TSG-RAN Meeting #6
Nice, France, 13 – 15 December 1999

TSGRP#6(99)736

Title: **Agreed CRs of category "C" (Modification) and "F" (Correction) to TS 25.401**

Source: **TSG-RAN WG3**

Agenda item: **5.4.3**

Doc #	Status-	Spec	CR	Rev	Subject	Cat	Versio	Versio
R3-99j38	agreed	25.401	001	1	Clarification of O&M transport in	C	3.0.0	3.1.0
R3-99j48	agreed	25.401	004	1	Changes on 25.401, section 9	F	3.0.0	3.1.0
R3-99i24	agreed	25.401	007		Routing of NAS Messages in UTRAN	F	3.0.0	3.1.0
R3-99i87	agreed	25.401	008		Introduction of Service Area Identifier	C	3.0.0	3.1.0
R3-99j80	agreed	25.401	010		Revision 1 addition to UTRAN	C	3.0.0	3.1.0

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Document R3-99j38
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.401	CR	001r1	Current Version:	3.0.0

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

For submission to: TSG-RAN#6	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

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

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

Source: TSG-RAN WG3 **Date:** December 7th 1999

Subject: Clarification of O&M transport in 25.401

Work item:

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

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

Reason for change: Guidance for applicability of 25.442 required.

Clauses affected: 10 UTRAN O&M Requirements

Other specs affected:

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

Other comments:

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10 UTRAN O&M Requirements

10.1 O&M of Node B

The O&M of Node B is separated in two parts : the O&M linked to the actual implementation of Node B, denoted as Implementation Specific *O&M*, and the O&M which impacts on the traffic carrying resources in Node B controlled from the RNC, denoted *logical O&M*. The RNS architecture with the O&M interfaces is shown in figure 8.

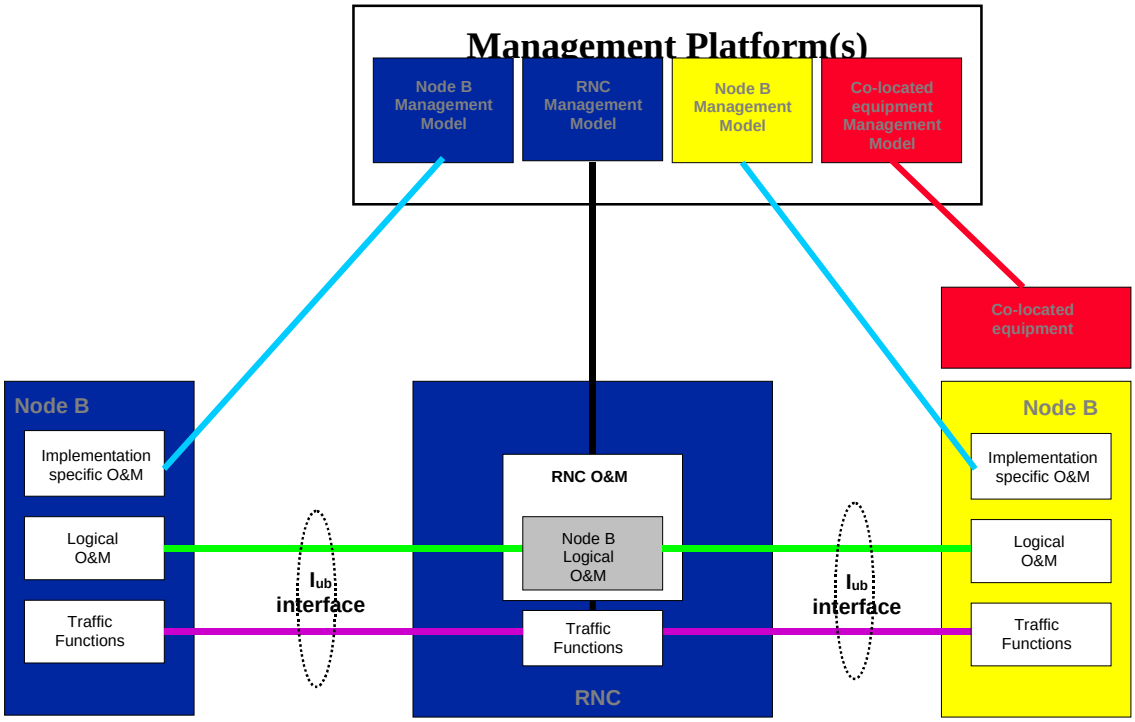

Figure 8: RNS architecture with O&M interfaces

Note: The concept of an interface from the RNC to the management system is shown for clarity only. It's definition is outside the scope of 3GPP-TSG-RAN-WG3.

Note: The presentation of the O&M functions within the management system is shown for clarity only. Their actual implementation is outside the scope of 3GPP-TSG-RAN-WG3.

~~*Note: Implementation Specific O&M can be routed directly to the management system through a specific interface or it can be routed via the RNC, thus sharing the same physical transport as the Iub interface.*~~

Note: The standardisation of the Implementation Specific O&M is outside the scope of 3GPP-TSG-RAN-WG3. The 3GPP-TSG-RAN-WG3 should only address the bearer for the Implementation Specific O&M.~~*Note: The categorisation of Node B O&M functions into either Logical or Implementation Specific O&M is FFS.*~~

~~*Note: The concept of an interface to support signalling between co-located equipment and the management system is FFS.*~~

Note: The figure shows only logical connections and does not intend to mandate any physical interfaces.

