Technical Specification Group Radio Access Network Marco Island, USA 4 - 7 June 2002

RP#16(02) 0415

TSG_Doc_Num	Specification	CR_Num	Revision_Num	3G_Release	CR_Subject	CR_Category	Cur_Ver_Num	New_Ver_Num	Tdoc_Num	WorkItem
RP-020415	25.931	019	1	R99	Addition of pre-emption signalling sequences	F	3.6.0	3.7.0	R3-021516	TEI
RP-020415	25.931	020		Rel-4	Addition of pre-emption signalling sequences	A	4.3.0	4.4.0	R3-021517	TEI
RP-020415	25.931	021		Rel-5	Addition of pre-emption signalling sequences	А	5.0.0	5.1.0	R3-021518	TEI

3GPP TSG-RAN3 Meeting #29 Gyeonigu, Korea, 13-17 May 2002

	CR-Form-v3		
	CHANGE REQUEST		
ж	25.931 CR 019 # rev 1 # Current version: 3.6.0 #		
For <u>HELP</u> on u	sing this form, see bottom of this page or look at the pop-up text over the X symbols.		
Proposed change	affects: 第 (U)SIM ME/UE Radio Access Network X Core Network		
Title:	Addition of pre-emption signalling sequences		
Source: #	R-WG3		
Work item code: ₩	TEI Date: # 8 May 02		
Category: ж	F Release: Release: Release: Release: Release: Releas		
	Use one of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Use one 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	Reason for change: 第 Pre-emption sequences are not included in example signalling sequences.		
Summary of chang	ge: Add pre-emption signalling sequences for RRC Connection establishment		
Consequences if not approved:	## Use of pre-emption is not clear from normative TSs, which could cause some interoperability problems. Backwards Compatibility Statement: No impact as 25.931 is an informative document.		
Clauses affected:	% 4.4, 4.5, 7.3.3, 7.10.5		
Other specs Affected:	X Other core specifications Test specifications O&M Specifications X 25.931 V4.4.0 CR20, 25.931 V5.0.0 CR21 None		
Other comments:	$oldsymbol{lpha}$		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{K}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.2 RANAP Procedures & Messages

For a detailed description of RANAP procedures and messages refer to [3]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 1

Message Name	UTRAN Procedure	Direction
Direct Transfer	Uplink Direct Transfer	RNC ⇒ CN
	Downlink Direct Transfer	$CN \Rightarrow RNC$
Initial UE Message	NAS Signalling Connection Establishment	$RNC \Rightarrow CN$
Iu Release Command	RRC Connection Release	$CN \Rightarrow RNC$
	Hard HO with switching in the CN	$CN \Rightarrow RNC$
	SRNS Relocation	$CN \Rightarrow RNC$
	UTRAN ⇒ GSM/BSS handover	$CN \Rightarrow RNC$
Iu Release Complete	RRC Connection Release	$RNC \Rightarrow CN$
	Hard HO with switching in the CN	$RNC \Rightarrow CN$
	SRNS Relocation UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN
		RNC ⇒ CN
Paging	Paging for a UE in RRC Idle Mode	CN ⇒ RNC
	Paging for a UE in RRC Connected Mode	CN ⇒ RNC
Radio Access Bearer Assignment	Radio Access Bearer Establishment	CN ⇒ RNC
Request	Radio Access Bearer Release	CN ⇒ RNC
	Radio Access Bearer Modification	CN ⇒ RNC
Radio Access Bearer Assignment	Radio Access Bearer Establishment	RNC ⇒ CN
Response	Radio Access Bearer Release Radio Access Bearer Modification	RNC ⇒ CN
		RNC ⇒ CN
Relocation Command	Hard HO with switching in the CN SRNS Relocation	CN ⇒ RNC CN ⇒ RNC
	UTRAN ⇒ GSM/BSS handover	$CN \Rightarrow RNC$
Delegation Complete		$RNC \Rightarrow CN$
Relocation Complete	Hard HO with switching in the CN SRNS Relocation	$RNC \Rightarrow CN$
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Detect	Hard HO with switching in the CN	RNC ⇒ CN
Relocation Detect	SRNS Relocation	RNC ⇒ CN
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Failure	SRNS Relocation	RNC ⇒ CN
Relocation Request	Hard HO with switching in the CN	CN ⇒ RNC
Neiocation Nequest	SRNS Relocation	CN ⇒ RNC
	GSM/BSS handover ⇒ UTRAN	$CN \Rightarrow RNC$
Relocation Request Acknowledge	Hard HO with switching in the CN	RNC ⇒ CN
. to. out of to the total of th	SRNS Relocation	RNC ⇒ CN
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Required	Hard HO with switching in the CN	RNC ⇒ CN
	SRNS Relocation	RNC ⇒ CN
	UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN
RAB Release Request	RRC Connection Establishment	RNC ⇒ CN

4.3 SABP Procedures & Messages

For a detailed description of SABP procedures and messages refer to [9]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 2

Message Name	UTRAN Procedure	Direction
Write-replace	Service Area Broadcast	$CN \Rightarrow RNC$
Write-replace Complete	Service Area Broadcast	$RNC \Rightarrow CN$
Write-Replace Failure	Service Area Broadcast	$RNC \Rightarrow CN$

4.4 RNSAP Procedures & Messages

For a detailed description of RNSAP procedures and messages refer to [4]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 3

