TSG-RAN Meeting #15
Cheju, Korea, 5 - 8 March 2002

TSGRP#15(02) 0208

Title: Change request for WI "Radio Access Bearer Support Enhancements"

Source: TSG-RAN WG3

RP_Num	Tdoc_Num	Specification	CR_Num	Revision_Num	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	Workitem
RP-020208	R3-020735	25.413	404	3	Rel-5	Addition of the ROHC context relocation during SRNS relocation	B	4.3.0	RANimp-RABSE5

3GPP TSG-RAN WG3 Meeting #27
Orlando, USA, 18th – 22nd February 2002

Tdoc R3-020735
revision of Tdoc R3-020701

CR-Form-v4

CHANGE REQUEST

⌘   **25.413 CR   404**   ⌘ rev **4** ⌘ Current version: **4.3.0** ⌘

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

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

Title:	⌘	Release 5 additions of ROHC context relocation support during SRNS relocation
Source:	⌘	R-WG3
Work item code:	⌘ RANimp-RABSE5	*Date:* ⌘ 21 February 2002

Category: ⌘ **B**	*Release:* ⌘ REL-5

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 <u>TR 21.900</u>.

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)*

Reason for change: ⌘	New Release 5 feature called ROHC context relocation (UTRAN RNC using RFC 3095 => UTRAN RNC using RFC 3095) requires some RANAP additions.
Summary of change: ⌘	RANAP messages (FORWARD SRNS CONTEXT and RANAP RELOCATION INFORMATION) that carry RAB contexts during SRNS relocation are updated to carry also the ROHC/RFC3095 contexts for each RAB. ROHC Context is defined based on RFC3095 Context Information in RRC. Procedure text, tabular format section and ASN.1 are therefore updated accordingly Impact Analysis: Impact assessment towards the previous version of the specification (previous release): This CR has no impact with the previous version of the specification (previous release) because this an optional new feature and the ASN.1 changes are made based on ASN.1 backward compatibility mechanisms (e.g. extension containers, ellipsis notation).
Consequences if not approved: ⌘	

Clauses affected: ⌘	3.3, 8.13, 8.14, 9.1.22, 9.1.43, 9.2.1 (9.2.1.X), 9.3.3, 9.3.4, 9.3.6 and 11.2
Other specs ⌘ **X** Other core specifications ⌘	25.303, 25.306, 25.323, 25.331, 25.844 and 23.060
affected: ☐ Test specifications	
☐ O&M Specifications	
Other comments: ⌘	

3.3   Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAL2	ATM Adaptation Layer type 2
AS	Access Stratum
ASN.1	Abstract Syntax Notation One
ATM	Asynchronous Transfer Mode
CC	Call Control
CN	Core Network
CRNC	Controlling RNC
CS	Circuit Switched
DCH	Dedicated Channel
DL	Downlink
DRNC	Drift RNC
DRNS	Drift RNS
DSCH	Downlink Shared Channel
EP	Elementary Procedure
GPRS	General Packet Radio System
GTP	GPRS Tunnelling Protocol
IE	Information Element
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IPv4	Internet Protocol (version 4)
IPv6	Internet Protocol (version 6)
MM	Mobility Management
MSC	Mobile services Switching Center
NAS	Non Access Stratum
N-PDU	Network – Protocol Data Unit
OSP:IHOSS	Octet Stream Protocol: Internet-Hosted Octet Stream Service
P-TMSI	Packet TMSI
PDCP	Packet Data Convergence Protocol
PDP	Packet Data Protocol
PDU	Protocol Data Unit
PPP	Point-to-Point Protocol
PS	Packet Switched
QoS	Quality of Service
RAB	Radio Access Bearer
RANAP	Radio Access Network Application Part
RNC	Radio Network Controller
RNS	Radio Network Subsystem
ROHC	RObust Header Compression
RRC	Radio Resource Control
SAI	Service Area Identifier
SAP	Service Access Point
SCCP	Signalling Connection Control Part
SDU	Service Data Unit
SGSN	Serving GPRS Support Node
SRNC	Serving RNC
SRNS	Serving RNS
TEID	Tunnel Endpoint Identifier
TMSI	Temporary Mobile Subscriber Identity
UE	User Equipment
UEA	UMTS Encryption Algorithm
UIA	UMTS Integrity Algorithm
UL	Uplink
UMTS	Universal Mobile Telecommunications System
USCH	Uplink Shared Channel
UTRAN	UMTS Terrestrial Radio Access Network