10.1.1 Implementation Specific O&M

The Implementation Specific O&M functions are heavily dependent on the implementation of Node B, both for its hardware components and for the management of the software components. It needs therefore to be implementation dependent, and be performed between Node B and the management system.

One solution for the transport of Implementation Specific O&M is to route from Node B to the management system via the RNC. In this case, the Implementation Specific O&M interface and Iub interface share the same physical bearer, and [4] specifies the routing function and the transport bearer for this scenario. The deployment of the routing across the RNC in the UTRAN is optional. Where signalling between co-located equipment and its management system is required, this may be carried over the same bearer as Implementation Specific O&M.

~~This means that the standardisation in 3GPP TSG RAN WG3 should only address the *transport* of O&M signalling between the management system and Node B. This transport can be performed by a transport mechanism, possibly IP. The transport can be potenstially across the RNC, but not necessarilly. Between RNC and Node B, dedicated PVCs or SVCs could be used.~~

10.1.2 Logical O&M

Logical O&M is the signalling associated with the control of logical resources (channels, cells,…) owned by the RNC but physically implemented in the Node B. The RNC controls these logical resources. A number of O&M procedures physically implemented in Node B impact on the logical resources and therefore require an information exchange between RNC and Node B. All messages needed to support this information exchange are classified as Logical O&M forming an integral part of NBAP.

3GPP TSG-RAN Meeting #6 **Document** ***R3-99j48***

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3G CHANGE REQUEST

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25.401 **CR** **004r1** Current Version: 3.0.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submission to TSG-RAN #6 *list TSG meeting no. here ↑* for approval [X] for information [ ] *(only one box should be marked with an X)*

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

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

Source: TSG RAN WG3 **Date:** 7 Dec.. 99

Subject: Changes on 25.401, section 9

3G Work item:

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

F	Correction	X
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Reason for change: The addition aligns the text to 25.402

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

2 References

This text block applies to ALL deliverables. The sub-division below applies optionally to TSs.

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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] Merged UTRAN Architecture Description V0.0.2

[2] UMTS 23.10 : UMTS Access Stratum Services and Functions

[3] UMTS 25.211: Physical channels and mapping of transport channels onto physical channels (FDD)

[4] TS 25.442: Implementation Specific O&M Transport

[5] TS 25.402:Synchronisation in UTRAN, Stage 2

Editor's Note : [1] is a temporary reference only to ease the definition of what should be in the different sections of this document.

9 Synchronisation

9.1 SYNCHRONISATION MODEL

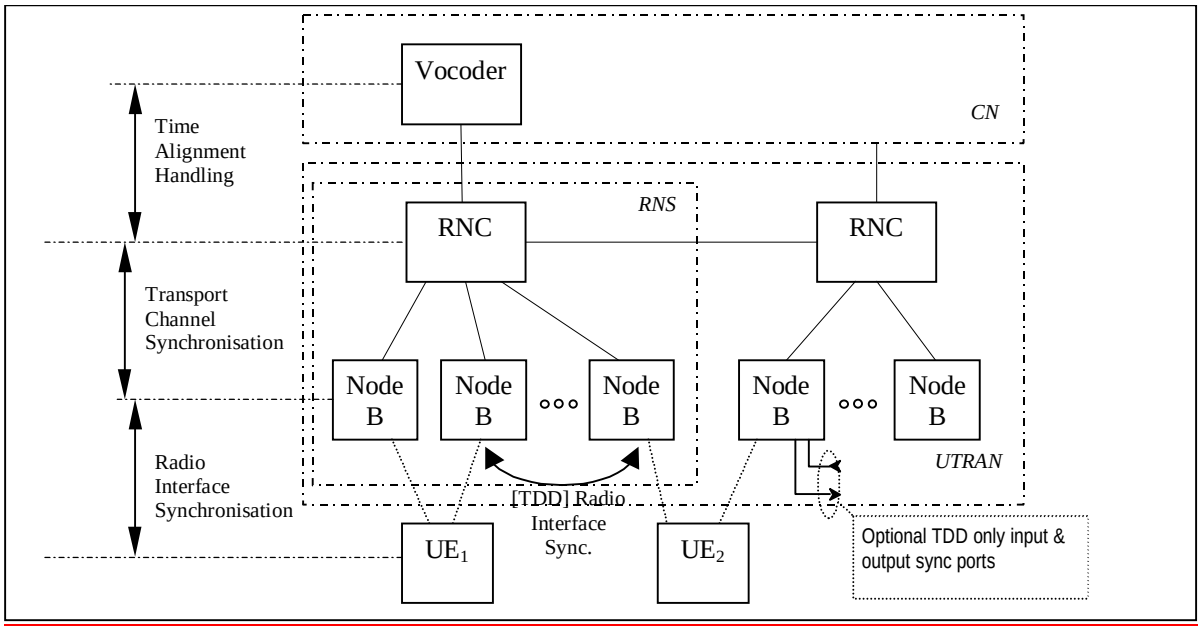
Different synchronisation issues are identified within UTRAN, i.e.:

~~The Synchronisation model includes nodes and interactions in UTRAN as well as points at interactions to Core Network (CN) and User Equipment (UE).~~

~~The following model describes the interactions between nodes and defines the following terms:~~

- Network Synchronisation;
- Node Synchronisation;
- ~~Time Alignment handling~~
- Transport Channel ~~Frame~~ synchronisation
- Radio Interface Synchronisation ~~handling~~
- Time Alignment handling
- ~~Time-of-day handling~~

The Nodes involved by the above mentioned synchronisation issues (with exception of Network and Node Synchronisation) are shown by the Synchronisation Issues Model of Figure 7.