Common Transport Channel Resources Release Cell Update SRNC ⇒ DRNC Common Transport Channel Resources Initialisation Request Cell Update DRNC ⇒ SRNC Common Transport Channel Resources Initialisation Response Cell Update DRNC ⇒ SRNC DL Power Control Request Downlink Signalling Transfer RRC Connection Re-establishment SRNC ⇒ DRNC Downlink Signalling Transfer RRC Connection Re-establishment SRNC ⇒ DRNC Radio Link Deletion Request RRC Connection Re-establishment SRNC ⇒ DRNC Radio Link Deletion Response RRC Connection Re-establishment SRNC ⇒ DRNC Radio Link Deletion Response RRC Connection Re-establishment DRNC ⇒ SRNC Radio Link Failure Indication RRC Connection Re-establishment DRNC ⇒ SRNC Radio Link Reconfiguration Radio Access Bearer Release SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Release SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Release PRNC ⇒ DRNC	Message Name	UTRAN Procedure	Direction
Resources Initialisation Request Common Transport Channel Resources Initialisation Response Director Control Request Director Control Request Downlink Signalling Transfer Reduest Radio Link Deletion Response RRC Connection Re-establishment RRC Connection Re-establishment RRC Connection Re-establishment SRNC ⇒ DRNC SRNC ⇒ DRNC Radio Link Deletion Response RRC Connection Re-establishment SRNC ⇒ DRNC RRC ⇒ DRNC RRC ⇒ DRNC SRNC ⇒ DRNC RRC	Common Transport Channel	Cell Update	$SRNC\RightarrowDRNC$
Resources Initialisation Responses Responses SRNC ⇒ DRNC DL Power Control Request Downlink Signalling Transfer Request RRC Connection Re-establishment SRNC ⇒ DRNC Radio Link Deletion Request Request RRC Connection Re-establishment SRNC ⇒ DRNC Radio Link Deletion Request Hard Handover SRNC ⇒ DRNC Radio Link Deletion Response RRC Connection Re-establishment DRNC ⇒ SRNC Radio Link Pallure Indication RRC Connection Re-establishment DRNC ⇒ SRNC Radio Link Failure Indication Hard Handover DRNC ⇒ SRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Radio Link Reconfiguration Radio Access Bearer Establishment SRNC ⇒ DRNC Prepare Physical Channel Reconf	Resources Initialisation Request	·	SRNC ⇒ DRNC
Downlink Signalling Transfer RRC Connection Re-establishment SRNC ⇒ DRNC RRNC ⇒ DRNC SRNC ⇒ DRNC SRNC ⇒ DRNC Soft Handover Radio Link Deletion Request RRC Connection Re-establishment SRNC ⇒ DRNC ⇒ DRNC ⇒ SRNC ⇒ DRNC ⇒	Resources Initialisation Response	Cell Update	DRNC ⇒ SRNC
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Radio Link Deletion Response RRC Connection Re-establishment Soft Handover Hard Handover Hard Handover DRNC ⇒ SRNC ⇒ DRNC ⇒ SRNC ⇒ DRNC ⇒ SRNC ⇒ DRNC Physical Channel Reconfiguration SRNC ⇒ DRNC ⇒ DRNC DRNC ⇒ SRNC ⇒ DRNC DRNC ⇒ SRNC ⇒ DRNC ⇒ DRNC ⇒ SRNC ⇒ DRNC ⇒ DR	Radio Link Deletion Request	RRC Connection Re-establishment	$SRNC \Rightarrow DRNC$
Radio Link Deletion Response RRC Connection Re-establishment Soft Handover DRNC ⇒ SRNC DRNC ⇒ SRNC DRNC ⇒ SRNC Radio Link Failure Indication Hard Handover DRNC ⇒ SRNC DRNC ⇒ SRNC Radio Link Reconfiguration Radio Access Bearer Establishment Reconfiguration SRNC ⇒ DRNC DRNC ⇒ SRNC ⇒ DRNC DRNC DRNC DRNC DRNC DRNC DRNC DRNC			$SRNC \Rightarrow DRNC$
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	The Land College (100points)		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			
	Relocation Commit		
Uplink Signalling Transfer RRC Connection Re-establishment DRNC \Rightarrow SRNC	3.2.2		
	Uplink Signalling Transfer	RRC Connection Re-establishment	

4.5 NBAP Procedures & Messages

For a detailed description of NBAP procedures and messages refer to [5]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 4

Message Name	UTRAN Procedure	Direction
DL Power Control Request	Downlink Power Control	$RNC \Rightarrow Node B$
Physical Shared Channel	USCH/DSCH Configuration and Capacity Allocation [TDD]	$RNC \Rightarrow Node B$
Reconfiguration Request Physical Shared Channel Reconfiguration Response	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node B \Rightarrow RNC
Radio Link Deletion	RRC Connection Release	RNC ⇒ Node B
	RRC Connection Re-establishment	$RNC \Rightarrow Node B$
	Hard Handover	$RNC \Rightarrow Node B$
	Soft Handover	$RNC \Rightarrow Node B$
Radio Link Deletion Response	RRC Connection Release	Node $B \Rightarrow RNC$
	RRC Connection Re-establishment	Node $B \Rightarrow RNC$
	Hard Handover	Node $B \Rightarrow RNC$
	Soft Handover	Node $B \Rightarrow RNC$
Radio Link Failure Indication	Hard Handover	Node $B \Rightarrow RNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$RNC \Rightarrow Node B$
Commit	Radio Access Bearer Release	$RNC \Rightarrow Node B$
	Physical Channel Reconfiguration Transport Channel Reconfiguration	RNC ⇒ Node B
	Radio Access Bearer Modification	RNC ⇒ Node B
		RNC ⇒ Node B
Radio Link Reconfiguration	Radio Access Bearer Establishment	RNC ⇒ Node B
Prepare	Radio Access Bearer Release Physical Channel Reconfiguration	RNC ⇒ Node B
	Transport Channel Reconfiguration	$RNC \Rightarrow Node B$ $RNC \Rightarrow Node B$
	Radio Access Bearer Modification	$RNC \Rightarrow Node B$ RNC $\Rightarrow Node B$
Radio Link Reconfiguration	Radio Access Bearer Establishment	Node B ⇒ RNC
Ready	Radio Access Bearer Release	Node B \Rightarrow RNC
reddy	Physical Channel Reconfiguration	Node B \Rightarrow RNC
	Transport Channel Reconfiguration	Node B \Rightarrow RNC
	Radio Access Bearer Modification	Node B \Rightarrow RNC
Radio Link Reconfiguration	Radio Access Bearer Establishment	$RNC \Rightarrow Node B$
Request	Radio Access Bearer Release	$RNC \Rightarrow Node B$
	Physical Channel Reconfiguration	$RNC \Rightarrow Node B$
	Transport Channel Reconfiguration	$RNC \Rightarrow Node B$
Radio Link Reconfiguration	Radio Access Bearer Establishment	Node $B \Rightarrow RNC$
Response	Radio Access Bearer Release	Node $B \Rightarrow RNC$
	Physical Channel Reconfiguration	Node $B \Rightarrow RNC$
	Transport Channel Reconfiguration	Node B ⇒ RNC
Radio Link Restore Indication	RRC Connection Establishment	Node B ⇒ RNC
	RRC Connection Re-establishment Soft Handover	Node B ⇒ RNC
	Hard Handover	Node B \Rightarrow RNC Node B \Rightarrow RNC
	Channel and Mobile State Switching on lur	Node B \Rightarrow RNC
Radio Link Setup Request	RRC Connection Establishment	$RNC \Rightarrow Node B$
Radio Link Octop Request	RRC Connection Re-establishment	$RNC \Rightarrow Node B$
	Hard Handover	$RNC \Rightarrow Node B$
	Soft Handover	$RNC \Rightarrow Node B$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	RNC ⇒ Node B
Radio Link Setup Response	RRC Connection Establishment	Node $B \Rightarrow RNC$
	RRC Connection Re-establishment	Node $B \Rightarrow RNC$
	Hard Handover	Node $B \Rightarrow RNC$
	Soft Handover	Node $B \Rightarrow RNC$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node B \Rightarrow RNC
System Information Update	System Information Broadcasting	$RNC \Rightarrow Node B$
Request	Service Area Broadcast	RNC ⇒ Node B
System Information Update	System Information Broadcasting	Node B \Rightarrow RNC
Response	Service Area Broadcast	Node B ⇒ RNC
Radio Link Preemption Required	RRC Connection Establishment	$\underline{Node\;B\RightarrowRNC}$
Indication		

7.3.2 RACH/FACH Establishment

This example shows establishment of an RRC connection on the RACH/FACH common transport channel. A prerequisite for this example is that the necessary Iub Data Transport bearer for the RACH/FACH is established prior to this procedure.

