.2.1	
Iu Transport Association	M		9.2.2.2	
Priority level, queuing and pre-emption indication	O		9.2.1.5	
RAB linking	O		9.2.1.6	

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

9.1.9 RELOCATION REQUEST ACKNOWLEDGE

This message is sent by the target RNC to inform the CN about the result of the resource allocation for the requested relocation.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Target RNC to source RNC transparent container	C - If NotOtherCN		9.2.1.28	
RABs setup	C - ifMo-dorPS	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	
Transport Address	M		9.2.2.1	
Iu Transport Association	M		9.2.2.2	

Condition	Explanation
ifModorPS	Always required for SGSN and present for MSC if the parameters have been modified by target RNC.
IfNotOtherCN	Must be included if not sent via the other CN.

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

9.1.10 RELOCATION COMMAND

This message is sent by the CN to source RNC to inform that resources for the relocation are allocated in target RNC.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Target RNC to source RNC transparent container	C - if-NotOtherCN		9.2.1.28	
RABs subject to data for-warding	C - ifPS	0 to <max-noofRABs>		
RAB ID	M		9.2.1.2	
Transport Address	M		9.2.2.1	
Iu Transport Association	M		9.2.2.2	

Condition	Explanation
ifPS	This Group is only present for RABs towards the PS domain.
ifNotOtherCN	Must be included if not sent via the other CN.

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

9.1.11 RELOCATION DETECT

This message is sent by the target RNC to inform the CN that the relocation execution trigger has been received.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	

9.1.12 RELOCATION COMPLETE

This message is sent by the target RNC to inform the CN that the relocation is completed.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	

9.1.13 RELOCATION PREPARATION FAILURE

This message is sent by the CN to the source RNC if the relocation preparation failed.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	

9.1.14 RELOCATION FAILURE

This message is sent by the target RNC to inform the CN that the requested resource allocation failed.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	

9.1.15 RELOCATION CANCEL

This message is sent by the source RNC to the CN to cancel an ongoing relocation.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	

9.1.16 RELOCATION CANCEL ACKNOWLEDGE

This message is sent by the CN to the source RNC when the relocation has been cancelled.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	

9.1.17 SRNS CONTEXT REQUEST

This message is sent by the CN to source RNC to indicate the PS RABs for which context transfer shall be performed.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs subject to data forwarding		1 to <maxnoofPSRABs>		
RAB ID	M		9.2.1.2	

Range bound	Explanation
maxnoofPSRABs	Maximum no. of PS RABs for one UE.

9.1.18 SRNS CONTEXT RESPONSE

This message is sent by the source RNC as a response to SRNS CONTEXT REQUEST.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	
RABs Contexts		1 to <maxnoofPSRABs>		
RAB ID	M		9.2.1.2	
DL GTP-PDU Sequence Number	M		9.2.1.30	
UL GTP-PDU Sequence Number	M		9.2.1.31	
UL RLC-PDU Sequence Number	M		9.2.1.32	
DL RLC-PDU Sequence Number	M		9.2.1.33	

Range bound	Explanation
maxnoofPSRABs	Maximum no. of PS RABs for one UE.

9.1.19 PAGING

This message is sent by the CN to request UTRAN to page a specific UE.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	
Permanent NAS UE Identity	M		9.2.3.2	
Temporary UE Identity	O		9.2.3.3	
Paging Area ID	O		9.2.1.23	
Paging Cause	O		9.2.3.4	
Non Searching Indication	O		9.2.1.24	

9.1.20 COMMON ID

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

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Permanent NAS UE Identity (e.g. IMSI)	M		9.2.3.2	

9.1.21 CN INVOKE TRACE

This message is sent by the CN to request the RNC to start to produce a trace record.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Trace Type	M		9.2.1.8	
Trace Reference	M		9.2.1.10	
Trigger ID	O		9.2.1.9	
UE Identity	O		9.2.1.11	
OMC ID	O		9.2.1.12	

9.1.22 SECURITY MODE COMMAND

This message is sent by the CN to trigger the integrity and ciphering functions over the radio interface.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Integrity Protection Information	M		9.2.1.13	Integrity information includes key(s) and permitted algorithms.
UE Classmark	M		9.2.1.15	
Encryption Information	O		9.2.1.14	Encryption information includes key(s) and permitted algorithms.

Note 1. It is FFS whether the NAS information should be included in this message.

Note 2. The possibility to cipher only some of the RABs is FFS.

Note 3. The need for including UE Classmark has to be agreed with RAN WG2.

9.1.23 SECURITY MODE COMPLETE

This message is sent by the RNC as a successful response to SECURITY MODE COMMAND.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Chosen Integrity Protection Algorithm	M		9.2.1.16	
Chosen Encryption Algorithm	O		9.2.1.17	

Note 1. It is FFS whether the NAS information should be included in this message.