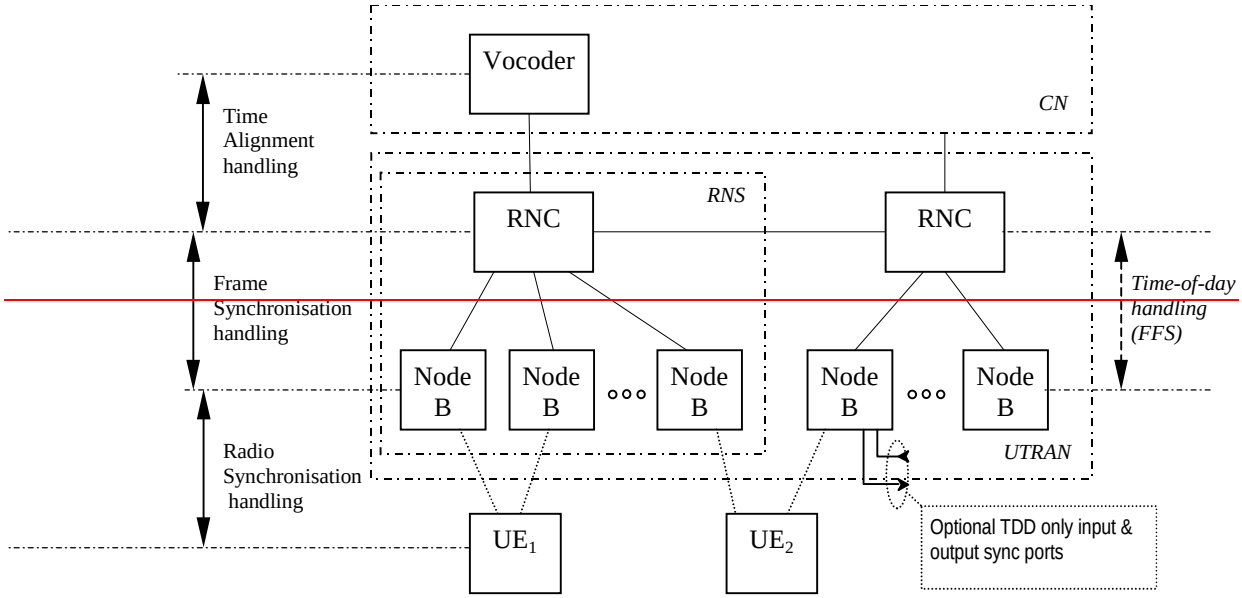


Figure 1. Synchronisation issues model.

A detailed description of the different synchronisation issues in UTRAN is given in [5].

3GPP TSG-RAN-WG3 meeting #9
Paris, France, December 6-10, 1999

Document R3-99i24

3G CHANGE REQUEST

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25.401	**CR**	**007**	Current Version:	3.0.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submission to: TSG-RAN #6 (*list TSG meeting no. here ↑*) — for approval [X] / for information [ ] (*only one box should be marked with an X)*

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

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

Source: TSG RAN WG3 **Date:** Dec 6, 1999

Subject: Routing of NAS Messages in UTRAN

3G Work item:

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

F	Correction	X
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Reason for change: RAN WG2 recently adopted a solution for the routing of NAS messages in UTRAN. In accordance with that RAN WG2 is updating 25.331. This CR updates TS 25.401 accordingly.

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:	TS 25.331
Other 2G core specifications	[ ]	→ List of CRs:	
MS test specifications	[ ]	→ List of CRs:	
BSS test specifications	[ ]	→ List of CRs:	
O&M specifications	[ ]	→ List of CRs:	

Other comments:

7.2.4.8.6 DL OPEN LOOP POWER CONTROL

The DL Open Loop Power Control sets the initial power of downlink channels. It receives downlink measurement reports from the UE.

This function is located in both the UTRAN and the UE.

7.2.4.9 Radio channel coding

This function introduces redundancy into the source data flow, increasing its rate by adding information calculated from the source data, in order to allow the detection or correction of signal errors introduced by the transmission medium. The channel coding algorithm(s) used and the amount of redundancy introduced may be different for the different types of logical channels and different types of data.

This function is located in both the UE and in the UTRAN.

7.2.4.10 Radio channel decoding

This function tries to reconstruct the source information using the redundancy added by the channel coding function to detect or correct possible errors in the received data flow. The channel decoding function may also employ a priori error likelihood information generated by the demodulation function to increase the efficiency of the decoding operation. The channel decoding function is the complement function to the channel coding function.

This function is located in both the UE and in the UTRAN.

7.2.4.11 Channel coding control

This function generates control information required by the channel coding/ decoding execution functions. This may include channel coding scheme, code rate, etc.

This function is located in both the UE and in the UTRAN.

7.2.4.12 Initial (random) access detection and handling

This function will have the ability to detect an initial access attempt from a mobile station and will respond appropriately. The handling of the initial access may include procedures for a possible resolution of colliding attempts, etc. The successful result will be the request for allocation of appropriate resources for the requesting mobile station.

