3GPP TSG-RAN WG3 #116e R3-223849

**E-meeting, 9th – 19th May, 2022**

Source: CATT (moderator)

Title: Summary of offline discussion for CB: # SDT3\_RACHbased

Agenda Item: 9.1.9.1

Document for: Approval

# Introduction

This is the Summary of the discussion for the following CB:

**CB: # SDT3\_RACHbased**

**- How to transfer SDT DRB/SRB information in the RETRIEVE UE CONTEXT RESPONSE message when needed?**

**- Add the QoS flow mapping information in the Partial UE Context Information for SDT IE? Add the SDT SRB Only Indicator IE in the Partial UE Context Information for SDT IE?**

**- Add SRB ID IE in the SDT SRB between New NG-RAN node and Old NG-RAN node in the RRC TRANSFER message IE?**

**- For SDT without UE context relocation, the receiving gNB releases the established SDT RLC entity and the partial UE context when the SDT transmission is completed?**

**- Check details of other corrections**

**- Capture agreements and provide CRs if agreeable**

(CATT - moderator)

Summary of offline disc [R3-223698](file:///C%3A%5CUsers%5Csunjiancheng%5CAppData%5CRoaming%5CMicrosoft%5CWord%5CInbox%5CR3-223698.zip)

The deadline for the first phase is 8:00 UTC on Friday (May 13th).

According to the 1st round discussion, 2nd round discussion may be started to finalize the CR work.

For 2nd round discussion:

1. Finalize the CR work
2. LS to RAN2

Detail discussion is in section 4.

* For the draft LS, the moderator would propose companies could provide your views before 10:00 UTC on Monday (May 16), if possible we can try to send it out tonight.(the CR could be further checked)
* For the CR checking, the moderator would help to apply the new revision numbers together, companies please provide your revision to the draft folder for further check today. And companies are encouraged to provide your views on no later than 8:00 UTC on Wednesday (May 18th).

# For the Chairman’s Notes

According to the 1st round discussion, the following proposals should be agreeable.

**Proposal 1: change the presence of *SDT DRBs To Be Setup List* IE from “1” to “0..1”.**

**Proposal 2: Add SDT Radio Bearer Configuration in Retrieval UE Context Response message.**

* **R3-223111 will be revised to R3-22xxxx, merging the R3-223500.**
* **If the proposal is agreed, we should decide whether to send the LS to RAN2.**

**Proposal 3: Change the presence of the *SDT SRBs to Be Setup List* IE to mandatory in the PARTIAL UE CONTEXT TRANSFER message. Meanwhile, the semantics description should be updated to reflect the SRB1 is always exist.**

**Proposal 4: Add *SRB ID* IE in the RRC TRANSFER message to make correct association between the RRC Container and the SRB ID, the semantics description for the *SRB ID* IE should be revised to avoid using “shall”.**

* **R3-223307 will be revised to R3-22xxxx, update the semantics descriptions as proposed in P3 P4.**

**Proposal 5: Add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE.**

* **R3-223152 will be used to capture P1, P5, whether to agree it directly or need the revision could be further checked in 2nd round.**

**Proposal 6: All of the changes provided in R3-223145 are agreeable, the new added texts “RACH based SDT when the UE context is kept in the old NG-RAN node” should be revised to “RACH based SDT without UE context relocation” to align with the stage 2.**

* **R3-223145 will be revised to R3-22xxxx, update the texts as proposed in P6.**

**Proposal 7: For the stage 2 changes for RA-based SDT in TS 38.300, the draft CRs R3-223144, R3-223151, R3-223280, R3-223248 and R3-223168 will be merged together.**

* **A new draft CR (R3-22xxxx) is needed to merge all the agreeable changes from the contributions above, the draft is already is in folder for double check, details could be further checked in the 2nd round.**

**Proposal 8: Clarification on RA-SDT procedure in TS 38.401 is beneficial, R3-223279 could be taken as start point, revision is needed according to the comments received in 1st round discussion.**

* **R3-223279 will be revised to R3-22xxxx, the details could be further checked and refined (if needed) in the 2nd round discussion.**

The 2nd round discussion will focus on:

* the CR work, check the details, further refinement, co-source, etc.
* The Potential LS to RAN2?

# Discussion (first phase)

# Stage 3 changes

Contributions [1][2][4][6][10][12] provide the stage 3 changes for RA-based SDT.

**Issues to be resolved:**

1. **Presence of *SDT DRBs To Be Setup List* IE.**

Contributions [1][4][6] pointed out the *SDT DRBs To Be Setup List* IE should not be mandatory. Two solutions are provided to fix the issue:

**Solution 1-1:** as proposed in [1], add an additional IE *SDT SRB Only Indicator*, to ignore the *SDT DRBs To Be Setup List* IE.