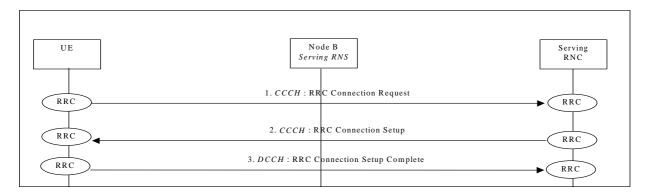


Figure 8b: RRC Connection Establishment - RACH/FACH Establishment

- 1. The UE initiates set-up of an RRC connection by sending **RRC Connection Request** message on CCCH. Parameters: Initial UE Identity, Establishment cause.
- 2. The SRNC decides to use RACH/FACH for this RRC connection and allocates both U-RNTI and C-RNTI identifiers. Message **RRC Connection Setup** is sent on CCCH.

 Parameters: Initial UE Identity, U-RNTI, C-RNTI, Capability update Requirement, frequency (optionally).
- 3. UE sends **RRC Connection Setup Complete** on a DCCH logical channel mapped on the RACH transport channel. Parameters: Integrity information, ciphering information, UE radio access capability.

7.3.3 DCH Establishment with Pre-emption

This example shows the establishment of an RRC Connection in dedicated transport channel (DCH) state with preemption of resouces as a result of Node B Admission Control. This assumes that that the RL(s) pre-empted are the only RL(s) for a RAB that is released.

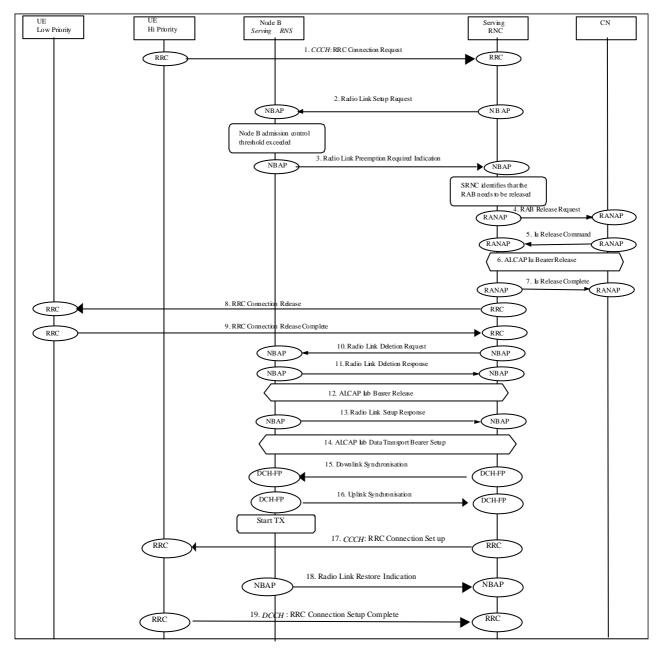


Figure 8c RRC Connection Establishment - DCH Establishment with pre-emption

- 1. See 7.3.1 Item 1.
- 2. When a DCH is to be set-up, NBAP message Radio Link Setup Request is sent to the Node B.
- 3. Node B attempts to allocate resources, but is unable to and responds with NBAP message **Radio Link**Preemption Required Indication, and starts the Tpreempt timer.

 Parameters: RLInformation IE.
- 4. The SRNC pre-empts a RL and may send a RANAP message **RAB Release Request** to the CN. Cause: RAB Pre-empted
- 5. If the CN agrees to the release of the dedicated Channel it sends the message Iu Release Command to the SRNC.
- 6. The SRNC confirms the release by sending a **Iu Release Complete** message to the CN.
- 7. The SRNC initiates release of the Iu Data Transport bearer using ALCAP protocol.
- 8. Message RRC Connection Release from SRNC to UE intiates the RRC connection release.

 Parameters: Release Cause Pre-emptive release
- 9. Message RRC Connection Release Complete from the UE to SRNC to confirm the RRC connection release.
- 10. The SRNC initiates the release of the link by sending **Radio Link Deletion** to the Node B. The Node B stops the Tpreempt timer.
- 11. The Node B confirms the release of the link by sending the Radio Link Deletion Response to the SRNC
- 12. The Node B initiates release of the Iub Data Transport Bearer using ALCAP protocol.

13. The Node B responds to Item 2 with NBAP message **Radio Link Setup Response**. 14-20 See 7.3.1 Items 4-9

3GPP TSG-RAN3 Meeting #29 Gyeonigu, Korea, 13-17 May 2002

	CR-Form-v3 CHANGE REQUEST
X	25.931 CR 020
For <u>HELP</u> on u	using this form, see bottom of this page or look at the pop-up text over the % symbols.
Proposed change	affects: 第 (U)SIM ME/UE Radio Access Network X Core Network
Title: ж	Addition of pre-emption signalling sequences
Source: #	R-WG3
Work item code: ₩	TEI Date: 第 8 May 02
Category: #	Release: # REL-4
	Use one of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Use one 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	e: # Pre-emption sequences are not included in example signalling sequences.
Summary of chang	ge: 第 Add pre-emption signalling sequences for RRC Connection establishment
Consequences if not approved:	## Use of pre-emption is not clear from normative TSs, which could cause some interoperability problems. Backwards Compatibility Statement: No impact as 25.931 is an informative document.
Clauses affected:	% 4.4, 4.5, 7.3.3, 7.10.5
Other specs Affected:	X Other core specifications Test specifications O&M Specifications ** 25.931 V3.6.0 CR19, 25.931 V5.0.0 CR21 None
Other comments:	*

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{K}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.2 RANAP Procedures & Messages

For a detailed description of RANAP procedures and messages refer to [3]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 1