This function is located in the UTRAN.

7.2.4.13 CN Distribution function for Non Access Stratum messages

In the RRC protocol, messages from the NAS shall be transparently transferred within the Access Stratum using the Direct Transfer procedure. A distribution function in the UE and the SRNC shall handle a CN domain indicator, Service Descriptor, and Flow ID being part of the AS message to direct messages to the appropriate NAS entity i.e. the appropriate Mobility Management instance in the UE domain and the appropriate CN domain.

In the downlink direction the UE shall be provided by the SRNC with the information on the originating CN domain for the individual NAS message.

In the uplink direction, the process performed by the distribution function in the UE consists in inserting the appropriate values for CN domain indicator, Service Descriptor, and Flow ID ~~value~~ IEs ~~to~~ in the AS message and the process performed by the SRNC consists in evaluating the CN domain indicator, Service Descriptor, and Flow ID contained in the AS message and distribute the NAS message to the corresponding RANAP instance for transfer over Iu interface.

This distribution function is located in both the UE and in the SRNC.

3GPP TSG-RAN3 Meeting #9
Paris, France, 6-10 Dec 1999

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25.401	CR	008	Current Version:	3.0.0

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

For submission to:	TSG-RAN#6	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

Source: TSG RAN WG3 **Date:** 1999-11-03

Subject: Introduction of Service Area Identifier

Work item:

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

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

Reason for change: At TSG-RAN meeting #8, it was agreed to introduce the concept of Service Area Identifier as described in document R3-99D71. A description of Service Area Identifier therefore needs to be added to 25.401.

Clauses affected: 6.1 UTRAN Identifiers

Other specs affected:

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

Other comments:


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6.1 UTRAN Identifiers

6.1.1 PLMN Identifier

A Public Land Mobile Network is uniquely identified by its PLMN identifier. PLMN-Id is made of Mobile Country Code (MCC) and Mobile Network Code (MNC).

- **PLMN-Id = MCC + MNC**

6.1.2 CN Domain Identifier

A CN Domain Edge Node is identified within UTRAN by its CN Domain Identifier. The CN Domain identifier is used over UTRAN interfaces to identify a particular CN Domain Edge Node for relocation purposes. The CN Domain identifier is made of the PLMN-Id and of the LAC or RAC of the first accessed cell in the target RNS.

The two following CN Domains Identifiers are defined:

- **CN CS Domain-Id = PLMN-Id + LAC**
- **CN PS Domain-Id = PLMN-Id + LAC+ RAC**

6.1.3 RNC Identifier

An RNC node is uniquely identified within UTRAN by its RNC Identifier (RNC-Id). RNC-Id together with the PLMN identifier is used to globally identify the RNC. RNC-Id or the RNC-Id together with the PLMN-Id is used as RNC identifier in UTRAN Iub, Iur and Iu interfaces. SRNC-Id is the RNC-Id of the SRNC. C-RNC-Id is the RNC-Id of the controlling RNC. D-RNC-Id is the RNC Id of the drift RNC.

- **Global RNC-Id = PLMN-Id + RNC-Id**

6.1.X Service Area Identifier

The Service Area Identifier (SAI) is used to uniquely identify an area consisting of one or more cells belonging to the same Location Area. Such an area is called a Service Area and can be used for indicating the location of a UE to the CN.

The Service Area Code (SAC) together with the PLMN-Id and the LAC will constitute the Service Area Identifier.

SAI = PLMN-Id + LAC + SAC

6.1.4 Cell Identifier

The Cell identifer (C-Id) is used to uniquely identify a cell within an RNS. The Cell-Id together with the identifier of the controlling RNC (CRNC-Id) constitutes the UTRAN Cell Identity (UC-Id) and is used to identify the cell uniquely within UTRAN. UC-Id or C-Id is used to identify a cell in UTRAN Iub, Iur and Iu interfaces.

- **UC-Id = RNC-Id + C-Id**

6.1.5 UE Identifiers

NOTE: This RNTI definition and usage needs to be confirmed by 3GPP TSG RAN WG2.

Radio Network Temporary Identities (RNTI) are used as UE identifiers within UTRAN and in signalling messages between UE and UTRAN.

Three types of RNTI exist;

1) Serving RNC RNTI (s-RNTI)

2) Drift RNC RNTI (d-RNTI)

3) Controlling RNC RNTI (c-RNTI)

s-RNTI is used

- by UE to identify itself to the Serving RNC
- by SRNC to address the UE
- by DRNC to identify the UE to Serving RNC.

s-RNTI is allocated for all UEs having a RRC connection, it is allocated by the Serving RNC and it is unique within the Serving RNC. s-RNTI is reallocated always when the Serving RNC for the RRC connection is changed.

d-RNTI is used

- by serving RNC to identify the UE to Drift RNC.

NOTE: The d-RNTI is never used on Uu.

d-RNTI is allocated by drift RNC upon drift UE contexts establishment and it shall be unique within the drift RNC. Serving RNC shall know the mapping between s-RNTI and the d-RNTIs allocated in Drift RNCs for the same UE. Drift RNC shall know the s-RNTI and SRNC-ID related to existing d-RNTI within the drift RNC.

c-RNTI is used

- by UE to identify itself to the controlling RNC
- by controlling RNC to address the UE.

c-RNTI is allocated by controlling RNC upon UE accessing a new cell. C-RNTI shall be unique within the accessed cell. Controlling RNC shall know the d-RNTI associated to the c-RNTI within the same logical RNC (if any).