**Solution 1-2:** as proposed in [4][6], change the presence of *SDT DRBs To Be Setup List* IE from “1” to “0..1”.

**Questions 1**: Do you acknowledge the issue and agree with the changes as proposed in [1] ?

| Company | Yes/No | Comment |
| --- | --- | --- |
| CATT | Yes, but | We acknowledged the issue.But the simplest way is to change the presence of the *SDT DRBs To Be Setup List* IE from “1” to “0..1”. |
| ZTE | Yes, but | We also acknowledged this issue.But we agree with change as proposed in [4][6]. |
| Google | Yes, but | The issue is acknowledged and the way proposed by [4][6] seems easier. |
| Huawei | Yes, but  | Issue acknowledged, and solution 1-2 proposed by [4] and [6] is better. |
| Nokia | Yes and No | We also acknowledge this issue.But we disagree with [1] and agree with change as proposed in [4][6]. |
| China Telecom | Yes, but | Agree with ZTE |
| E/// | Yes with Sol 1-2 |  |
| Lenovo | Yes with Sol 1-2 |  |
| Samsung  | Yes with Sol 1-2 |  |
| Qualcomm | Yes | Sol 1-2 seems better; also no strong need to be backward compatible at this stage. |
| Intel | Yes | If NBC is OK, then Solution 1-2. If should be BC, then Solution 1-1.  |
| LGE | Yes | We slightly prefer Sol 1-1, but if the majority prefers Sol 1-2, we are also fine to it. |
| NEC | Yes | We also acknowledge the issue. solution 1-2 would be the simple and easier. |

**Moderator’s summary：**

13 companies participated in the discussion, and all acknowledged with the issue, 12/13 companies preferred the solution 1-2, i.e., as proposed in [4][6], change the presence of *SDT DRBs To Be Setup List* IE from “1” to “0..1”.

Indeed, if NBC is not ok, the sol 1-1 is a good way. The moderator would share QC’s view that there’s no strong need to be backward compatible at this stage, as we see there’re also some essential NBC corrections to make the SDT workable.

**Proposal 1: change the presence of *SDT DRBs To Be Setup List* IE from “1” to “0..1”.**

1. **Add SDT Radio Bearer Configuration in Retrieval UE Context Response**

In the contributions [2] and [10], it’s proposed that anchor Gnb shall provide the SDT SRB (list), SDT DRB list to the receiving Gnb in case of SDT with anchor relocation.

The moderator observed that the reason of changes for both CRs are same, and the changes are quite similar, the major delta is [2] uses SDT SRB list, while the [10] use a SRB2 indicator.

**Questions 2**: In SDT with anchor relocation case, do you agree to add the radio bearer configuration for SDT in Context Retrieval Response? And which approach is preferred?

| Company | Yes/No | Comment |
| --- | --- | --- |
| CATT | Yes, Prefer to merge them together and fix the issue. | As the two CRs are quite similar, the moderator would encourage to merge them together.Currently, only SRB2 is supported in SDT. But we have agreed to use a SDT SRB list in Partial UE Context Transfer message for future proof. Thus, the tabular in [2] is slightly preferred.To be mentioned, the presence of SDT DRB info in both of the tabulars are not correctly, which has been pointed out in [1] [6]. The CR should be revised anyway, the moderator would propose to merge them together and fix issue for the presence of DRB list. |
| ZTE | Yes, but | Agree with CATT. It is simpler to add SDT DRB/SRB id via explicit XnAP signalling than via updated RRC container within TS38.331. More, if RAN3 agrees to add SDT DRB/SRB id via explicit XnAP signalling, we shall notify RAN2 of our decision, then RAN2 does not need to update RRC container within TS38.331 to include SDT DRB/SRB id. |
| Google | No | To address the raised issue as well as supporting delta configuration for CG-SDT, it is preferred having an updated RRC container (i.e., HandoverPreparationInformation) to include the related information. |
| Huawei | No | Same view with Gg, and there will discussion in RAN2, we can wait for RAN2 progress. |
| Nokia | Wait | If RAN2 decides container, nothing to do; otherwise CR is ok with preference for [2] like the moderator. |
| China telecom | yes | Agree with ZTE and CATT. We also agree to merge the two CRs. And we could send a LS to RAN2 to notify our decision.  |
| E/// | Yes | We know there is paper in RAN2 to discuss the same topic, but this issue can be solved by RAN3 signaling considering partial UE context transfer info already includes those IEs. So first we can agree that RAN3 is the one to fix this, and in 2nd round check how to merge the CRs. |
| Lenovo | No | It would be better to include it in RRC container. |
| Samsung  | Yes | ACK the issue, and agree to merge two CRs. Companies mentioned that the container can be used. However, in the existing container, SDT bearer ID is not contained since those configuration is given to the UE via RRCRelease message.  |
| Qualcomm | Yes | Slightly prefer solution provided in [2]. CR merge can be discussed in the second round.  |
| Intel | Yes | Unless RAN2 does something in their beloved container, should be by RAN3 signalling. I have a problem with SDT SRB list in [2]. Why the anchor gNB need to tell that SRB1 is for SDT or not? Please note that SRB1 has to be always established in the new gNB regardless of SDT or not.. RAN2 explicitly defined one bit indication of whether SRB2 is configured for SDT or not. The anchor just need to tell this.  |
| LGE | No | We need to wait for RAN2 progress |
| ZTE2 |  | @Intel: it is correct that SRB1is always configured. However, considering future proof, we wish to reuse the same SRB id IE structure as that used for partial UE context retrieve procedure and already defined in 9.2.3.164.RRC container vs Xn signallingRAN2 will online discuss this issue next week, so RAN3 shall make the decision today.Way 1: Same as partial UE context retrieve procedure, RAN3 shall agree with Xn signalling (e.g., R3-223111) to transfer SDT DRB/SRB id, then notify RAN2 of our decision.Way 2: WA: RAN3 agrees with the Xn CR (e.g., R3-223111) and notify RAN2 to let RAN2 make the final decision. If RAN2 does not agree, RAN3 can withdraw the Xn CR. |
| CATT2 |  | The moderator double checked the progress of RAN2 during this meeting.In the offline discussion **[AT118-e][501][Sdata]**, we see RAN2 discussed the similar thing and assumes the issue should be addressed in RAN3, as highlighted below:[AT meeting guidance] RAN3 are discussing this. So, propose to wait for their outcome. No need to comment on this for now hence.Therefore, the moderator suggest to continue the specification work in RAN3, not wait for RAN2. |