Message Name	UTRAN Procedure	Direction
Direct Transfer	Uplink Direct Transfer	RNC ⇒ CN
	Downlink Direct Transfer	$CN \Rightarrow RNC$
Initial UE Message	NAS Signalling Connection Establishment	$RNC \Rightarrow CN$
Iu Release Command	RRC Connection Release	$CN \Rightarrow RNC$
	Hard HO with switching in the CN	$CN \Rightarrow RNC$
	SRNS Relocation	$CN \Rightarrow RNC$
	UTRAN ⇒ GSM/BSS handover	$CN \Rightarrow RNC$
Iu Release Complete	RRC Connection Release	$RNC \Rightarrow CN$
	Hard HO with switching in the CN	$RNC \Rightarrow CN$
	SRNS Relocation UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN
		RNC ⇒ CN
Paging	Paging for a UE in RRC Idle Mode	CN ⇒ RNC
	Paging for a UE in RRC Connected Mode	CN ⇒ RNC
Radio Access Bearer Assignment	Radio Access Bearer Establishment	CN ⇒ RNC
Request	Radio Access Bearer Release	CN ⇒ RNC
	Radio Access Bearer Modification	CN ⇒ RNC
Radio Access Bearer Assignment	Radio Access Bearer Establishment	RNC ⇒ CN
Response	Radio Access Bearer Release Radio Access Bearer Modification	RNC ⇒ CN
		RNC ⇒ CN
Relocation Command	Hard HO with switching in the CN SRNS Relocation	CN ⇒ RNC CN ⇒ RNC
	UTRAN ⇒ GSM/BSS handover	$CN \Rightarrow RNC$
Delegation Complete		$RNC \Rightarrow CN$
Relocation Complete	Hard HO with switching in the CN SRNS Relocation	$RNC \Rightarrow CN$
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Detect	Hard HO with switching in the CN	RNC ⇒ CN
Relocation Detect	SRNS Relocation	RNC ⇒ CN
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Failure	SRNS Relocation	RNC ⇒ CN
Relocation Request	Hard HO with switching in the CN	CN ⇒ RNC
Neiocation Nequest	SRNS Relocation	CN ⇒ RNC
	GSM/BSS handover ⇒ UTRAN	$CN \Rightarrow RNC$
Relocation Request Acknowledge	Hard HO with switching in the CN	RNC ⇒ CN
. to. out of to the total of th	SRNS Relocation	RNC ⇒ CN
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Required	Hard HO with switching in the CN	RNC ⇒ CN
	SRNS Relocation	RNC ⇒ CN
	UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN
RAB Release Request	RRC Connection Establishment	RNC ⇒ CN

4.3 SABP Procedures & Messages

For a detailed description of SABP procedures and messages refer to [9]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 2

Message Name	UTRAN Procedure	Direction
Write-replace	Service Area Broadcast	$CN \Rightarrow RNC$
Write-replace Complete	Service Area Broadcast	$RNC \Rightarrow CN$
Write-Replace Failure	Service Area Broadcast	$RNC \Rightarrow CN$

4.4 RNSAP Procedures & Messages

For a detailed description of RNSAP procedures and messages refer to [4]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 3

Message Name	UTRAN Procedure	Direction
Common Transport Channel	Cell Update	SRNC ⇒ DRNC
Resources Release	·	
Common Transport Channel Resources Initialisation Request	Cell Update	$SRNC \Rightarrow DRNC$
Common Transport Channel	Cell Update	DRNC ⇒ SRNC
Resources Initialisation Response		
DL Power Control Request	Downlink Power Control	SRNC ⇒ DRNC
Downlink Signalling Transfer	RRC Connection Re-establishment	SRNC ⇒ DRNC
Request	URA Update	$SRNC \Rightarrow DRNC$
Radio Link Deletion Request	RRC Connection Re-establishment	SRNC ⇒ DRNC
·	Soft Handover	$SRNC \Rightarrow DRNC$
	Hard Handover	$SRNC \Rightarrow DRNC$
Radio Link Deletion Response	RRC Connection Re-establishment	DRNC ⇒ SRNC
•	Soft Handover	DRNC ⇒ SRNC
	Hard Handover	$DRNC \Rightarrow SRNC$
Radio Link Failure Indication	Hard Handover	DRNC ⇒ SRNC
Radio Link Reconfiguration	Radio Access Bearer Establishment	SRNC ⇒ DRNC
Request	Radio Access Bearer Release	SRNC ⇒ DRNC
	Physical Channel Reconfiguration	SRNC ⇒ DRNC
	Transport Channel Reconfiguration	SRNC ⇒ DRNC
Radio Link Reconfiguration	Radio Access Bearer Establishment	SRNC ⇒ DRNC
Commit	Radio Access Bearer Release	SRNC ⇒ DRNC
	Physical Channel Reconfiguration	SRNC ⇒ DRNC
	Transport Channel Reconfiguration	SRNC ⇒ DRNC
	Radio Access Bearer Modification	$SRNC \Rightarrow DRNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	SRNC ⇒ DRNC
Prepare	Radio Access Bearer Release	SRNC ⇒ DRNC
	Physical Channel Reconfiguration	$SRNC \Rightarrow DRNC$
	Transport Channel Reconfiguration	$SRNC \Rightarrow DRNC$
	Radio Access Bearer Modification	$SRNC \Rightarrow DRNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	DRNC ⇒ SRNC
Ready	Radio Access Bearer Release	$DRNC \Rightarrow SRNC$
	Physical Channel Reconfiguration	$DRNC \Rightarrow SRNC$
	Transport Channel Reconfiguration	$DRNC \Rightarrow SRNC$
	Radio Access Bearer Modification	$DRNC \Rightarrow SRNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$DRNC \Rightarrow SRNC$
Response	Radio Access Bearer Release	$DRNC \Rightarrow SRNC$
	Physical Channel Reconfiguration	$DRNC \Rightarrow SRNC$
	Transport Channel Reconfiguration	$DRNC \Rightarrow SRNC$
Radio Link Restore Indication	Soft Handover	$DRNC \Rightarrow SRNC$
	Hard Handover	$DRNC \Rightarrow SRNC$
	Channel and Mobile State Switching on lur	DRNC ⇒ SRNC
Radio Link Setup Request	RRC Connection Re-establishment	$SRNC \Rightarrow DRNC$
	Hard Handover	$SRNC \Rightarrow DRNC$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	$SRNC \Rightarrow DRNC$
Radio Link Setup Response	RRC Connection Re-establishment	$DRNC \Rightarrow SRNC$
	Hard Handover	$DRNC \Rightarrow SRNC$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	$DRNC \Rightarrow SRNC$
Relocation Commit	SRNS Relocation URA Update	Source RNC \Rightarrow
		Target RNC
Uplink Signalling Transfer	RRC Connection Re-establishment	DRNC ⇒ SRNC
Indication	URA Update	$DRNC \Rightarrow SRNC$