9.1.24 SECURITY MODE REJECT

This message is sent by the RNC as a unsuccessful response to SECURITY MODE COMMAND.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	

9.1.25 LOCATION REPORTING CONTROL

This message is sent by the CN to initiate, modify or stop location reporting from the RNC to the CN.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Request Type	M		9.2.1.20	

9.1.26 LOCATION REPORT

This message is sent by the RNC to the CN with information about the UE location.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Area Identity Code	O		9.2.3.9	
Cause	O		9.2.1.4	

9.1.27 DATA VOLUME REPORT REQUEST

This message is sent by the CN to request transmitted data volumes for specific RABs.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs Data Volume Report		1 to <max-noofPSRABs>		
RAB ID	M		9.2.1.2	

Range bound	Explanation
maxnooPSfRABs	Maximum no. of PS RABs for one UE.

9.1.28 DATA VOLUME REPORT

This message is sent by the RNC and informs the CN about transmitted data volumes for requested RABs.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
RABs Data Volume Report		1 to <max-noofPSRABs>		
RAB ID	M		9.2.1.2	
Transmitted DL data volume	M		9.2.3.10	

Range bound	Explanation
maxnoofPSRABs	Maximum no. of PS RABs for one UE.

9.1.29 INITIAL UE MESSAGE

This message is sent by the RNC to transfer the radio interface initial layer 3 message to the CN.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	
LAI	M		9.2.3.7	
RAC	C - ifPS		9.2.3.8	
Area Identity Code	M		9.2.3.9	
NAS-PDU	M		9.2.3.6	

Condition	Explanation
ifPS	This IE is only present for RABs towards the PS domain.

9.1.30 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

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
NAS-PDU	M		9.2.3.6	

9.1.31 CN INFORMATION BROADCAST REQUEST

This message is sent by the CN and includes information to be broadcasted to all users.

Direction: CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	
CN Broadcast Information piece		1 to <maxnoof-Pieces>		
NAS Broadcast Information	M		9.2.3.5	
Broadcast Area	M		9.1.2.18	
Categorisation Parameters	M		9.2.1.19	

Note: It is FFS how the broadcasting is turned off.

Range bound	Explanation
maxnoofPieces	Maximum no. of Broadcast Information Pieces in one message

9.1.32 CN INFORMATION BROADCAST CONFIRM

This message is sent by the RNC as a successful response to CN INFORMATION BROADCAST REQUEST.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	

9.1.33 CN INFORMATION BROADCAST REJECT

This message is sent by the RNC as a unsuccessful response to CN INFORMATION BROADCAST REQUEST.

Direction: RNC → CN

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	
Cause	M		9.2.1.4	

9.1.34 OVERLOAD

This message is sent by both the CN and the RNC to indicate that the node is overloaded.

Direction: RNC → CN and CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Number of steps	O		9.2.1.29	

9.1.35 RESET

This message is sent by both the CN and the RNC and ia used to request that the other node shall be reset.

Direction: RNC → CN and CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
Cause	M		9.2.1.4	

9.1.36 RESET ACKNOWLEDGE

This message is sent by both the CN and the RNC as a response to RESET.

Direction: RNC → CN and CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	

9.1.37 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 other node.

Direction: RNC → CN and CN → RNC

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		9.2.1.1	
CN Domain Indicator	M		9.2.1.7	
Cause	M		9.2.1.4	
Iu transport association	O		9.2.2.2	*See contribution 99D78*
Transport address	O		9.2.2.1	*See contribution 99D78*

9.2 Information element definitions

9.2.1 Radio network layer related IEs

9.2.1.1 Message Type

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

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Message Type	M		Bit string (8)	

9.2.1.2 RAB ID

[Editor's note: This definition needs to be harmonized with UMTS 23.10.]

This element uniquely identifies the radio access bearer over one Iu connection. The radio access bearer identification has only local significance in one Iu connection. The RAB ID shall remain the same for the duration of the RAB.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB ID	M		Bit string (8)	

9.2.1.3 RAB parameters

The purpose of the RAB parameter information element is to indicate all RAB parameters for both directions, e.g. Quality of service (QoS) classes.

See contribution R3-99D74.

9.2.1.4 Cause

The cause element is used to indicate the reason for a particular event to have occurred according to the cause code list.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Cause				
Cause (Class and value)	M		ENUMERATED(...)	
Diagnostic(s)	O		Bit string (8-N)	Diagnostic information is available for some causes.

9.2.1.5 Priority level, queuing and pre-emption indication

The Priority level indicates the priority of the request. The pre-emption indicator may (alone or along with the priority level) be used to manage the queueing, pre-emption and priority function.

FFS.

9.2.1.6 RAB linking

This element is a common reference shared by a set of RABs which must be treated together as requested.

FFS.