Each RNC has a unique identifier within the UTRAN part of the PLMN, denoted by RNC identifier (RNC-ID). This identifier is used to route UTRAN interface messages to correct RNC. RNC-ID of the serving RNC together with the s-RNTI is a unique identifier of the UE in the UTRAN part of the PLMN.

6.1.5.1 Usage of RNTI

S-RNTI together with the RNC-ID is used as a UE identifier for the first cell access (at cell change) when a RRC connection exists for this UE and for UTRAN originated paging including associated response messages on the air interface. RNC-ID is used by Controlling RNC to route the received uplink messages towards the Serving RNC.

NOTE: For the initial access two different methods of identification, a random number and a unique core network UE identifier are under consideration.

C-RNTI is used as a UE identifier in all other DCCH/DTCH common channel messages on air interface.

6.1.6 Identifiers for dedicated resources within UTRAN

6.1.6.1 Radio Network Control Plane identifiers

Each addressable object in each reference point has an application part level identifier. This identifier is allocated autonomously by the entity responsible for initiation of the setup of the object. This application part identifier will be used as a reference to the object that is setup. Both ends of the reference point shall memorise the AP Identifier during the lifetime of the object. Application part identifier can be related to a specific ALCAP identifier and that relationship shall also be memorised by both ends.

Table below lists the basic AP level identifiers in each reference point.

Object	Identifier	Abbreviation	Valid for
Radio Access Bearer	Radio Access Bearer ID	RAB-ID	Iu
Dedicated Transport channel	DCH-ID	DCH-ID	Iur, Iub

6.1.6.2 Transport Network Control Plane identifiers

ALCAP identifier is used only in Transport Network Control plane (ALCAP protocol, if exist) and may be used in User Plane in the actual data transmission using the transport link. ALCAP identifier identifies the transport link according to the naming conventions defined for the transport link type in question. Both ends of the reference point of the ALCAP shall memorise the ALCAP identifier during the lifetime of the transport link. Each ALCAP identifier can be binded to an Application Part identifier.

Following table indicates examples of the identifiers used for different transmission link types.

Transmission link type	ALCAP Identifier
AAL2	AAL2 Path ID + CID
GTP over IP	IP address + GTP identifier (ffs.)

6.1.6.3 Binding identifier

Binding Identifier is used to initialise the linkage between ALCAP and Application Part (RANAP, RNSAP, NBAP) identifiers. Binding identifier can be used both in Radio Network Control plane Application Part protocols and in Transport Network Control Plane's ALCAP protocol.

Binding ID binds the Radio and Transport Network Control plane identifiers together. To ensure maximal independence of those two planes, the binding ID should be used only when necessary: Binding ID shall thus be used only in Radio Network Control plane Application Part messages in which a new association between the planes is created and in ALCAP messages creating new transmission links.

Binding ID for each transmission link shall be allocated before the setup of that transmission link. Reserved Binding IDs and the associated transport link shall be memorised by both peers of each reference point.

The Binding ID is sent on one direction using the Application Part protocol and is return in the other direction by the ALCAP protocol.

The binding identity shall already be assigned and tied to a radio application procedure when the first ALCAP message is received in a node.

Figure 6 illustrates how application instances of the Radio Network Control Plane and instances of the Transport Network Plane are linked together through the Binding Identifier in the set-up phase:

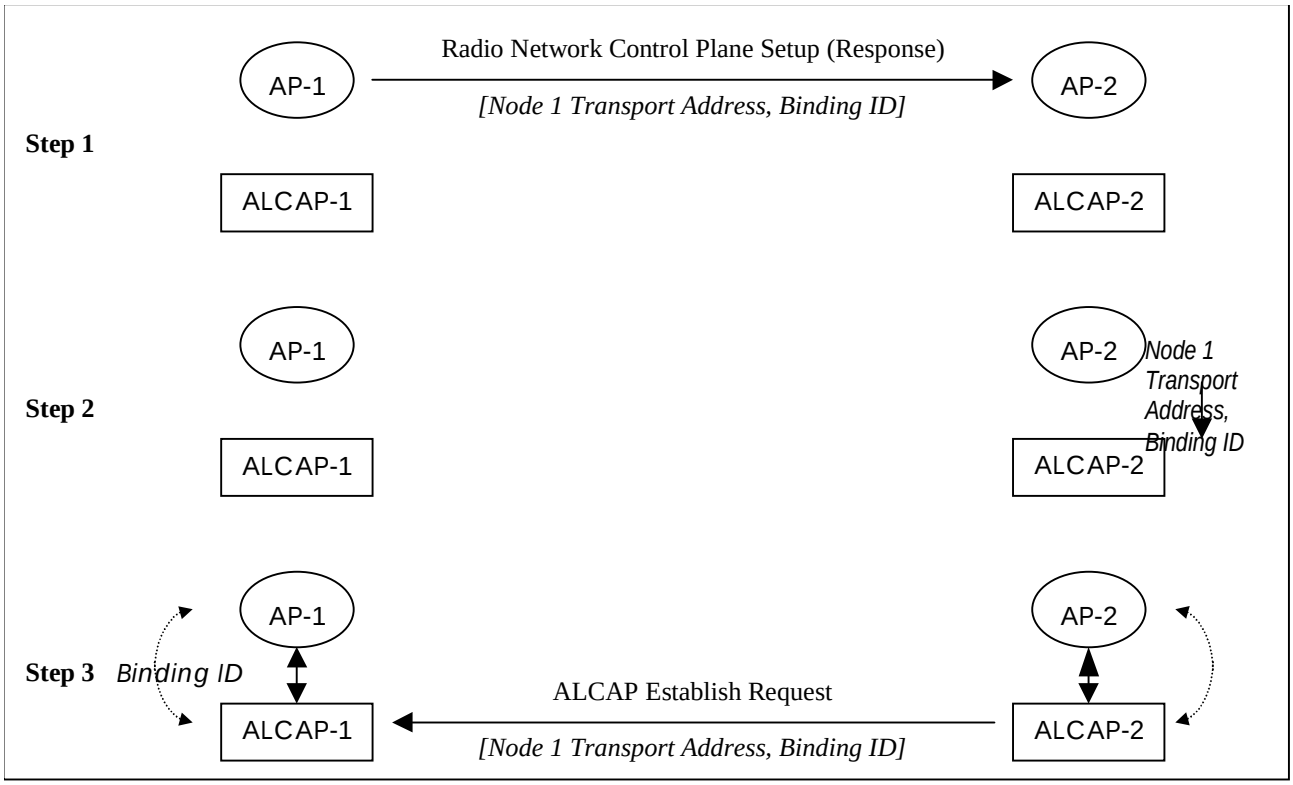

Figure 6: Usage of Binding ID

Step 1: Application Part AP-1 assign the Binding Identifier and sends a Radio Network Control Plane Set-up (Response) message (which of the two messages depends on the involved interface - Iu/Iur or Iub). The message contains the originating node Transport layer address and the Binding Identifier.

Step 2: Among reception of the Radio Network Control Plane Set-up message, the peer entity AP-2 requests to ALCAP-2 to establish a transmission link. The Binding Identifier is passed to ALCAP-2

Step 3: ALCAP-2 sends an ALCAP Establish Request to the peer entity ALCAP-1. The message contains the Binding Identifier. The Binding Identifier allows correlating the incomming transport connection with the Application Part transaction in step 1.

The following table indicates the binding identifier allocating entity in each interface.

Reference point	Allocating entity	Application part message including Binding-ID
Iu	CN	Request from CN
Iur	DRNC	Response to the request from SRNC
Iub	Node-B	Response to the request from DRNC

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CHANGE REQUEST

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25.401	CR	010	Current Version:	3.0.0

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

For submission to:	TSG-RAN#6	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

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

(U)SIM		ME		UTRAN / Radio	X	Core Network	

Source: TSG-RAN WG3 **Date:** 30th Nov 1999

Subject: Additions to UTRAN Identifier Descriptions in 25.401

Work item:

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

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

Reason for change: The current text in chapter 6.1 of TS 25.401 defines the various identifiers used in the UTRAN, but no description is provided how these are created and administered between the various UTRAN entities which use them. To ensure correct operation in a multi-vendor environment, clarification is needed on the administration and management of these identifiers by the UTRAN and its management system. This CR proposes additional text to satisfy this requirement.

Clauses affected: 6.1 UTRAN Identifiers

Other specs affected:

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

Other comments: This CR has been revised to cover the agreements made on document R3-99I87. The CR resulting from that document should be reviewed before this one.


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6.1 UTRAN Identifiers

6.1.1 PLMN Identifier

A Public Land Mobile Network is uniquely identified by its PLMN identifier. PLMN-Id is made of Mobile Country Code (MCC) and Mobile Network Code (MNC).
PLMN-Id = MCC + MNC
The MCC and MNC are predefined within a UTRAN, and set in the RNC via O&M.

6.1.2 CN Domain Identifier

A CN Domain Edge Node is identified within UTRAN by its CN Domain Identifier. The CN Domain identifier is used over UTRAN interfaces to identify a particular CN Domain Edge Node for relocation purposes. The CN Domain identifier is made of the PLMN-Id and of the LAC or RAC of the first accessed cell in the target RNS.
The two following CN Domains Identifiers are defined:
CN CS Domain-Id = PLMN-Id + LAC
CN PS Domain-Id = PLMN-Id + LAC+ RAC
The LAC and RAC are defined by the operator, and set in the RNC via O&M.

6.1.3 RNC Identifier

An RNC node is uniquely identified within UTRAN by its RNC Identifier (RNC-Id). RNC-Id together with the PLMN identifier is used to globally identify the RNC. RNC-Id or the RNC-Id together with the PLMN-Id is used as RNC identifier in UTRAN Iub, Iur and Iu interfaces. SRNC-Id is the RNC-Id of the SRNC. C-RNC-Id is the RNC-Id of the controlling RNC. D-RNC-Id is the RNC Id of the drift RNC.
Global RNC-Id = PLMN-Id + RNC-Id
The RNC-Id is defined by the operator, and set in the RNC via O&M.

6.1.4 Service Area Identifier

The Service Area Identifier (SAI) is used to uniquely identify an area consisting of one or more cells belonging to the same Location Area. Such an area is called a Service Area and can be used for indicating the location of a UE to the CN.
The Service Area Code (SAC) together with the PLMN-Id and the LAC will constitute the Service Area Identifier.
SAI = PLMN-Id + LAC + SAC
The SAC is defined by the operator, and set in the RNC via O&M.