8.13   SRNS Context Forwarding from Source RNC to CN

8.13.1   General

The purpose of this procedure is to transfer SRNS contexts from the source RNC to the CN (PS domain) in case of handover via the CN. The procedure uses connection oriented signalling. SRNS contexts are sent for each concerned RAB, for which at least either GTP-PDU or PDCP sequence numbering or ROHC Context is available. The SRNS contexts contain the sequence numbers of the GTP-PDUs next to be transmitted in the uplink and downlink directions, if available, and the next PDCP sequence numbers that would have been used to send and receive data from the UE, if available, and the ROHC Context, if available.
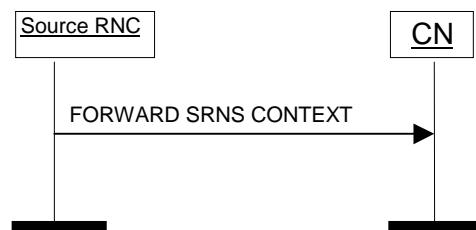
8.13.2   Successful Operation

Figure 1: SRNS Context forwarding from source RNC to CN. Successful operation.

The source RNC initialises the procedure by sending FORWARD SRNS CONTEXT message to the CN. The FORWARD SRNS CONTEXT message contains the RAB Context information for each referenced RAB. For each RAB the following information shall be included:

-    RAB ID

-    always when available, the sequence number for the next downlink GTP-PDU to be sent to the UE, and

-    always when available, the sequence number for the next uplink GTP-PDU to be tunnelled to the GGSN;

-    always when available, the radio interface sequence number (PDCP) [17] of the next uplink N-PDU (PDCP SDU) that would have been expected from the UE by a source system i.e. *UL N-PDU Sequence Number* IE;

-    always when available, the radio interface sequence number (PDCP) [17] of the next downlink N-PDU (PDCP SDU) that would have been sent to the UE by a source system i.e. DL N-PDU Sequence Number IE;

-    always when available, the ROHC Context.

8.13.3   Abnormal Conditions

Not applicable.

8.14   SRNS Context Forwarding to Target RNC from CN

8.14.1   General

The purpose of this procedure is to transfer SRNS contexts from the CN (PS domain) to the target RNC in case of handover via the CN. The procedure uses connection oriented signalling. SRNS contexts are sent for each referenced RAB, for which at least either GTP-PDU or PDCP sequence numbering or ROHC Context is available. The SRNS contexts contain the sequence numbers of the GTP-PDUs next to be transmitted in the uplink and downlink directions, if available, and the next PDCP sequence numbers that would have been used to send and receive data from the UE, if available, and the ROHC Context, if available.

8.14.2   Successful Operation
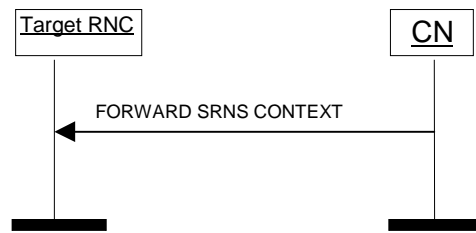
Figure 2: SRNS Context forwarding to target RNC from CN. Successful operation.

The CN initialises the procedure by sending FORWARD SRNS CONTEXT message to the target RNC. The FORWARD SRNS CONTEXT message contains the RAB Context information for each referenced RAB. For each RAB the following information shall be included:

- RAB ID

- always when available, the sequence number for the next downlink GTP-PDU to be sent to the UE, and

- always when available, the sequence number for the next uplink GTP-PDU to be tunnelled to the GGSN;

- always when available, the radio interface sequence number (PDCP) [17] of the next uplink N-PDU (PDCP SDU) that would have been expected from the UE by a source system i.e. *UL N-PDU Sequence Number* IE;

- always when available, the radio interface sequence number (PDCP) [17] of the next downlink N-PDU (PDCP SDU) that would have been sent to the UE by a source system i.e. *DL N-PDU Sequence Number* IE;

- always when available, the ROHC Context.