4.5 NBAP Procedures & Messages

For a detailed description of NBAP procedures and messages refer to [5]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 4

Message Name	UTRAN Procedure	Direction
DL Power Control Request	Downlink Power Control	$RNC \Rightarrow Node B$
Physical Shared Channel Reconfiguration Request	USCH/DSCH Configuration and Capacity Allocation [TDD]	$RNC \Rightarrow Node \; B$
Physical Shared Channel Reconfiguration Response	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node $B \Rightarrow RNC$
Radio Link Deletion	RRC Connection Release	$RNC \Rightarrow Node B$
	RRC Connection Re-establishment	$RNC \Rightarrow Node B$
	Hard Handover	$RNC \Rightarrow Node B$
	Soft Handover	$RNC \Rightarrow Node B$
Radio Link Deletion Response	RRC Connection Release	Node $B \Rightarrow RNC$
	RRC Connection Re-establishment	Node $B \Rightarrow RNC$
	Hard Handover	Node $B \Rightarrow RNC$
	Soft Handover	Node $B \Rightarrow RNC$
Radio Link Failure Indication	Hard Handover	Node $B \Rightarrow RNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$RNC \Rightarrow Node B$
Commit	Radio Access Bearer Release	$RNC \Rightarrow Node B$
	Physical Channel Reconfiguration	$RNC \Rightarrow Node B$
	Transport Channel Reconfiguration Radio Access Bearer Modification	RNC ⇒ Node B
5 " 1:15 " "		RNC ⇒ Node B
Radio Link Reconfiguration	Radio Access Bearer Establishment	RNC ⇒ Node B
Prepare	Radio Access Bearer Release Physical Channel Reconfiguration	RNC ⇒ Node B
	Transport Channel Reconfiguration	RNC ⇒ Node B
	Radio Access Bearer Modification	$RNC \Rightarrow Node B$ $RNC \Rightarrow Node B$
Radio Link Reconfiguration	Radio Access Bearer Establishment	Node B \Rightarrow RNC
Ready	Radio Access Bearer Release	Node B \Rightarrow RNC
Ready	Physical Channel Reconfiguration	Node B \Rightarrow RNC
	Transport Channel Reconfiguration	Node B \Rightarrow RNC
	Radio Access Bearer Modification	Node B \Rightarrow RNC
Radio Link Reconfiguration	Radio Access Bearer Establishment	RNC ⇒ Node B
Request	Radio Access Bearer Release	RNC ⇒ Node B
·	Physical Channel Reconfiguration	RNC ⇒ Node B
	Transport Channel Reconfiguration	$RNC \Rightarrow Node B$
Radio Link Reconfiguration	Radio Access Bearer Establishment	Node $B \Rightarrow RNC$
Response	Radio Access Bearer Release	Node $B \Rightarrow RNC$
	Physical Channel Reconfiguration	Node $B \Rightarrow RNC$
	Transport Channel Reconfiguration	Node $B \Rightarrow RNC$
Radio Link Restore Indication	RRC Connection Establishment	Node $B \Rightarrow RNC$
	RRC Connection Re-establishment	Node $B \Rightarrow RNC$
	Soft Handover	Node B \Rightarrow RNC
	Hard Handover Channel and Mobile State Switching on Iur	Node B ⇒ RNC
		Node B ⇒ RNC
Radio Link Setup Request	RRC Connection Establishment	RNC ⇒ Node B
	RRC Connection Re-establishment Hard Handover	RNC ⇒ Node B
	Soft Handover	$RNC \Rightarrow Node B$ $RNC \Rightarrow Node B$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	$RNC \Rightarrow Node B$ RNC $\Rightarrow Node B$
Radio Link Setup Response	RRC Connection Establishment	Node B \Rightarrow RNC
Tagio Enii Cotap Nooponoo	RRC Connection Re-establishment	Node B \Rightarrow RNC
	Hard Handover	Node B \Rightarrow RNC
	Soft Handover	Node B \Rightarrow RNC
	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node B ⇒ RNC
System Information Update	System Information Broadcasting	RNC ⇒ Node B
Request	Service Area Broadcast	$RNC \Rightarrow Node B$
System Information Update	System Information Broadcasting	Node $B \Rightarrow RNC$
Response	Service Area Broadcast	Node $B \Rightarrow RNC$
Radio Link Preemption Required	RRC Connection Establishment	$\underline{Node\;B\RightarrowRNC}$
<u>Indication</u>		

7.3.2 RACH/FACH Establishment

This example shows establishment of an RRC connection on the RACH/FACH common transport channel. A prerequisite for this example is that the necessary Iub Data Transport bearer for the RACH/FACH is established prior to this procedure.

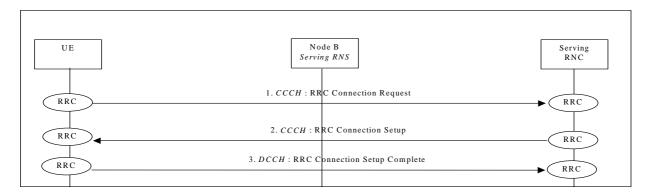


Figure 8b: RRC Connection Establishment - RACH/FACH Establishment

- 1. The UE initiates set-up of an RRC connection by sending **RRC Connection Request** message on CCCH. Parameters: Initial UE Identity, Establishment cause.
- 2. The SRNC decides to use RACH/FACH for this RRC connection and allocates both U-RNTI and C-RNTI identifiers. Message **RRC Connection Setup** is sent on CCCH.

 Parameters: Initial UE Identity, U-RNTI, C-RNTI, Capability update Requirement, frequency (optionally).
- 3. UE sends **RRC Connection Setup Complete** on a DCCH logical channel mapped on the RACH transport channel. Parameters: Integrity information, ciphering information, UE radio access capability.

7.3.3 DCH Establishment with Pre-emption

This example shows the establishment of an RRC Connection in dedicated transport channel (DCH) state with preemption of resouces as a result of Node B Admission Control. This assumes that that the RL(s) pre-empted are the only RL(s) for a RAB that is released.