**Moderator’s summary：**

12 companies participated in the discussion, and all acknowledged with the issue.

7/12 companies preferred to fix it in RAN3 and merge the CRs [2] and [10],

5/12 companies thought it should be up to RAN2 or we should wait for RAN2 progress, i.e. whether they will contain such kind of information in RRC Container.

The moderator double checked the progress of RAN2 during this meeting.

In the offline discussion **[AT118-e][501][Sdata]**, we see RAN2 discussed the similar thing and wonders to address this issue in RAN3, as highlighted below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| H562 | Currently no SDT related configuration is being transferred in the inter node RRC message. Without transferring this, the receiving gNB will not be able to continue with the RA-SDT procedure after relocation as it will not know which DRBs are configured with SDT, whether or not the SRB2 is configured for SDT or how the ROHC is to be performed after relocation. Simplest approach for addressing this issue is that the SDT specific configuration defined in SDT-Config-r17 IE (SDT specific configuration that is provided to the UE in RRCRelease message) needs to be transferred form the last serving gNB to the receiving gNB when RA-based SDT with UE context relocation procedure is performed |   | Not clear if this is the correct message. Need to make sure that SDT-Config-r17 Is included as a separate container in RAN3 signalling. [Rapp 4] yes, conatiner approach vs RAN3 Xn signalling has to be decided first, seems RAN3 signalling is simpler, they are discussing it. But still marked as "discuss" for now, but we can postpone this.  [AT meeting guidance] RAN3 are discussing this. So, propose to wait for their outcome. No need to comment on this for now hence.  |  [Intel] We believe RAN3 also has TDocs discussing this topic for the coming meeting. RAN2 can wait for RAN3 input (if any). | Google | Support of delta configuration has been agreed in RAN2#117-e. The source should provide the SDT-Config to the target in the UE Context Retrieval procedure to support delta configuration.*26.  Delta signalling is based on the previous SDT configuration (i.e. only applicable to SDT operation and will be released when the UE moves to connected and hence delta configuration based on connected mode CG configuration is not supported).  FFS other details*  | Y |
| Huawei, HiSilicon | Agree with Google and it does not make sense to replicate the RRC configuration in XnAP protocol. We think using an RRC container is the simplest approach, so we need to define something and should probably not wait for RAN3 (unless they can conclude very quickly, so that we can introduce the required changes, if needed). | Y |
|   |   |   |

Following the RAN2 guidance and majorities’ views in RAN3, the moderator would propose to address this issue in RAN3, not waiting for RAN2 progress.

Thus, SDT Radio Bearer Configuration should be added in Retrieval UE Context Response message. Accordingly, the moderator would propose to take [2] as baseline, and merge [10].

**Proposal 2: Add SDT Radio Bearer Configuration in Retrieval UE Context Response message. Take R3-223111 as BL, merge R3-223500.**

**If the proposal is agreed, do we need to send the LS to RAN2 to indicate our decision?**

1. **Should we change *SDT SRBs to Be Setup List* IE from optional to Mandatory?**

In [12], it’s proposed to change the presence of the *SDT SRBs to Be Setup List* IE from optional to Mandatory.

According to RAN2’s agreements, the SRB1 should be resumed during SDT procedure, e.g. for sending the *RRCRelease* message. From Xn interface point of view, the RLC context of SRB1 should be always provided from the last serving Gnb to the receiving Gnb in case of SDT without anchor relocation. However, the presence of SDT SRBs to Be Setup List IE is optional in the PARTIAL UE CONTEXT TRANSFER message. Thus, change the presence of *SDT SRB list* to mandatory.