8.14.3   Abnormal Conditions

Not applicable.

9.1.22 FORWARD SRNS CONTEXT

This message is sent either by source RNC to the CN or by the CN to target RNC.

Direction: CN → RNC and RNC → CN.

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
RAB Contexts List	M				YES	ignore
>**RAB Contexts Item IEs**		1 to <maxnoofRABs>			EACH	ignore
>>RAB ID	M		9.2.1.2		-	
>>DL GTP-PDU Sequence Number	O		9.2.2.3		-	
>>UL GTP-PDU Sequence Number	O		9.2.2.4		-	
>>DL N-PDU Sequence Number	O		9.2.1.33		-	
>>UL N-PDU Sequence Number	O		9.2.1.34		-	
>>ROHC Context	O		9.2.1.X		YES	ignore

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

9.1.43   RANAP RELOCATION INFORMATION

This message is part of a special RANAP Relocation Information procedure, and is sent between RNCs during Relocation.

Direction: RNC - RNC.

Signalling bearer mode: Not applicable.

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Type	M		9.2.1.1		YES	ignore
Direct Transfer Information List	O				YES	ignore
>Direct Transfer Information Item IEs		1 to <maxnoofDT>		Information received in one or more DIRECT TRANSFER messages and that needs to be transferred to target RNC for further transmission to the UE.	EACH	ignore
>>NAS-PDU	M		9.2.3.5		-	
>>SAPI	M		9.2.3.8		-	
>>CN Domain Indicator	M		9.2.1.5		-	
RAB Contexts List	O				YES	ignore
>RAB Contexts Item IEs		1 to <maxnoofRABs>			EACH	ignore
>>RAB ID	M		9.2.1.2		-	
>>DL GTP-PDU Sequence Number	O		9.2.2.3		-	
>>UL GTP-PDU Sequence Number	O		9.2.2.4		-	
>>DL N-PDU Sequence Number	O		9.2.1.33		-	
>>UL N-PDU Sequence Number	O		9.2.1.34		-	
>>ROHC Context	O		9.2.1.X		YES	ignore

Range bound	Explanation
maxnoofDT	Maximum no. of DT information. Value is 15.
maxnoofRABs	Maximum no. of RABs for one UE. Value is 256.

9.2.1   Radio Network Layer Related IEs

Lots of unaffected parts in 9.2.1 not shown

9.2.1.46   Global CN-ID

Global CN-ID is used to globally identify a CN node.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Global CN-ID				
>PLMN identity	M		OCTET STRING (SIZE (3))	- digits 0 to 9, two digits per octet, - each digit encoded 0000 to 1001, - 1111 used as filler - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n -The PLMN identity consists of 3 digits from MCC followed by either -a filler plus 2 digits from MNC (in case of 2 digit MNC) or -3 digits from MNC (in case of a 3 digit MNC).
>CN-ID	M		INTEGER (0..4095)	

9.2.1.X   ROHC Context

The purpose of the *ROHC Context* IE is to store the compressor and decompressor context information of the RFC3095 protocol in order to be transferred from source SRNC to target RNC in SRNS relocation.

This IE is transparent to CN.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
ROHC Context	M		OCTET STRING	"RFC3095 Context info" as defined in [10].

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
    BroadcastAssistanceDataDecipheringKeys,
    LocationRelatedDataRequestType,
    DataVolumeReference,
    AreaIdentity,
    CN-DomainIndicator,
    Cause,
    CriticalityDiagnostics,
    ChosenEncryptionAlgorithm,
    ChosenIntegrityProtectionAlgorithm,
    ClassmarkInformation2,
    ClassmarkInformation3,
    DL-GTP-PDU-SequenceNumber,
    DL-N-PDU-SequenceNumber,
    DataVolumeReportingIndication,
    DRX-CycleLengthCoefficient,
    EncryptionInformation,
    GlobalCN-ID,
    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,
    Requested-RAB-Parameter-Values,
    ROHCContext,
    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,
    Alt-RAB-Parameters,
    Ass-RAB-Parameters
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-Alt-RAB-Parameters,
    id-Ass-RAB-Parameters,
    id-BroadcastAssistanceDataDecipheringKeys,
    id-LocationRelatedDataRequestType,
    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-GlobalCN-ID,
    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-ModifyList,
        id-RAB-ModifyItem,
        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-ROHCContext,
        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
```