9.2.1.7 CN Domain Indicator

Indicates the CN domain from which the message originates or to which the message shall be sent.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
CN Domain Indicator	M		BOOLEAN	

9.2.1.8 Trace Type

A fixed length element indicating the type of trace information to be recorded.

FFS.

9.2.1.9 Trigger ID

A variable length element indicating the identity of the entity which initiated the trace.

FFS.

9.2.1.10 Trace Reference

A fixed length element providing a trace reference number allocated by the triggering entity.

FFS.

9.2.1.11 UE Identity

This element identifies the element to be traced i.e. the subscriber or the user equipment.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **UE Identity**	M			
IMSI				
IMSIdigit	M	6 to 15	INTEGER (0..9)	
IMEI				
IMEIdigit	M	15	INTEGER (0..9)	

9.2.1.12 OMC ID

A variable length element indicating the destination address of the Operation and Maintenance Center (OMC) to which trace information is to be sent.

FFS.

9.2.1.13 Integrity Protection Information

This element contains the integrity protection information (key(s) and permitted algorithms).

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Integrity Protection Information				
Permitted Algorithms	M	1 to 16	ENUMERATED(...)	
Key	M		Bit string (128)	

9.2.1.14 Encryption Information

This element contains the user data encryption information (key(s) and permitted algorithms) used to control any encryption equipment at the RNC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Encryption Information				
Permitted Algorithms	M	1 to 16	ENUMERATED(...)	
Key	M		Bit string (128)	

9.2.1.15 UE Classmark

FFS.

9.2.1.16 Chosen Integrity Protection Algorithm

This element indicates the integrity protection algorithm being used by the RNC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Chosen Integrity Protection Algorithm	M		ENUMERATED(...)	

9.2.1.17 Chosen Encryption Algorithm

This element indicates the encryption algorithm being used by the RNC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Chosen Encryption Algorithm	M		ENUMERATED(...)	

9.1.2.18 Broadcast Area

With each NAS Broadcast Information, this element identifies the geographical area where to broadcast it.

FFS.

9.2.1.19 Categorisation parameters

With each NAS Broadcast Information, this element is used by the RNC to determine how to prioritise the information and schedule the repetition cycle.

FFS.

9.1.2.20 Request Type

This information element requests the information type that is to be reported from RNC, e.g. to report LAI and RAI of the current UE location. Other request types are FFS.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Request Type				
Event	M		ENUMERATED(Stop, Direct, Change of area, ...)	
Report area	M		ENUMERATED(Location Area, Routing Area, ...)	

9.2.1.21 Data Volume Reporting Indication

This information element indicates whether or not RNC has to calculate the successfully transmitted NAS data amount for the RAB and to report the amount of data when the RAB is released.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Data Volume Reporting Indication	M		BOOLEAN	

9.1.2.22 User Plane Mode

This element indicates the mode of operation of the Iu User plane requested for realising the RAB. The Iu user plane modes are defined in UMTS 25.415.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
User Plane Mode	M		ENUMERATED(Transparent mode, Support mode for predefined SDU sizes, ...)	This IE contains the mode of operation of the Iu UP protocol

9.2.1.23 Paging Area ID

This element uniquely identifies the area, where the PAGING message shall be broadcasted. The Paging area ID may be e.g. a Location Area ID or Routing Area ID.

FFS.

9.1.2.24 Non Searching Indication

This parameter allows the RNC not to search Common ID when receiving a PAGING message from the CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Non Searching Indication	M		BOOLEAN	

9.2.1.25 Source ID

Source ID identifies the source for the relocation of SRNS. The Source ID may be e.g. Source RNC-ID or serving cell ID.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Source ID**	M			
Source RNC-Id				
PLMNdigit	M	5	INTEGER (0..9)	
RNC-Id	M		Bit string (16)	
Serving Cell ID				
FFS				

9.1.2.26 Target ID

Target ID identifies the target for the relocation of SRNS. The target ID may be e.g. Target RNC-ID (for UMTS-UMTS relocation) or Cell Global ID of the relocation target (in case of UMTS to GSM relocation).

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Target ID**	M			
Target RNC-Id				
PLMNdigit	M	5	INTEGER (0..9)	
RNC-Id	M		FFS	
CGI				
PLMNdigit	M	5	INTEGER (0,9)	
LAC	M		Bit string (16)	0000 and FFFF not allowed.
CI	M		Bit string (16)	

9.2.1.27 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 either from external relocation source to target RNC or from source RNC to the external relocation target.

This IE is transparent to CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Source RNC to Target RNC Transparent Container	M		Bit string	

9.1.2.28 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 either from external relocation target to source RNC or 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
Target RNC to Source RNC Transparent Container	M		Bit string	

9.2.1.29 Number of steps

Indicates the number of steps to reduce traffic in overload situation.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Number of steps	M		INTEGER	

9.1.2.30 DL GTP-PDU Sequence Number

This IE indicates the sequence number of the GTP-PDU which is the next to be sent to the UE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
DL GTP-PDU Sequence Number	M		INTEGER (0 ..65535)	This IE indicates the sequence number of the GTP-PDU which is next to be sent to the UE.