**Questions 3**: Do you agree to change the presence of the *SDT SRBs to Be Setup List* IE to mandatory in the PARTIAL UE CONTEXT TRANSFER message?

| Company | Yes/No | Comment |
| --- | --- | --- |
| CATT | Yes | Seems reasonable. |
| ZTE | Yes | Agree |
| Google | Yes |  |
| Huawei | Yes |  |
| Nokia | Yes |  |
| China telecom | Yes |  |
| E/**//** | Yes |  |
| Lenovo | Yes |  |
| Samsung  | Yes |  |
| Qualcomm | Yes |  |
| Intel | Yes but | The structure allows the anchor not to request SRB1 to establish, which should not. So, the semantic should be updated so that SRB1 is always.  |
| LGE | Yes |  |
| NEC | Yes |  |

**Moderator’s summary：**

13 companies participated in the discussion, and all acknowledged with the issue, and all agreed to change the presence of the *SDT SRBs to Be Setup List* IE to mandatory in the PARTIAL UE CONTEXT TRANSFER message.

Intel raised a good point that “The structure allows the anchor not to request SRB1 to establish, which should not. So, the semantic should be updated so that SRB1 is always.” Thus, the moderator would propose to update the semantics description accordingly.

**Proposal 3: change the presence of the *SDT SRBs to Be Setup List* IE to mandatory in the PARTIAL UE CONTEXT TRANSFER message, meanwhile, the semantics description should be updated to reflect the SRB1 is always exist.**

1. **Add SRB ID in the RRC TRANSFER message to associate the PDCP-PDU with the SRB ID?**

In [12], it’s proposed to add SRB type/ID in the RRC TRANSFER message associated to the RRC container, to let the receiving node make proper handling for the signalling, e.g. for mapping the PDCP-C PDU to corresponding logical channel, and for PDCP security related handling.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SDT SRB between New NG-RAN node and Old NG-RAN node** |  | *0..1* |  |  | YES | ignore |
| >RRC Container | M |  | OCTET STRING | Contains a PDCP-C PDU encapsulating an RRC message as defined in subclause 6.2.1 of TS 38.331 [10]. | – |  |
| >SRB ID | M |  | 9.2.3.165 | In this version of the specification, values "0", "3", and "4" shall not be set by the sender and ignored by the receiver. | - | - |

**Questions 4**: Do you agree to add *SRB ID* IE in the RRC TRANSFER message to make correct association between the RRC Container and the SRB ID?

| Company | Yes/No | Comment |
| --- | --- | --- |
| CATT | Yes | It seems reasonable to include a SRB ID to associate with each RRC container in the Xn RRC TRANSFER message. |
| ZTE | Yes | Share the same view with CATT |
| Google | Yes |  |
| Huawei | Yes |  |
| Nokia | Yes |  |
| China Telecom | Yes |  |
| E/**//** | Yes |  |
| Lenovo | Yes |  |
| Samsung  | Yes  |  |
| Qualcomm | Yes | Note that we are supposed to avoid “shall” statements in semantics. Just stating that certain values are not used, and ignored by the receiver is probably enough. |
| Intel | Yes | This is needed.  |
| LGE | Yes |  |
| NEC | Yes |  |

**Moderator’s summary：**

13 companies participated in the discussion, and all acknowledged with the issue, and agreed to add *SRB ID* IE in the RRC TRANSFER message to make correct association between the RRC Container and the SRB ID.

While QC has some concerns on the wording in semantics description in [12], the moderator would propose to revise it as below:

In this version of the specification, values "0", "3", and "4" should not be set by the sender and could be ignored by the receiver.

**Proposal 4: add *SRB ID* IE in the RRC TRANSFER message to make correct association between the RRC Container and the SRB ID, the semantics description for the *SRB ID* IE should be revised to avoid using “shall”.**

1. **Add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE?**

In [6], it’s proposed to add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE. As the QoS flow mapping information is mandatory in the F1 Context setup request, it shall therefore be provided in the *Partial UE Context Information for SDT* IE.

9.2.3.164 Partial UE Context Information for SDT

This IE contains the UE context information within the PARTIAL UE CONTEXT TRANSFER message for NR SDT.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| **SDT DRBs To Be Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SDT DRBs to Be Setup Item** |  | *1 .. <maxnoofDRBs>* |  |  | – |  |
| >>DRB ID | M |  | 9.2.3.33 |  | – |  |
| >>UL TNL Information | M |  | UP Transport Parameters 9.2.3. 76 |  | – |  |
| >>DRB RLC Bearer Configuration | M |  | OCTET STRING | RLC-BearerConfig IE defined in subclause 6.3.2 of TS 38.331 [10] | – |  |
| >>DRB QoS | M |  | QoS Flow Level QoS Parameters9.2.3.5 |  | – |  |
| >>S-NSSAI | M |  | 9.2.3.21 |  | – |  |
| >>RLC Mode | M |  | 9.2.3.28 |  | – |  |
| >>PDCP SN Length | M |  | 9.2.3.63 |  | – |  |
| >>Flows Mapped to DRB List |  | *1* |  |  | – |  |
| >>>Flows Mapped to DRB Item |  | *1 .. <maxnoofQoSFlows>* |  |  | – |  |
| >>>QoS Flow Identifier | M |  | 9.2.3.10 |  | – |  |
| >>>QoS Flow Level QoS Parameters | M |  | 9.2.3.5 |  | – |  |
| >>>QoS Flow Mapping Indication | O |  | 9.2.3.79 |  | – |  |

