Agenda Item: ??

Source: Ericsson

Title: **RRC Message Parameters**

Document for: Decision

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1 Introduction

At the previous TSG-RAN WG2 meeting in Helsinki the documentation from the different standardisation bodies participating in 3GPP were successfully merged into a common set of documents (the S2.XX series). However, the merge could not be fully completed. This document tries to finalise the merge of the RRC parameters included in S2.31 TS RAN S2.31 V0.0.1, RRC protocol, in section 10.1 and Annex 1.

Here, parameters included in RRC messages are presented; also a suggestion of a refined grouping of parameters is given. Examples on how these parameters are mapped into messages are illustrated in [2].

2 List of parameters

Below, Radio access bearer parameters, Transport channel parameters, Physical channel parameters, UE parameters and Other parameters are listed in tables. Note that these tables are not complete and that several more parameters should be added at a later stage.

Parameter Category	RRC Parameters			Explanation
Radio Access Bearer Parameters	RAB ID			An identification number for the RAB affected by a certain message.
	NAS info			A field with Non Access Stratum information to bind a RAB to the Non Access Sratum. This information is transparent to RRC.
	RLC parameters			-
		Uplink RLC parameters		-
			RLC mode	Indicates if the RLC entity for a certain RAB should use Acknowledged, Non Acknowledged or Transparent mode data transfer. *[Note: It is FFS if this parameter always is the same in both UL and DL.]*
			RLC in-sequence delivery	Indication if RLC should preserve the order of higher layer PDUs that were transmitted through RLC. *[Note: It is FFS if this parameter always is the same in both UL and DL.]*
			RLC PDU size	Size of RLC Packet Data Units. *[Note: RLC PDU size may be derived from transport block size and not explicitly transfered across the radio interface]*

					RLC transmission window size	A flow control parameter used to set the maximum number of RLC PDUs sent without getting them acknowledged.
					RLC retransmission info	This could be the number of attempts to retransmit a RLC PDU before it is discarded, or different timer values.
			Downlink RLC parameters			-
				RLC mode		
				RLC in-sequence delivery		
				RLC PDU Size		
				RLC transmission window size		
				RLC retransmission info		
		RAB multiplexing info				List of multiplexing options for each possible transport channel this RAB can be multiplexed on.
			Multiplexing option			Each option consists of both an UL and a DL mapping of this RAB to transport channels.
				Uplink multiplexing		-
					Transport channel identity	This is the ID of a transport channel that this RAB could be mapped onto.
					Logical channel identity	This parameter is used to distinguish logical channels multiplexed by MAC on a transport channel.
					MAC logical channel priority	This includes both priority between different users traffic when using a common or shared channel, and between different RABs (or logical channels) traffic for a certain user. Different priorities for one users´ RABs are mapped (through the MAC´s T and C/T MUXes) to the TFC selection algorithm. *[Note: Usage and precise meaning of this is FFS.]*
				Downlink multiplexing		-
					Transport channel identity	
					Logical channel identity	

Parameter Category	RRC Parameters			Explanation
Transport Channel Parameters	Transport Format Combinations Set (TFCS)			Indicates the possible combinations of already defined transport formats for dedicated transport channels.
	Transport Format Combinations subset			Indicates which combinations in the already defined TFCS that are allowed.
	Uplink transport channels			List of defined uplink transport channels
		Transport channel identity		This parameter is used to distinguish transport channels.
		Transport Format Set (TFS)		Transport formats including dynamic part attributes and semi-static attributes
			Transport block size(s)	(dynamic)
			Transport Block Set Size(s)	(dynamic)
			Transmission time interval	(semi-static)
			Type of channel coding	(semi-static)
			Rate matching	(semi-static)
	Downlink transport channels			List of defined downlink transport channels
		Transport channel id		
		Transport Format Set (TFS)		
			Transport block size(s)	
			Transport Block Set Size(s)	
			Transmission time interval	
			Type of channel coding	
			Rate matching	
		Active set		List of radio links that are used by a downlink transport channel
			Radio link identity	Radio link reference number

Parameter Category	RRC Parameters			Explanation
Physical Channel Parameters	Frequency info			Radio frequency and duplex distance.
	Uplink radio resources			
		DPCH	UL scrambling code	What short or long uplink scrambling code a certain UE should use
			DPCCH ch. code	SF of the channelization code for control part. *[The necessity of this parameter is FFS.]*
			DPDCH ch. code	List of spreading factors of the channelization codes for data parts
			SF	-
		PRACH	Access slots	Allowed access slots for the preambles
			Preamble spreading code	Which code(s) to use for spreading of the preamble. There is also a one to one mapping from preamble code to what scrambling code to use for the message part.
			Preamble signature	Allowed preamble signatures.
			Spreading factor	Which different rates or SF that are allowed to use on the data part (I-branch) in the message part of the random access
		Time slot info		List of timeslots within a frame to be used in the uplink. (TDD only)
			Slot	-
	Downlink radio resources			
		Radio link info		List of radio links
			Radio link identity	Radio link reference number
			DPCH	DL scrambling code	
				DL ch. codes	List of channelization codes to be used in the downlink for DPCH
				Ch. code	-
			Secondary CCPCH	DL scrambling code	.
				Channelization code	
			Timeslot info	List of timeslots within a frame to be used in the downlink (TDD only)
				Slot	-

Parameter Category	RRC Parameters		Explanation	
UE Parameters	S-RNTI		Serving RNC RNTI used to identify a UE having a RRC connection within an RNC, when the UE uses CCCH mapped on common transport channels.	
	C-RNTI		Controlling RNC RNTI used to identify a UE having a RRC connection within an RNC, when the UE uses DCCH mapped on common transport channels.	
	CN UE identifier		UE identifier in the CN.	
		IMSI	International Mobile Subscriber Identity	Contains one of these
		TMSI	Temporary Mobile Subscriber Identity	
		P-TMSI	Packet Temporary Mobile Subscriber Identity	
	CN domain identifier		Points out the core network domain (e.g. IP or PSTN/ISDN CN domain)	
	Random UE identity		A random number allocated by the UE, to identify the UE at RRC connection establishment (FFS whether this is an RRC parameter)	
	Establishment cause		Cause for establishment of RRC connection (originating call, paging response, location update request, forward inter-system handover etc)	
	Release cause		Cause for release of RRC connection (FFS)	
	UE capability		Content is FFS.	
	Activation time		A timestamp e.g. system frame number for simultaneous change of parameters in the network and the UE.	
Other parameters	NAS message		A non-access stratum message to be transferred transparently through UTRAN	
	RNC identifier		Identifies an RNC for routing of CCCH messages	
	Cell identity		-	
	URA identity		UTRAN Registration Area identity	
	BCCH modification type		Indicate modification of the system information on BCCH (FFS)	

3 Proposal

It is proposed that the parameter definitions presented in chapter 2 should replace the parameter bullet list in 10.1 of S2.31 TS RAN S2.31 V0.0.1, RRC protocol. It is also proposed that parameter definitions in these tables should be used as basis when defining the contents of RRC messages.

4 References

[1] TS RAN S2.31 V0.0.1, RRC protocol specification;
     Source: Temporary editor (Motorola)

[2] Tdoc RAN WG2 142/99 RRC message contents;
     Source: Ericsson