6.1.5 Cell Identifier

The Cell identifier (C-Id) is used to uniquely identify a cell within an RNS. The Cell-Id together with the identifier of the controlling RNC (~~C~~RNC-Id) constitutes the UTRAN Cell Identity (UC-Id) and is used to identify the cell uniquely within UTRAN. UC-Id or C-Id is used to identify a cell in UTRAN Iub, Iur and Iu interfaces.
UC-Id = RNC-Id + C-Id
The C-Id is defined by the operator, and set in the RNC via O&M. The C-Id is set in a Node B by its C-RNC.

6.1.6 Local Cell Identifier

-The Local Cell identifier is used to uniquely identify the set of resources within a Node B required to support a cell (as identified by a C-Id). As a minimum it shall be unique within the Node B, but it is also capable of supporting uniqueness within the UTRAN for management system purposes.
The Local Cell Identifier is used for the initial configuration of a Node B when no C-Id is defined. The Local Cell identifier is defined by the operator, and set in both the Node B and its C-RNC via O&M. The relationship between the Local Cell Identifier and C-Id is set in the C-RNC via O&M.

~~6.1.5~~6.1.7 UE Identifiers

Note : This RNTI definition and usage needs to be confirmed by 3GPP TSG RAN WG2.

Radio Network Temporary Identities (RNTI) are used as UE identifiers within UTRAN and in signalling messages between UE and UTRAN.
Three types of RNTI exist;

1. Serving RNC RNTI (s-RNTI)
2. Drift RNC RNTI (d-RNTI)
3. Controlling RNC RNTI (c-RNTI)

s-RNTI is used

- by UE to identify itself to the Serving RNC
- by SRNC to address the UE
- by DRNC to identify the UE to Serving RNC.

s-RNTI is allocated for all UEs having a RRC connection, it is allocated by the Serving RNC and it is unique within the Serving RNC. s-RNTI is reallocated always when the Serving RNC for the RRC connection is changed.

d-RNTI is used

- by serving RNC to identify the UE to Drift RNC.

Note: The d-RNTI is never used on Uu.

d-RNTI is allocated by drift RNC upon drift UE contexts establishment and it shall be unique within the drift RNC. Serving RNC shall know the mapping between s-RNTI and the d-RNTIs allocated in Drift RNCs for the same UE. Drift RNC shall know the s-RNTI and SRNC-ID related to existing d-RNTI within the drift RNC.

c-RNTI is used

- by UE to identify itself to the controlling RNC
- by controlling RNC to address the UE.

c-RNTI is allocated by controlling RNC upon UE accessing a new cell. C-RNTI shall be unique within the accessed cell. Controlling RNC shall know the d-RNTI associated to the c-RNTI within the same logical RNC (if any).
Each RNC has a unique identifier within the UTRAN part of the PLMN, denoted by RNC identifier (RNC-ID). This identifier is used to route UTRAN interface messages to correct RNC. RNC-ID of the serving RNC together with the s-RNTI is a unique identifier of the UE in the UTRAN part of the PLMN.

6.1.7.1 Usage of RNTI

S-RNTI together with the RNC-ID is used as a UE identifier for the first cell access (at cell change) when a RRC connection exists for this UE and for UTRAN originated paging including associated response messages on the air interface. RNC-ID is used by Controlling RNC to route the received uplink messages towards the Serving RNC.
Note : For the initial access two different methods of identification, a random number and a unique core network UE identifier are under consideration.

C-RNTI is used as a UE identifier in all other DCCH/DTCH common channel messages on air interface

~~6.1.6~~6.1.8 Identifiers for dedicated resources within UTRAN

~~6.1.6.1~~6.1.8.1 Radio Network Control Plane identifiers

Each addressable object in each reference point has an application part level identifier. This identifier is allocated autonomously by the entity responsible for initiation of the setup of the object. This application part identifier will be used as a reference to the object that is setup. Both ends of the reference point shall memorise the AP Identifier during the lifetime of the object. Application part identifier can be related to a specific ALCAP identifier and that relationship shall also be memorised by both ends.

Table below lists the basic AP level identifiers in each reference point.

Object	Identifier	Abbreviation	Valid for
Radio Access Bearer	Radio Access Bearer ID	RAB-ID	Iu
Dedicated Transport channel	DCH-ID	DCH-ID	Iur, Iub

~~6.1.1.2~~6.1.8.2 Transport Network Control Plane identifiers

ALCAP identifier is used only in Transport Network Control plane (ALCAP protocol, if exist) and may be used in User Plane in the actual data transmission using the transport link. ALCAP identifier identifies the transport link according to the naming conventions defined for the transport link type in question. Both ends of the reference point of the ALCAP shall memorise the ALCAP identifier during the lifetime of the transport link. Each ALCAP identifier can be binded to an Application Part identifier.
Following table indicates examples of the identifiers used for different transmission link types.

Transmission link type	ALCAP Identifier
AAL2	AAL2 Path ID + CID
GTP over IP	IP address + GTP identifier (ffs.)