**Questions 5**: Do you agree to add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE?

| Company | Yes/No | Comment |
| --- | --- | --- |
| CATT | Yes, See comment | Indeed there’s the issue on setting the mandatory QoS flow related information in F1 Context setup request in case of only parital UEcontext is provided from the last serving gNB to the receiving gNB.I understand two possible way to handle this issue:1. As proposed in this contribution, add the QoS flow mapping info in the partial UE context Transfer.
2. Make changes to F1, e.g. indicate the corresponding QoS flow mapping info is ignored for SDT.

The 1st solution is slightly preferred, to avoid extra impact to the legacy F1 procedure. |
| ZTE | Yes | First solution (as proposed in [6]) is better. |
| Google | Yes |  |
| Huawei | Yes |  |
| Nokia | Yes |  |
| China telecom | Yes |  |
| E/**//** | Yes |  |
| Lenovo | Yes |  |
| Samsung  | Yes  |  |
| Qualcomm | Yes |  |
| Intel | Yes | This is needed. |
| LGE | Yes |  |
| NEC | Yes |  |

**Moderator’s summary：**

13 companies participated in the discussion, all acknowledged with the issue, and all agreed to add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE.

**Proposal 5: add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE.**

1. **Other changes to Xn**

In [4], it’s proposed:

**Issue 1 :** The procedure description added in 8.2.12.1 is applicable only for the RACH based SDT without relocation scenario which needs to be clarified.

**- Issue 1 description:**

The procedure description in the second paragraph of 8.2.12.1 is applicable only for the RACH based SDT without relocation scenario. This needs to be clarified.

 **- proposal 1: Clarification in the procedure text is needed as follows.**

In case of RACH based SDT when the UE context is kept in the old NG-RAN node, the Retrieve UE Context Confirm procedure is also used to request the termination of SDT session from the new NG-RAN node to the old NG-RAN node.

**Issue 2 :** The message name in 8.2.13.2 in the sentence below the figure is incorrect.

**- Issue 2 description:**

The message name in 8.2.13.2 in the sentence below the figure is incorrect and need to be corrected.

. **– proposal 2: Correct the message name in the procedure text as follows.**

The old NG-RAN node initiates the procedure by sending the PARTIAL UE CONTEXT TRANSFER ~~RETRIEVE REQUEST~~ message to the new NG-RAN node.

**Issue 3 :** The procedure description added in 8.3.9.1 is applicable only for the RACH based SDT without relocation scenario which needs to be clarified.

**- Issue 3 description:**

The procedure description in the second paragraph of 8.3.9.1 is applicable only for the RACH based SDT without relocation scenario. This needs to be clarified.

 **- proposal 3: Clarification in the procedure text is needed as follows.**

In case of RACH based SDT when the UE context is kept in the old NG-RAN node, ~~T~~this procedure is also used to deliver a PDCP-C PDU encapsulating an NR RRC message between the new NG-RAN node and the old NG-RAN node.

**Issue 4 :** The use of RETRIEVE UE CONTEXT CONFIRM is applicable only for the RACH based SDT without relocation scenario and needs to be clarified.

**- Issue 4 description:**

The use of RETRIEVE UE CONTEXT CONFIRM is applicable only for the RACH based SDT without relocation scenario which needs to be clarified in 9.1.1.16

 **- proposal 4: Clarification in the message description is needed as follows.**

In case of RACH based SDT when the UE context is kept in the old NG-RAN node, the Retrieve UE Context Confirm procedure is also used to request termination of SDT session from the new NG-RAN node to the old NG-RAN node

**Issue 5 :** The Partial UE Context Information for SDT IE within PARTIAL UE CONTEXT TRANSFER message should have presence M.

**- Issue 5 description:**

The Partial UE Context Information for SDT IE within PARTIAL UE CONTEXT TRANSFER message should have presence Mas it does not make sense to receive this message without the Partial UE Context Information for SDT IE

**- proposal 5: The presence of Partial UE Context Information for SDT IE within PARTIAL UE CONTEXT TRANSFER message should be changed from O to M.**

**Issue 6 :** Criticality Diagnostics IE is missing in PARTIAL UE CONTEXT TRANSFER ACKNOWLEDGE message.

**- Issue 6 description:**

Criticality Diagnostics IE is missing in PARTIAL UE CONTEXT TRANSFER ACKNOWLEDGE message.