```
RAB-ContextList                         ::= RAB-IE-ContainerList { {RAB-ContextItemIEs} }

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

RAB-ContextItem ::= SEQUENCE {
    rAB-ID                    RAB-ID,
    dl-GTP-PDU-SequenceNumber          DL-GTP-PDU-SequenceNumber   OPTIONAL,
    ul-GTP-PDU-SequenceNumber          UL-GTP-PDU-SequenceNumber   OPTIONAL,
    dl-N-PDU-SequenceNumber            DL-N-PDU-SequenceNumber     OPTIONAL,
    ul-N-PDU-SequenceNumber            UL-N-PDU-SequenceNumber     OPTIONAL,
    iE-Extensions              ProtocolExtensionContainer { {RAB-ContextItem-ExtIEs} }
    OPTIONAL,
    ...
}

RAB-ContextItem-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 --
    { ID id-ROHCContext            CRITICALITY ignore  EXTENSION ROHCContext    PRESENCE optional},
    ...
}
```

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

```
-- ************************************************************
--
-- FORWARD SRNS CONTEXT ELEMENTARY PROCEDURE
```

```
--
-- **************************************************************
-- **************************************************************
--
-- Forward SRNS Context
--
-- **************************************************************

ForwardSRNS-Context ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {ForwardSRNS-ContextIEs} },
    protocolExtensions      ProtocolExtensionContainer { {ForwardSRNS-ContextExtensions} }
    OPTIONAL,
    ...
}

ForwardSRNS-ContextIEs RANAP-PROTOCOL-IES ::= {
    { ID id-RAB-ContextList            CRITICALITY ignore  TYPE RAB-ContextList
    PRESENCE mandatory  },
    ...
}

ForwardSRNS-ContextExtensions RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

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

```
-- **************************************************************
--
-- RANAP RELOCATION INFORMATION ELEMENTARY PROCEDURE
--
-- **************************************************************

RANAP-RelocationInformation ::= SEQUENCE {
    protocolIEs         ProtocolIE-Container        { {RANAP-RelocationInformationIEs} },
    protocolExtensions      ProtocolExtensionContainer { {RANAP-RelocationInformationExtensions} }
            OPTIONAL,
    ...
}

RANAP-RelocationInformationIEs RANAP-PROTOCOL-IES ::= {
    { ID id-DirectTransferInformationList-RANAP-RelocInf
                        CRITICALITY ignore  TYPE DirectTransferInformationList-RANAP-RelocInf

                                                PRESENCE optional   } |
    { ID id-RAB-ContextList-RANAP-RelocInf      CRITICALITY ignore  TYPE RAB-ContextList-RANAP-
RelocInf       PRESENCE optional   },
    ...
}

DirectTransferInformationList-RANAP-RelocInf        ::= DirectTransfer-IE-ContainerList {
{DirectTransferInformationItemIEs-RANAP-RelocInf} }

DirectTransferInformationItemIEs-RANAP-RelocInf RANAP-PROTOCOL-IES ::= {
    { ID id-DirectTransferInformationItem-RANAP-RelocInf
                        CRITICALITY ignore  TYPE DirectTransferInformationItem-RANAP-RelocInf
                                                PRESENCE mandatory  },
    ...
}

DirectTransferInformationItem-RANAP-RelocInf ::= SEQUENCE {
    nAS-PDU                     NAS-PDU,
    sAPI                        SAPI,
    cN-DomainIndicator          CN-DomainIndicator,
    iE-Extensions               ProtocolExtensionContainer { {RANAP-
DirectTransferInformationItem-ExtIEs-RANAP-RelocInf} }         OPTIONAL,
    ...
}

RANAP-DirectTransferInformationItem-ExtIEs-RANAP-RelocInf RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-ContextList-RANAP-RelocInf                  ::= RAB-IE-ContainerList { {RAB-ContextItemIEs-RANAP-
RelocInf} }

RAB-ContextItemIEs-RANAP-RelocInf RANAP-PROTOCOL-IES ::= {
```

```
    { ID id-RAB-ContextItem-RANAP-RelocInf        CRITICALITY ignore  TYPE RAB-ContextItem-RANAP-
RelocInf             PRESENCE mandatory  },
    ...
}

RAB-ContextItem-RANAP-RelocInf ::= SEQUENCE {
    rAB-ID              RAB-ID,
    dl-GTP-PDU-SequenceNumber        DL-GTP-PDU-SequenceNumber   OPTIONAL,
    ul-GTP-PDU-SequenceNumber        UL-GTP-PDU-SequenceNumber   OPTIONAL,
    dl-N-PDU-SequenceNumber          DL-N-PDU-SequenceNumber     OPTIONAL,
    ul-N-PDU-SequenceNumber          UL-N-PDU-SequenceNumber     OPTIONAL,
    iE-Extensions                    ProtocolExtensionContainer { {RAB-ContextItem-ExtIEs-RANAP-
RelocInf} }            OPTIONAL,
    ...
}

RAB-ContextItem-ExtIEs-RANAP-RelocInf RANAP-PROTOCOL-EXTENSION ::= {
-- Extension for Release 5 --
    { ID id-ROHCContext          CRITICALITY ignore  EXTENSION ROHCContext    PRESENCE optional},
    ...
}

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