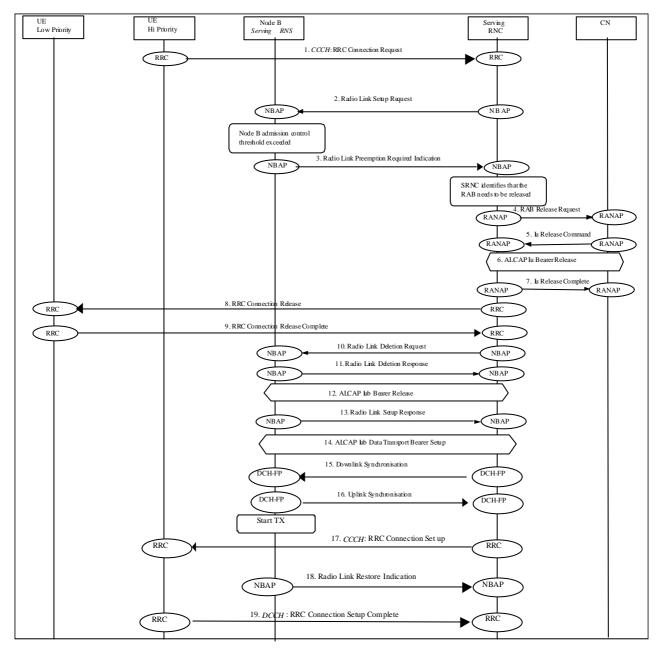


Figure 8c RRC Connection Establishment - DCH Establishment with pre-emption

- 1. See 7.3.1 Item 1.
- 2. When a DCH is to be set-up, NBAP message Radio Link Setup Request is sent to the Node B.
- 3. Node B attempts to allocate resources, but is unable to and responds with NBAP message **Radio Link**Preemption Required Indication, and starts the Tpreempt timer.

 Parameters: RLInformation IE.
- 4. The SRNC pre-empts a RL and may send a RANAP message **RAB Release Request** to the CN. Cause: RAB Pre-empted
- 5. If the CN agrees to the release of the dedicated Channel it sends the message Iu Release Command to the SRNC.
- 6. The SRNC confirms the release by sending a **Iu Release Complete** message to the CN.
- 7. The SRNC initiates release of the Iu Data Transport bearer using ALCAP protocol.
- 8. Message RRC Connection Release from SRNC to UE intiates the RRC connection release.

 Parameters: Release Cause Pre-emptive release
- 9. Message RRC Connection Release Complete from the UE to SRNC to confirm the RRC connection release.
- 10. The SRNC initiates the release of the link by sending **Radio Link Deletion** to the Node B. The Node B stops the Tpreempt timer.
- 11. The Node B confirms the release of the link by sending the Radio Link Deletion Response to the SRNC
- 12. The Node B initiates release of the Iub Data Transport Bearer using ALCAP protocol.

13. The Node B responds to Item 2 with NBAP message **Radio Link Setup Response**. 14-20 See 7.3.1 Items 4-9

3GPP TSG-RAN3 Meeting #29 Gyeonigu, Korea, 13-17 May 2002

	CR-Form-v3		
	CHANGE REQUEST		
X	25.931 CR 021		
For <u>HELP</u> on u	using this form, see bottom of this page or look at the pop-up text over the % symbols.		
Proposed change	affects: 第 (U)SIM ME/UE Radio Access Network X Core Network		
Title: ж	Addition of pre-emption signalling sequences		
Source: #	R-WG3		
Work item code: ₩	TEI Date: # 8 May 02		
Category: Ж	Release: # REL-5		
	Use one of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900. Use one 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	e: # Pre-emption sequences are not included in example signalling sequences.		
Summary of chang	Summary of change: # Add pre-emption signalling sequences for RRC Connection establishment		
Consequences if not approved:	# Use of pre-emption is not clear from normative TSs, which could cause some interoperability problems. Backwards Compatibility Statement: No impact as 25.931 is an informative document.		
Clauses affected:	% 4.4, 4.5, 7.3.3, 7.10.5		
Other specs Affected:	X Other core specifications Test specifications O&M Specifications ** 25.931 V3.6.0 CR19, 25.931 V4.3.0 CR20 None		
Other comments:	ж <mark></mark>		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked \$\mathbb{K}\$ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.2 RANAP Procedures & Messages

For a detailed description of RANAP procedures and messages refer to [3]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 1

Message Name	UTRAN Procedure	Direction
Direct Transfer	Uplink Direct Transfer	RNC ⇒ CN
	Downlink Direct Transfer	$CN \Rightarrow RNC$
Initial UE Message	NAS Signalling Connection Establishment	$RNC \Rightarrow CN$
Iu Release Command	RRC Connection Release	$CN \Rightarrow RNC$
	Hard HO with switching in the CN	$CN \Rightarrow RNC$
	SRNS Relocation	$CN \Rightarrow RNC$
	UTRAN ⇒ GSM/BSS handover	$CN \Rightarrow RNC$
Iu Release Complete	RRC Connection Release	$RNC \Rightarrow CN$
	Hard HO with switching in the CN	$RNC \Rightarrow CN$
	SRNS Relocation UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN
		RNC ⇒ CN
Paging	Paging for a UE in RRC Idle Mode	CN ⇒ RNC
	Paging for a UE in RRC Connected Mode	CN ⇒ RNC
Radio Access Bearer Assignment	Radio Access Bearer Establishment	CN ⇒ RNC
Request	Radio Access Bearer Release	CN ⇒ RNC
	Radio Access Bearer Modification	CN ⇒ RNC
Radio Access Bearer Assignment	Radio Access Bearer Establishment	RNC ⇒ CN
Response	Radio Access Bearer Release Radio Access Bearer Modification	RNC ⇒ CN
		RNC ⇒ CN
Relocation Command	Hard HO with switching in the CN SRNS Relocation	CN ⇒ RNC CN ⇒ RNC
	UTRAN ⇒ GSM/BSS handover	$CN \Rightarrow RNC$
Delegation Complete		$RNC \Rightarrow CN$
Relocation Complete	Hard HO with switching in the CN SRNS Relocation	$RNC \Rightarrow CN$
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Detect	Hard HO with switching in the CN	RNC ⇒ CN
Relocation Detect	SRNS Relocation	RNC ⇒ CN
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Failure	SRNS Relocation	RNC ⇒ CN
Relocation Request	Hard HO with switching in the CN	CN ⇒ RNC
Neiocation Nequest	SRNS Relocation	CN ⇒ RNC
	GSM/BSS handover ⇒ UTRAN	CN ⇒ RNC
Relocation Request Acknowledge	Hard HO with switching in the CN	RNC ⇒ CN
. to. out of to the total of th	SRNS Relocation	RNC ⇒ CN
	GSM/BSS handover ⇒ UTRAN	RNC ⇒ CN
Relocation Required	Hard HO with switching in the CN	RNC ⇒ CN
	SRNS Relocation	RNC ⇒ CN
	UTRAN ⇒ GSM/BSS handover	RNC ⇒ CN
RAB Release Request	RRC Connection Establishment	RNC ⇒ CN

4.3 SABP Procedures & Messages

For a detailed description of SABP procedures and messages refer to [9]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 2