**- proposal 6: Add Criticality Diagnostics IE in PARTIAL UE CONTEXT TRANSFER ACKNOWLEDGE message .**

**Issue 7 :** The use of RRC TRANSFER is applicable only for the RACH based SDT without relocation scenario and needs to be clarified.

**- Issue 7 description:**

The use of RRC TRANSFER is applicable only for the RACH based SDT without relocation scenario which needs to be clarified in 9.1.2.20

 **- proposal 7: Clarification in the message description is needed as follows.**

This message is also sent by the new NG-RAN-NODE to the old NG-RAN-NODE or from the old NG-RAN-NODE to the new NG-RAN-NODE to transfer an RRC message containing the SDT SRB in case of RACH based SDT when the UE context is kept in the old NG-RAN node.

In [6], it’s also proposed:

1/ corrected message name in section 8.2.13.2, already covered in the issue 2 of [4].

2/ change “may include data forwarding information” into “shall, if supported”

**Proposal 8：change “may include data forwarding information” into “shall, if supported”.**

**Questions 6**: Companies are encouraged to provide your views on the above 8 proposals?

| Company | Comment |
| --- | --- |
| CATT | Thanks HW, Nokia for carefully check and refinements. Generally, I’m fine with all of the proposals.One thing to be further confirmed, should we use “RACH based SDT when the UE context is kept in the old NG-RAN node” or to keep alignment with our stage 2, using “SDT without UE context relocation”? |
| ZTE | Agree for all. Slight prefer to CATT’s suggestion to align with stage 2. |
| Google | Agree for all. |
| Huawei | Agree for all. |
| Nokia | Agree for all. Also prefer CATT rewording to keep alignment with stage 2. |
| China Telecom | Agree for all |
| E/// | In general ok. One concern on this additional “in case of RACH based SDT when the UE context is kept in the old NG-RAN node”, We don’t see a strong point to add this in all the places. Normally the condition is described from IE presence point of view. |
| Lenovo | Agree for all |
| Samsung  | Agree for all  |
| Qualcomm | Agree for all. Prefer CATT’s rewording.  |
| Intel | Looks fine for all. Not sure what are the differences between the issue 1 and the issue 4, though.  |
| LGE | Agree for all. Prefer CATT’s rewording.  |
| NEC | ok |

**Moderator’s summary：**

13 companies participated in the discussion, generally all of the companies are supportive to all of the changes.

However, for the changes to the issue 1/3/4, one company has concerns on adding “in case of RACH based SDT when the UE context is kept in the old NG-RAN node” in several places, 5 companies prefer to revise the texts to align with the stage 2, i.e. using “SDT without UE context relocation”.

The moderator would propose to align with stage 2, i.e. using “SDT without UE context relocation”.

**Proposal 6: all of the changes above are agreeable, the new added texts “RACH based SDT when the UE context is kept in the old NG-RAN node” should be changed to “RACH based SDT without UE context relocation” to align with the stage 2.**

# Stage 2 changes

# Draft CR for TS 38.300

Contributions [3][5] [8][9][11] provide various of changes to the stage 2 procedures for RA-based SDT for TS 38.300.

To make life easier, the moderator tried to merge the changes from the above CRs, and provided the new draftCR in the folder for further check. Companies are encouraged to double check the draftCR or TS 38.300, and provide the comment or necessary updates.

**Questions 7**: Any comment on the draftCR for TS 38.300?

| Company | Comment |
| --- | --- |
| ZTE | Thanks for moderator’s good work. We would like to consign this draftCR.Additional, in 18.3 SDT without UE context relocation, **“7. Upon receiving the RETRIEVE UE CONTEXT CONFIRM message,** **and the SDT transmission is completed, the last serving Gnb responds to the receiving Gnb with the RETRIEVE UE CONTEXT FAILURE message including an encapsulated RRCRelease message in order to send the UE to RRC\_INACTIVE state if the receiving Gnb indicated a “normal” end of SDT or to RRC\_IDLE state if the receiving Gnb indicated a radio link problem. ”**. Because I think if DL SDT DRB/SRB packets is still coming although receiving the RETRIEVE UE CONTEXT CONFRIM message, the last serving Gnb will not end this SDT procedure, so I suggest to have above change. |
| Google | The proposed changes in [9] was missing and should be taken into account. We have provided an update to the moderator’s draft CR. |
| Nokia | Update is OK and integrates all 3151 changes, very good work. I just made 3 minor additional terminology changes (see in the CB folder). Please add Nokia, Nokia Shanghai Bell co-sign. |
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**Moderator’s summary：**

5 companies provided the comments and revision to the integrated draftCR, generally all of the companies are positive to the stage 2 changes.

Companies are encouraged to further check the details in the 2nd round.

**Proposal 7: draft CRs provided in [3] [5] [8] [9] [11] are merged to R3-22xxxx, details to be further checked in the 2nd round.**

# Draft CR for TS 38.401

The contribution [7] provides some update to TS 38.401. The changes are as below:

**8.18 Overall procedure for Small Data Transmission during RRC Inactive**

**8.18.1 RACH based SDT**

The procedure for RACH based small data transmission in RRC Inactive is shown in Figure 8.18.1-1.