```
                        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) }
```

Lots of unaffected ASN1 in 9.3.4 not shown

```
RNC-ID                  ::= INTEGER (0..4095)
-- RNC-ID                ::= BIT STRING (SIZE (12))
-- Harmonized with RNSAP and NBAP definitions

ROHCContext             ::= OCTET STRING
        -- RFC3095 Context Info as defined in 25.331 --

RRC-Container           ::= OCTET STRING

-- S
```

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
```

Lots of unaffected ASN1 in 9.3.6 not shown

```
-- ***************************************************************
--
-- 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
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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-Alt-RAB-Parameters                             INTEGER ::= 89
id-Ass-RAB-Parameters                             INTEGER ::= 90
id-RAB-ModifyList                                 INTEGER ::= 91
id-RAB-ModifyItem                                 INTEGER ::= 92
id-TypeOfError                                    INTEGER ::= 93
id-BroadcastAssistanceDataDecipheringKeys         INTEGER ::= 94
id-LocationRelatedDataRequestType                 INTEGER ::= 95
id-GlobalCN-ID                                    INTEGER ::= 96
id-ROHCContext                                    INTEGER ::= xx


END
```

11.2 RANAP Relocation Information

11.2.1 General

The purpose of the RANAP Relocation Information procedure is to handle the RANAP related information that is carried transparently during relocation from source RNC to target RNC by RNSAP via Iur Interface.

11.2.2 Operation

When during relocation it becomes necessary in the source RNC to generate RANAP information for transfer to the relocation target, the RNC shall form a RANAP RELOCATION INFORMATION message. The message shall be encoded according to the encoding rules specified for RANAP in the similar manner as for the normal RANAP messages. The outcome of the encoding will be an octet string, which shall not be sent to the CN via the Iu Interface, but it shall be given to the appropriate local process for transparent transfer to the target RNC.

When the RANAP process in the target RNC receives an octet string containing RANAP RELOCATION INFORMATION message that had been transparently transferred from the source RNC, it shall decode it according to the encoding rules specified for RANAP. This process is similar to receiving any normal RANAP message. The decoded information shall be passed to the appropriate processes in the RNC.

The RANAP RELOCATION INFORMATION message may contain the *Direct Transfer Information List* IE and the *RAB Contexts List* IE. If present, the *Direct Transfer Information List* IE shall contain the *NAS-PDU* IE, the *SAPI* IE and the *CN Domain Indicator* IE. If present, the *RAB Contexts List* IE shall contain for each addressed RAB the *RAB ID* IE and, if available, the *DL GTP-PDU Sequence Number* IE, the *UL GTP-PDU Sequence Number* IE, the *DL N-PDU Sequence Number* IE or the *UL N-PDU Sequence Number* IE and, if available, the ROHC Context IE.