9.2.1.31 UL GTP-PDU Sequence Number

This IE indicates the sequence number of the GTP-PDU which is the next to be sent to the SGSN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UL GTP-PDU Sequence Number	M		INTEGER (0 ..65535)	This IE indicates the sequence number of the GTP-PDU which is next to be sent to the SGSN.

9.2.1.32 UL RLC-PDU Sequence Number

This IE indicates the sequence number of the UL RLC-PDU which carried the last segment of the last GTP-PDU forwarded to SGSN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
UL RLC-PDU Sequence Number	M		INTEGER (0 ..4095)	This IE indicates the sequence number of the UL RLC-PDU which carried the last segment of the last GTP-PDU for-warded to SGSN. This is the 12 bit sequence number for RLC AM mode.

9.2.1.33 DL RLC-PDU Sequence Number

This IE indicates the sequence number of the DL RLC-PDU which carried the last segment of the last N-PDU to the UE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
DL RLC-PDU Sequence Number	M		INTEGER (0 ..4095)	This IE indicates the sequence number of the DL RLC-PDU which carried the last segment of the last N-PDU to SGSN. This is the 12 bit sequence number for RLC AM mode.

9.2.2 Transport network layer related IEs

9.2.2.1 Transport address

For the PS domain this information element is an IP address to be used for the user plane transport. For the CS domain this address is to be used for Transport Network Control Plane signalling to set up the U-Plane connection.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Transport address	M		Octet string	The Radio Network layer is not supposed to interpret the address information. It should pass it to the transport layer for interpretation.

9.2.2.2 Iu transport association

This element is used to associate the RAB and the corresponding user plane connection. For the CS domain this information element is the Binding Id to be used in Transport Network Control Plane signalling during set up of the U-Plane connection. In PS domain this information element is the GTP Tunnel Endpoint Identifier.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Iu transport association				
GTP TEI	C – ifPS		Octet string (4)	
Binding Id	C - ifCS		Octet string (4)	

Condition	Explanation
ifPS	This IE is only present for RABs towards the PS domain.
ifCS	This IE is only present for RABs towards the CS domain.

9.2.3 NAS related IEs

9.2.3.1 NAS Binding Information

This element contains application specific information, to be used by the remote NAS entity at the UE side. It serves as the binding to a NAS call. This element is transparent to the RNC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
NAS Binding Information	M		Bit string (16)	

9.2.3.2 Permanent NAS UE Identity

This element is used to identify the UE commonly in UTRAN and in CN. RNC uses to find other existing signalling connections of this same UE (e.g. RRC or Iu signalling connections) Initially this is of the type of IMSI. The future type is FFS.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Permanent NAS UE Identity**	M			
IMSI				
IMSIdigit	M	6 to 15	INTEGER (0..9)	
FFS				

9.2.3.3 Temporary UE ID

Temporary Mobile Subscriber Identity, used for security reasons to hide the identity of a subscriber.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **Temporary UE ID**				
TMSI	M		Bit string (32)	
P-TMSI	M		Bit string (32)	

9.2.3.4 Paging Cause

This element indicates the cause of paging to the UE.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Paging cause	M		ENUMERATED(...)	

9.2.3.5 NAS Broadcast Information

This element identifies broadcast information that belongs to the non-access stratum (e.g. LAC, RA code etc). This information is transparent to RNC.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
NAS Broadcast Information	M		Bit string	

9.2.3.6 NAS PDU

This information element contains the CN – UE or UE – CN message that is transferred without interpretation in the RNC. Typically it contains call control, session management, supplementary services, short message service and mobility management messages.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
NAS PDU	M		Bit string	

9.2.3.7 LAI

This element is used to uniquely identify a Location Area.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
LAI				
PLMNdigit	M	5	INTEGER (0,9)	
LAC	M		Bit string (16)	0000 and FFFF not allowed.

9.2.3.8 RAC

This element is used to identify a Routing Area within a Location Area.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAC	M		Bit string (8)	

9.2.3.9 Area Identity Code

See contribution R3-99D71.

9.2.3.10 Transmitted Data Volume

This information element indicates the data volume (octets) that is successfully transmitted over the air in DL direction for the RAB.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Transmitted Data Volume	M		INTEGER	

4. Proposal

It is proposed that section 3 of this document replaces sections 9.1 and 9.2 of [1].

5. References

1 25.413, UTRAN Iu Interface RANAP Signalling

2 25.921, Guidelines and Principles for protocol description and error handling

3 25.331, RRC Protocol Specification