Figure 8.18.1-1: RACH based Small Data Transmission in RRC Inactive state.

1. The UE in RRC Inactive sends *RRCResumeRequest* message together with UL SDT data and/or UL SDT signalling.

2. The Gnb-DU buffers the UL SDT data and/or UL SDT signalling.

3. The step 3 is as defined in step 4 in clause 8.6.2, with including an indication of SDT access. The Gnb-DU may also provide SDT assistance information.

4-5. The steps 4-5 are as defined in steps 6-7 in clause 8.9.6.2. The UL SDT data, if any, is forwarded to the Gnb-CU-UP, and the UL signalling, if any, is forwarded to the Gnb-CU-CP via the UL RRC MESSAGE TRANSFER message, in which any UL NAS PDU is delivered to AMF.

NOTE 1: In case that full UE context is retrieved from another Gnb-CU-CP as specified in TS 38.300 [2], the Gnb-CU-CP first establishes the UE context in the Gnb-CU-UP via the Bearer Context Setup procedure and F1-U UL TEIDs are etrieved before step 4. The BEARER CONTEXT SETUP REQUSET message may include an indication to suspend non-SDT bearers, and in this case, the BEARER CONTEXT MODIFICATION REQUEST message in step 6 does not include resume indication for SDT DRBs.

NOTE 2: In case that only partial UE context for SDT including F1-U UL TEIDs is retrieved from another Gnb-CU-CP as specified in TS 38.300 [2], the Gnb-CU-CP uses those F1-U UL TEIDs for steps 4-5, and the subsequent steps 6-7 are not executed. The F1-U DL TEIDs received from the Gnb-DU in step 5 should be forwarded to the other Gnb-CU-CP, which will be provided to the Gnb-CU-UP by the Bearer Context Modification procedure, and be used for transferring of the DL SDT data. In addition, the UL SDT data, if any, is forwarded from the Gnb-DU to the Gnb-CU-UP of the other Gnb-CU-CP for which the partial context is retrieved, and the UL ignaling, if any, is forwarded from the Gnb-CU-CP to the other Gnb-CU-CP via the XnAP RRC TRANSFER message.

NOTE 3: The buffered UL SDT data/ignaling in Gnb-DU could be sent to Gnb-CU-UP/Gnb-CU-CP afer step 5. The Gnb-CU-UP may need to buffer the UL SDT data if received before the SDT bearer(s) are resumed.

6. The Gnb-CU-CP sends the BEARER CONTEXT MODIFICATION REQUEST message including an resume indication for SDT DRBs. The Gnb-CU-CP also includes the F1-U DL TEIDs received from the Gnb-DU in step 5.

7. The Gnb-CU-CP responds with the BEARER CONTEXT MODIFICATION RESPONSE message.

**Questions 8**: Do you agree with the changes to TS 38.401 as above?

| Company | Yes/No | Comment |
| --- | --- | --- |
| ZTE | Yes | In note 3, there is typo “afer” |
| Google | Yes/No | No strong view for the clarification.  |
| Huawei | Yes/No | No strong view for these clarifications. |
| Nokia | Yes | Clarification helps. |
| China Telecom | yes |  |
| E/// | Neutral | No strong view. Let’s check CR in 2nd round. |
| Lenovo |  | Agree with the intent, but the wording needs to be carefully checked in the 2nd round |
| Samsung  | Yes  |  |
| Qualcomm | Neutral | Prefer not to mention Note3. It should be left to implementation. Can be checked further. |
| Intel | OK for NOTE 3, one concern for NOTE 2 | The F1-U DL TEIDs received from the Gnb-DU in step 5 should be forwarded to the other Gnb-CU-CP, which will be provided to the Gnb-CU-UP by the Bearer Context Modification procedure, and be used for transferring of the DL SDT data.The highlighted gNB-CU-UP is the one associated with the other gNB-CU-CP, thus not drawn in this figure, so could be confusing to the one drawn in the figure. We suggest to re-word as follows:The F1-U DL TEIDs received from the Gnb-DU in step 5 should be forwarded to the other Gnb-CU-CP, to be used for transferring the DL SDT data. |
| LGE | Yes/No | No strong view. But need to further check the details in next round |
| NEC | Yes |  |
| CATT | Yes | I would like to clarify a little bit on why added the Note 3.As from the figure and texts, we see the UL SDT data is buffered in gNB-DU in step 2, but it’s not mentioned about when and how to proceed with the buffered data in the figure and procedural texts.To make it more clear, it seems better to have this Note. |

**Moderator’s summary：**

13 companies provided the comments for the CR to TS 38.401.

 8/13 are fine with the clarifications.

 5/13 have no strong views on the clarifications, or need to further check the texts.

One company has concerns on Note 3, and thought it should be left to implementation.

One company have concerns on Note 2, and provided some constructive rewording.