~~6.1.1.3~~6.1.8.3 Binding identifier

Binding Identifier is used to initialise the linkage between ALCAP and Application Part (RANAP, RNSAP, NBAP) identifiers. Binding identifier can be used both in Radio Network Control plane Application Part protocols and in Transport Network Control Plane's ALCAP protocol.
Binding ID binds the Radio and Transport Network Control plane identifiers together. To ensure maximal independence of those two planes, the binding ID should be used only when necessary: Binding ID shall thus be used only in Radio Network Control plane Application Part messages in which a new association between the planes is created and in ALCAP messages creating new transmission links.
Binding ID for each transmission link shall be allocated before the setup of that transmission link. Reserved Binding IDs and the associated transport link shall be memorised by both peers of each reference point.
The Binding ID is sent on one direction using the Application Part protocol and is return in the other direction by the ALCAP protocol.
The binding identity shall already be assigned and tied to a radio application procedure when the first ALCAP message is received in a node.
Figure 1. illustrates how application instances of the Radio Network Control Plane and instances of the Transport Network Plane are linked together through the Binding Identifier in the set-up phase:

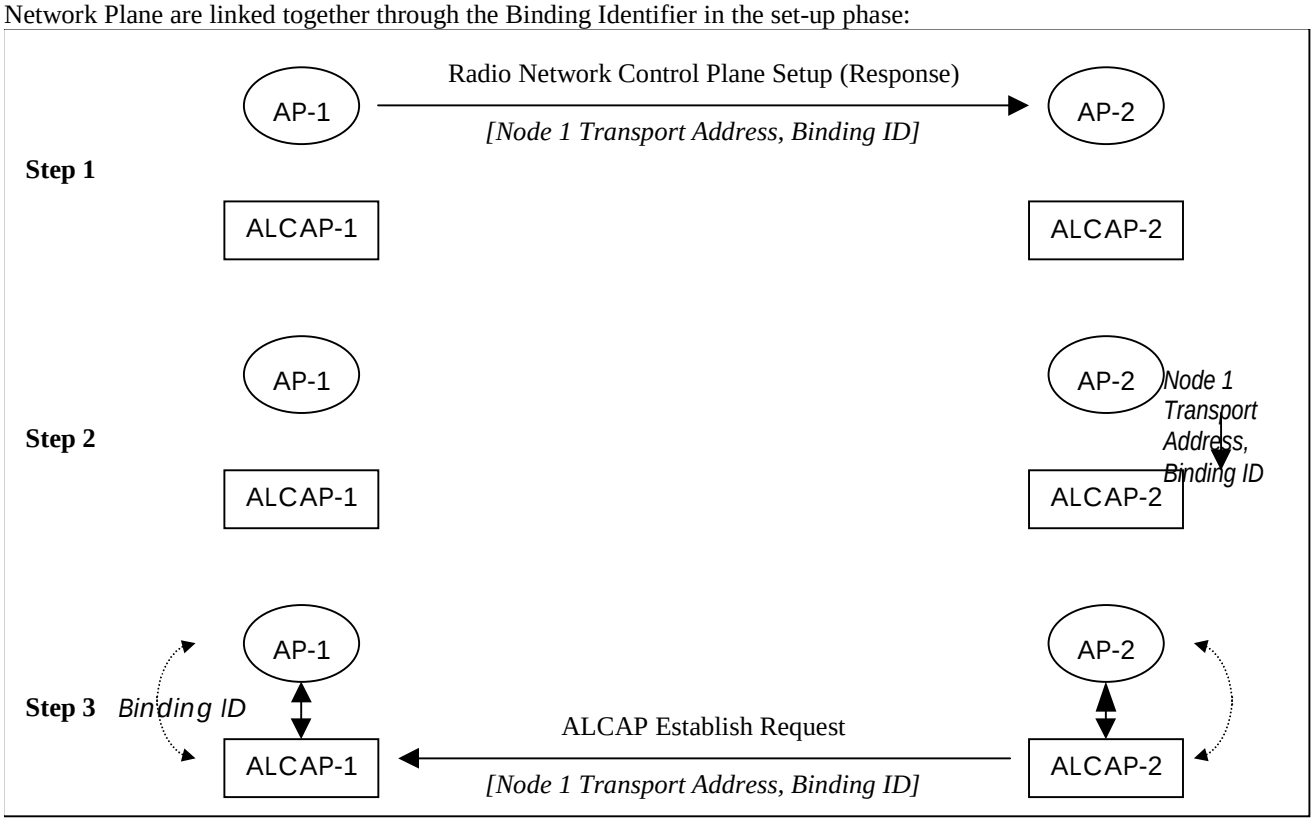

Figure 1. Usage of Binding ID

Step 1: Application Part AP-1 assign the Binding Identifier and sends a Radio Network Control Plane Set-up (Response) message (which of the two messages depends on the involved interface - Iu/Iur or Iub). The message contains the originating node Transport layer address and the Binding Identifier.

Step 2: Among reception of the Radio Network Control Plane Set-up message, the peer entity AP-2 requests to ALCAP-2 to establish a transmission link. The Binding Identifier is passed to ALCAP-2

Step 3: ALCAP-2 sends an ALCAP Establish Request to the peer entity ALCAP-1. The message contains the Binding Identifier. The Binding Identifier allows correlating the incomming transport connection with the Application Part transaction in step 1.

The following table indicates the binding identifier allocating entity in each interface.

Reference point	Allocating entity	Application part message including Binding-ID
Iu	CN	Request from CN
Iur	DRNC	Response to the request from SRNC
Iub	Node-B	Response to the request from DRNC