Message Name	UTRAN Procedure	Direction
Write-replace	Service Area Broadcast	$CN \Rightarrow RNC$
Write-replace Complete	Service Area Broadcast	$RNC \Rightarrow CN$
Write-Replace Failure	Service Area Broadcast	$RNC \Rightarrow CN$

4.4 RNSAP Procedures & Messages

For a detailed description of RNSAP procedures and messages refer to [4]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 3

Message Name	UTRAN Procedure	Direction
Common Transport Channel Resources Release	Cell Update	$SRNC\RightarrowDRNC$
Common Transport Channel Resources Initialisation Request	Cell Update	SRNC ⇒ DRNC
Common Transport Channel Resources Initialisation Response	Cell Update	DRNC ⇒ SRNC
DL Power Control Request	Downlink Power Control	$SRNC \Rightarrow DRNC$
Downlink Signalling Transfer	RRC Connection Re-establishment	$SRNC \Rightarrow DRNC$
Request	URA Update	$SRNC \Rightarrow DRNC$
Radio Link Deletion Request	RRC Connection Re-establishment	$SRNC \Rightarrow DRNC$
	Soft Handover	$SRNC \Rightarrow DRNC$
	Hard Handover	$SRNC \Rightarrow DRNC$
Radio Link Deletion Response	RRC Connection Re-establishment	$DRNC \Rightarrow SRNC$
	Soft Handover	$DRNC \Rightarrow SRNC$
	Hard Handover	DRNC ⇒ SRNC
Radio Link Failure Indication	Hard Handover	$DRNC \Rightarrow SRNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$SRNC \Rightarrow DRNC$
Request	Radio Access Bearer Release	$SRNC \Rightarrow DRNC$
	Physical Channel Reconfiguration	$SRNC \Rightarrow DRNC$
	Transport Channel Reconfiguration	$SRNC \Rightarrow DRNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$SRNC \Rightarrow DRNC$
Commit	Radio Access Bearer Release	SRNC ⇒ DRNC
	Physical Channel Reconfiguration	SRNC ⇒ DRNC
	Transport Channel Reconfiguration Radio Access Bearer Modification	SRNC ⇒ DRNC
		SRNC ⇒ DRNC
Radio Link Reconfiguration	Radio Access Bearer Establishment	SRNC ⇒ DRNC
Prepare	Radio Access Bearer Release	SRNC ⇒ DRNC
	Physical Channel Reconfiguration Transport Channel Reconfiguration	SRNC ⇒ DRNC
	Radio Access Bearer Modification	SRNC ⇒ DRNC SRNC ⇒ DRNC
Dadia Link Deporting	Radio Access Bearer Establishment	DRNC ⇒ SRNC
Radio Link Reconfiguration Ready	Radio Access Bearer Release	DRNC ⇒ SRNC
Ready	Physical Channel Reconfiguration	DRNC ⇒ SRNC
	Transport Channel Reconfiguration	DRNC ⇒ SRNC
	Radio Access Bearer Modification	$DRNC \Rightarrow SRNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	DRNC ⇒ SRNC
Response	Radio Access Bearer Release	DRNC ⇒ SRNC
1.0000	Physical Channel Reconfiguration	DRNC ⇒ SRNC
	Transport Channel Reconfiguration	DRNC ⇒ SRNC
Radio Link Restore Indication	Soft Handover	DRNC ⇒ SRNC
Tradic Zimi resoluto indication	Hard Handover	DRNC ⇒ SRNC
	Channel and Mobile State Switching on Iur	DRNC ⇒ SRNC
Radio Link Setup Request	RRC Connection Re-establishment	SRNC ⇒ DRNC
	Hard Handover	SRNC ⇒ DRNC
	USCH/DSCH Configuration and Capacity Allocation [TDD]	SRNC ⇒ DRNC
Radio Link Setup Response	RRC Connection Re-establishment	DRNC ⇒ SRNC
	Hard Handover	DRNC ⇒ SRNC
	USCH/DSCH Configuration and Capacity Allocation [TDD]	DRNC ⇒ SRNC
Relocation Commit	SRNS Relocation URA Update	Source RNC ⇒
		Target RNC
Uplink Signalling Transfer	RRC Connection Re-establishment	DRNC ⇒ SRNC
Indication	URA Update	$DRNC \Rightarrow SRNC$

4.5 NBAP Procedures & Messages

For a detailed description of NBAP procedures and messages refer to [5]. Only Messages mentioned in the present document are shown. For each message is also given the list of example procedures where the message is used, as provided by this document.

Table 4

Message Name	UTRAN Procedure	Direction
DL Power Control Request	Downlink Power Control	$RNC \Rightarrow Node B$
Physical Shared Channel Reconfiguration Request	USCH/DSCH Configuration and Capacity Allocation [TDD]	$RNC \Rightarrow Node B$
Physical Shared Channel Reconfiguration Response	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node $B \Rightarrow RNC$
Radio Link Deletion	RRC Connection Release	$RNC \Rightarrow Node B$
	RRC Connection Re-establishment	$RNC \Rightarrow Node B$
	Hard Handover Soft Handover	$RNC \Rightarrow Node B$
		RNC ⇒ Node B
Radio Link Deletion Response	RRC Connection Release	Node B ⇒ RNC
	RRC Connection Re-establishment Hard Handover	Node B \Rightarrow RNC Node B \Rightarrow RNC
	Soft Handover	Node B \Rightarrow RNC
Radio Link Failure Indication	Hard Handover	Node B \Rightarrow RNC
Radio Link Reconfiguration	Radio Access Bearer Establishment	RNC ⇒ Node B
Commit	Radio Access Bearer Release	$RNC \Rightarrow Node B$
	Physical Channel Reconfiguration	RNC ⇒ Node B
	Transport Channel Reconfiguration	$RNC \Rightarrow Node B$
	Radio Access Bearer Modification	$RNC \Rightarrow Node B$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$RNC \Rightarrow Node B$
Prepare	Radio Access Bearer Release	$RNC \Rightarrow Node B$
	Physical Channel Reconfiguration	$RNC \Rightarrow Node B$
	Transport Channel Reconfiguration Radio Access Bearer Modification	RNC ⇒ Node B
Radio Link Reconfiguration	Radio Access Bearer Establishment	$RNC \Rightarrow Node B$ Node $B \Rightarrow RNC$
Ready	Radio Access Bearer Release	Node B \Rightarrow RNC
reday	Physical Channel Reconfiguration	Node B \Rightarrow RNC
	Transport Channel Reconfiguration	Node B \Rightarrow RNC
	Radio Access Bearer Modification	Node $B \Rightarrow RNC$
Radio Link Reconfiguration	Radio Access Bearer Establishment	$RNC \Rightarrow Node B$
Request	Radio Access Bearer Release	$RNC \Rightarrow Node B$
	Physical Channel Reconfiguration	$RNC \Rightarrow Node B$
D. F. Li. I. D. G. G.	Transport Channel Reconfiguration	RNC ⇒ Node B
Radio Link Reconfiguration Response	Radio Access Bearer Establishment Radio Access Bearer Release	Node B ⇒ RNC
Response	Physical Channel Reconfiguration	Node $B \Rightarrow RNC$ Node $B \Rightarrow RNC$
	Transport Channel Reconfiguration	Node B \Rightarrow RNC
Radio Link Restore Indication	RRC Connection Establishment	Node B \Rightarrow RNC
Tradio Emir restore maisaren	RRC Connection Re-establishment	Node B \Rightarrow RNC
	Soft Handover	Node $B \Rightarrow RNC$
	Hard Handover	Node $B \Rightarrow RNC$
	Channel and Mobile State Switching on Iur	Node B \Rightarrow RNC
Radio Link Setup Request	RRC Connection Establishment	$RNC \Rightarrow Node B$
	RRC Connection Re-establishment Hard Handover	RNC ⇒ Node B
	Soft Handover	$RNC \Rightarrow Node B$ $RNC \Rightarrow Node B$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	$RNC \Rightarrow Node B$ $RNC \Rightarrow Node B$
Radio Link Setup Response	RRC Connection Establishment	Node B \Rightarrow RNC
Table Link Cotap (topolico	RRC Connection Re-establishment	Node B \Rightarrow RNC
	Hard Handover	Node B \Rightarrow RNC
	Soft Handover	Node $B \Rightarrow RNC$
	USCH/DSCH Configuration and Capacity Allocation [TDD]	Node $B \Rightarrow RNC$
System Information Update	System Information Broadcasting	$RNC \Rightarrow Node B$
Request	Service Area Broadcast	RNC ⇒ Node B
System Information Update	System Information Broadcasting	Node B ⇒ RNC
Response	Service Area Broadcast	Node B \Rightarrow RNC
Radio Link Preemption Required Indication	RRC Connection Establishment	$\underline{Node\;B\RightarrowRNC}$
	I .	