As the owner of this CR, the moderator would accept the proposed changes raised by Intel, and will provide the draft revision for further check in the 2nd round.

**Proposal 8: It’s beneficial to have some clarification to RA-SDT in TS 38.401, the details may need to be further checked and refined (if needed) in the 2nd round discussion.**

# Discussion (2nd phase)

# Further checking the CRs

Following the 1st round discussion and agreements, the CR revisions work are highlighted below:

**change the presence of *SDT DRBs To Be Setup List* IE from “1” to “0..1”.**

**Change the presence of the *SDT SRBs to Be Setup List* IE to mandatory in the PARTIAL UE CONTEXT TRANSFER message. Meanwhile, the semantics description should be updated to reflect the SRB1 is always exist.**

**Add *SRB ID* IE in the RRC TRANSFER message to make correct association between the RRC Container and the SRB ID, the semantics description for the *SRB ID* IE should be revised to avoid using “shall”.**

* R3-223307 will be revised to R3-22xxxx, update the semantics descriptions as proposed in P3 P4.

**Add the QoS flow mapping information in the *Partial UE Context Information for SDT* IE.**

* Check whether R3-223152 could be agreed directly or need the revision.

**All of the changes provided in R3-223145 are agreeable, the new added texts “RACH based SDT when the UE context is kept in the old NG-RAN node” should be revised to “RACH based SDT without UE context relocation” to align with the stage 2.**

* R3-223145 will be revised to R3-22xxxx, update the texts as proposed in P6.

**For the stage 2 changes for RA-based SDT in TS 38.300, the draft CRs R3-223144, R3-223151, R3-223280, R3-223248 and R3-223168 will be merged together.**

* Continue to check the new draft CR (R3-22xxxx) for TS 38.300, which merged all the agreeable changes from the contributions above.

**Clarification on RA-SDT procedure in TS 38.401 is beneficial, R3-223279 could be taken as start point, revision is needed according to the comments received in 1st round discussion. Capture the agreements in the CR for TS38.401 in CB#1.**

* R3-223279 will be revised to R3-22xxxx, with some changes according to the comments received, in the folder for double check. When it’s agreeable, I will ask the CR owner of the CB#1 to merge it.

Add SDT Radio Bearer Configuration in Retrieval UE Context Response message.

* R3-223111 will be revised to R3-22xxxx, merging the R3-223500.

Please the CR owner provide the draft revision to the folder “..\CB # SDT3\_RACHbased\2nd discussion\CR for double check” for double check.

**Questions 2-1**: Any comment or refinement to the CRs? If needed, you could also provide your revisions to the CRs directly in the draft folder.

| Company | Comment |
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# LS to RAN2

On the question 2, where to include the SDT related configuration in case of SDT with UE context relocation, companies had different views on addressing this issue in XnAP IE (RAN3), or in RRC Container (RAN2).

During the online discussion, it’s agreed that:

**RAN3 makes the decision on signaling solution and send LS to RAN2 for confirmation.**

The draft LS is in the folder for further check.

**Questions 2-2**: Any comment on the draft LS to RAN2? If needed, please provide your revisions in the draft folder.

| Company | Comment |
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# Reference

1. R3-223610 Correction on RA-SDT without anchor relocation in Xn (LG Electronics) CR0836r, TS 38.423 v17.0.0, Rel-17, Cat. F
2. R3-223111 Correction on RACH based SDT (ZTE. China Telecom, CATT) CR0775r, TS 38.423 v17.0.0, Rel-17, Cat. F
3. R3-223144 Correction for Support of SDT procedure over RACH (Huawei, China Telecom, China Unicom) draftCR
4. R3-223145 Correction for RA-SDT in XnAP (Huawei, China Telecom, China Unicom, Lenovo, Motorola Mobility) CR0780r, TS 38.423 v17.0.0, Rel-17, Cat. F
5. R3-223151 Correction of RACH-based SDT Stage 2 (Nokia, Nokia Shanghai Bell) draftCR
6. R3-223152 Correction of RACH-based SDT Stage 3 (Nokia, Nokia Shanghai Bell) CR0782r, TS 38.423 v17.0.0, Rel-17, Cat. F
7. R3-223279 CR to TS 38.401 Clarifications on RA-SDT overall procedures (CATT, ZTE) CR0213r, TS 38.401 v17.0.0, Rel-17, Cat. F
8. R3-223280 Draft CR to TS 38.300 correction on RA-SDT overall procedures (CATT, ZTE) draftCR
9. R3-223248 Correction to receiving gNB behaviour upon SDT completion (Google Inc.) draftCR
10. R3-223500 Correction for Rel-17 RA-SDT with anchor relocation (Intel Corporation) CR0822r, TS 38.423 v17.0.0, Rel-17, Cat. F
11. R3-223168 SDT corrections in stage-2 (Ericsson) draftCR
12. R3-223307 Correction on SRB SDT on XnAP (Lenovo, ZTE, Ericsson, Huawei) CR0799r, TS 38.423 v17.0.0, Rel-17, Cat. F