**3GPP TSG-RAN WG3 #109-e R3-205604**

**17-28 August 2020 Online**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.462** | **CR** | **0014** | **rev** | **1** | **Current version:** | **15.6.1** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | SCTP association change when current SCTP association is failed | | | | | | | | | |
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| ***Source to WG:*** | RAN3 | | | | | | | | | |
| ***Source to TSG:*** | China Telecom, Nokia, Nokia Shanghai Bell | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2020-05-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | For multiple-SCTP, current specification does not allow the gNB-CU-UP to select a new SCTP association when the current SCTP association is failed. This prevents the gNB-CU-UP to initiate the E1AP procedure, until the TNL binding update is performed. | | | | | | | | |
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| ***Summary of change:*** | | Add the support that the gNB-CU-UP can select a new SCTP association when current SCTP association is failed.  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has no impact with the previous version of the specification (same release) because it only add the function that gNB-CU-UP can select a new SCTP association when current SCTP association is failed. | | | | | | | | |
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| ***Consequences if not approved:*** | | The gNB-CU-UP cannot initiate the E1AP procedure, until the TNL binding update is performed. Inefficient use of multiple-SCTP. | | | | | | | | |
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| ***Clauses affected:*** | | 7 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1: updated … | | | | | | | | |

////////////////////////////////////////////////////////////////////////start of change///////////////////////////////////////////////////////////////////////////

# 7 Transport layer

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SCTP (IETF RFC 4960 [6]) shall be supported as the transport layer of E1 signalling bearer. The Payload Protocol Identifier assigned by IANA to be used by SCTP for the application layer protocol E1AP is 64 and 67 for DTLS over SCTP (IETF RFC 6083 [11]). The byte order of the ppid shall be big-endian.

SCTP refers to the Stream Control Transmission Protocol developed by the Sigtran working group of the IETF for the purpose of transporting various signalling protocols over IP network.

The gNB-CU-CP and gNB-CU-UP shall support a configuration with a single SCTP association per gNB-CU-CP/gNB-CU-UP pair. Configurations with multiple SCTP endpoints per gNB-CU-CP/gNB-CU-UP pair should be supported. When configurations with multiple SCTP associations are supported, the gNB-CU-CP or the gNB-CU-UP may request to dynamically add/remove SCTP associations between the gNB-CU-CP/gNB-CU-UP pair. Within the set of SCTP associations established between one gNB-CU-CP and gNB-CU-UP pair, a single SCTP association shall be employed for E1AP elementary procedures that utilize non-UE-associated signalling with the possibility of fail-over to a new association to enable robustness.

When the configuration with multiple SCTP endpoints per gNB-CU-UP is supported and gNB-CU-UP wants to add additional SCTP endpoints, the gNB-CU-UP Configuration Update procedure shall be the first E1AP procedure triggered on an additional TNLA of an already setup E1 interface instance after the TNL association has become operational, and the gNB-CU-CP shall associate the TNLA to the E1 interface instance using the included gNB-CU-UP ID.

Either the gNB-CU-CP or gNB-CU-UP shall establish the first SCTP association. The additional SCTP associations are established by the gNB-CU-UP. The SCTP Destination Port number value to be used for E1AP is 38462 which is assigned by IANA. When the gNB-CU-CP requests to dynamically add additional SCTP associations between the gNB-CU-CP/gNB-CU-UP pair, the gNB-CU-CP port is selected and signalled by the gNB-CU-CP to the gNB-CU-UP, and it can be port number value 38462 or any dynamic port value as defined by IETF RFC 6335 [12].

Between one gNB-CU-CP and gNB-CU-UP pair:

- A single pair of stream identifiers shall be reserved over an SCTP association for the sole use of E1AP elementary procedures that utilize non UE-associated signalling.

- At least one pair of stream identifiers over one or several SCTP associations shall be reserved for the sole use of E1AP elementary procedures that utilize UE-associated signalling. However, a few pairs (i.e. more than one) should be reserved.

- For a single UE-associated signalling the gNB-CU-CP and the gNB-CU-UP shall use one SCTP association and one SCTP stream, and the SCTP association/stream should not be changed during the communication of the UE-associated signalling unless current SCTP association is failed, or TNL binding update is performed.

Transport network redundancy may be achieved by SCTP multi-homing between two end-points, of which one or both is assigned with multiple IP addresses. SCTP end-points shall support a multi-homed remote SCTP end-point. For SCTP endpoint redundancy an INIT may be sent from a gNB-CU-CP or a gNB-CU-UP, at any time for an already established SCTP association, which shall be handled as defined in IETF RFC 4960 [6] in sub clause 5.2.

The SCTP congestion control may, using an implementation specific mechanism, initiate higher layer protocols to reduce the signalling traffic at the source and prioritise certain messages.

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