7.3.2 RACH/FACH Establishment

This example shows establishment of an RRC connection on the RACH/FACH common transport channel. A prerequisite for this example is that the necessary Iub Data Transport bearer for the RACH/FACH is established prior to this procedure.

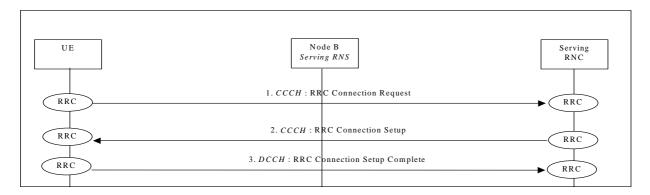


Figure 8b: RRC Connection Establishment - RACH/FACH Establishment

- 1. The UE initiates set-up of an RRC connection by sending **RRC Connection Request** message on CCCH. Parameters: Initial UE Identity, Establishment cause.
- 2. The SRNC decides to use RACH/FACH for this RRC connection and allocates both U-RNTI and C-RNTI identifiers. Message **RRC Connection Setup** is sent on CCCH.

 Parameters: Initial UE Identity, U-RNTI, C-RNTI, Capability update Requirement, frequency (optionally).
- 3. UE sends **RRC Connection Setup Complete** on a DCCH logical channel mapped on the RACH transport channel. Parameters: Integrity information, ciphering information, UE radio access capability.

7.3.3 DCH Establishment with Pre-emption

This example shows the establishment of an RRC Connection in dedicated transport channel (DCH) state with preemption of resouces as a result of Node B Admission Control. This assumes that that the RL(s) pre-empted are the only RL(s) for a RAB that is released.

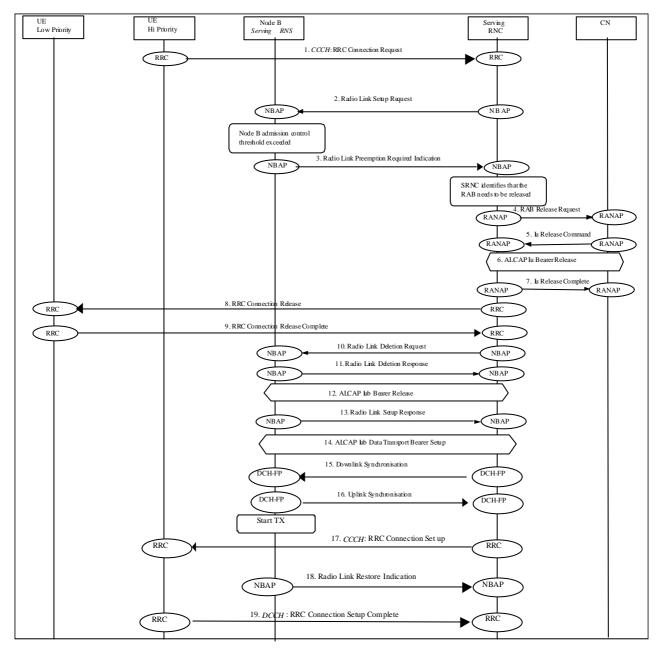


Figure 8c RRC Connection Establishment - DCH Establishment with pre-emption

- 1. See 7.3.1 Item 1.
- 2. When a DCH is to be set-up, NBAP message Radio Link Setup Request is sent to the Node B.
- 3. Node B attempts to allocate resources, but is unable to and responds with NBAP message **Radio Link**Preemption Required Indication, and starts the Tpreempt timer.

 Parameters: RLInformation IE.
- 4. The SRNC pre-empts a RL and may send a RANAP message **RAB Release Request** to the CN. Cause: RAB Pre-empted
- 5. If the CN agrees to the release of the dedicated Channel it sends the message Iu Release Command to the SRNC.
- 6. The SRNC confirms the release by sending a **Iu Release Complete** message to the CN.
- 7. The SRNC initiates release of the Iu Data Transport bearer using ALCAP protocol.
- 8. Message RRC Connection Release from SRNC to UE intiates the RRC connection release.

 Parameters: Release Cause Pre-emptive release
- 9. Message RRC Connection Release Complete from the UE to SRNC to confirm the RRC connection release.
- 10. The SRNC initiates the release of the link by sending **Radio Link Deletion** to the Node B. The Node B stops the Tpreempt timer.
- 11. The Node B confirms the release of the link by sending the Radio Link Deletion Response to the SRNC
- 12. The Node B initiates release of the Iub Data Transport Bearer using ALCAP protocol.

13. The Node B responds to Item 2 with NBAP message **Radio Link Setup Response**. 14-20 See 7.3.1 Items 4-9