**3GPP TSG-RAN WG3 Meeting #111-e R3-211143**

Online, 25 January– 4 February, 2021

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.401** | **CR** | **0146** | **rev** | **4** | **Current version:** | **16.4.0** |  |
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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:*** | Corrections on clarification of non-F1 traffic | | | | | | | | | |
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| ***Source to WG:*** | Huawei, CATT, Sumsang, Nokia, Nokia Shanghai Bell, Lenovo, Motorola Mobility | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IAB-Core | | | | |  | ***Date:*** | | | 2021-01-25 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | The “non-F1 traffic” is used in some 38 series specification, e.g. TS38.401, TS38.331, TS38.473, etc. But none of them provides clear statement about the definition of the “non-F1 traffic”.  From the literal meaning of the word “non-F1 traffic”, it seems all the traffic other than F1-U and F1-C should be classified as non-F1 traffic. However, it is worth noting that some basic traffic prior to the IAB-DU’s F1 Setup, which are fundamental traffic for setup the F1 interface, will also be classified as non-F1 traffic. The mentioned basic traffic are some F1-C related traffics, for example, SCTP Chunks other than the Data Chunk (the SCTP Data Chunk will inlcude F1-C message, other Chunks may includes the INIT, INIT ACK, Heartbeat, etc.), IPsec SA related packets in the security negotiation procedure, etc.  In fact, these basic F1-C related traffic should share similar QoS as NUA F1-C traffic and use same IP address as F1-C packets, and it is more appropriate to treat them as F1-C traffic (or NUA F1-C traffic in a more accurate way), or IP traffic over the F1-C interface, rather than the non-F1 traffic. Then the real non-F1 traffic should be the traffic belongs to the IAB-DU, except the F1-U, F1-C and F1-C/U related traffic.  Consequently, clarification about the “non-F1 traffic” type is beneficial to avoid confusion and enable the IAB-DU’s F1-C related traffic being processed appropriately in the BH links, since the IAB node need to differentiate which traffic is “non-F1 traffic” when select suitable IP address, select UL BH information (e.g. BAP routing ID , egress BH RLC channel), etc. | | | | | | | | |
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| ***Summary of change:*** | | Add new reference of TS38.472 in clause 2.  Add a NOTE to give clear statement about the “non-F1 traffic” in clause 8.9.13.  **Impact analysis**  Impact assessment towards the previous version of the specification (same release):  This CR has isolated impact with the previous version of the specification (same release) because the changes only impact the IAB functionality.  This CR has an impact under **functional point** of view.  The impact can be considered isolated because the change affects only the defination of non-F1 traffic. | | | | | | | | |
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| ***Consequences if not approved:*** | | The F1-C related traffic (i.e. SCTP Chunks other than Data Chunk, and IPsec SA negotiation related packets.) will not be processed in an appropriate way for transmission across the wireless BH links. | | | | | | | | |
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| ***Clauses affected:*** | | 2, 8.9.13 | | | | | | | | |
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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:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | | Rev 4：Rewording the NOTE as: The non-F1 traffic of an IAB-node includes all IP traffic that is not used for the management or transport of F1-C as specified in TS 38.472 [xx] or F1-U as specified in TS 38.474 [7]. The non-F1 traffic may include, e.g., OAM traffic if it is transferred using the BH RLC channel.  Rev 3：Rebase the latest specification v16.4.0, and submit to RAN3-111e.  Rev 2:   * Add the detailed specification number when refered in the newly added NOTE * Update the cover page according to the new CR template v12.1, and add new co-signers.   Rev 1：Revise the Tdoc number in the cover page. | | | | | | | | |

Start of Change

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[3] 3GPP TS 23.501: "System Architecture for the 5G System".

[4] 3GPP TS 38.473: "NG-RAN; F1 application protocol (F1AP)".

[5] 3GPP TS 38.414: "NG-RAN; NG data transport".

[6] 3GPP TS 38.424: "NG-RAN; Xn data transport".

[7] 3GPP TS 38.474: "NG-RAN; F1 data transport".

[8] ITU-T Recommendation G.823 (2000-03): "The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy".

[9] ITU-T Recommendation G.824 (2000-03): "The control of jitter and wander within digital networks which are based on the 1544 kbit/s hierarchy".

[10] ITU-T Recommendation G.825 (2001-08): "The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)".

[11] ITU-T Recommendation G.8261/Y.1361 (2008-04): "Timing and Synchronization aspects in Packet networks".

[12] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[13] 3GPP TS 33.501: "Security Architecture and Procedures for 5G System".

[14] 3GPP TS 38.410: "NG-RAN; NG general aspect and principles".

[15] 3GPP TS 38.420: "NG-RAN; Xn general aspects and principles"

[16] 3GPP TS 38.470: "NG-RAN; F1 general aspects and principles".

[17] 3GPP TS 38.460: "NG-RAN; E1 general aspects and principles".

[18] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP Network Layer Security".

[19] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA), Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[20] 3GPP TS 32.422: "Trace control and configuration management".

[21] 3GPP TS 37.470: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN) and NG-RAN; W1 general aspects and principles; Stage-2".

[22] 3GPP TS 38.340: "NR; Backhaul Adaptation Protocol (BAP) specification".

[23] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

[24] 3GPP TS 38.425: "NG-RAN; NR user plane Protocol".

[25] 3GPP TS 38.305: "NG Radio Access Network (NG-RAN); Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN".

[xx] 3GPP TS 38.472: "NG-RAN; F1 signalling transport".

Next Change

8.9.13 IP Address Allocation for IAB-nodes

An IAB-node may obtain IP address(es) either from the IAB-donor or from the OAM system. The IP address(es) is(are) used by the IAB-node for F1 and non-F1 traffic exchange via the backhaul. In case IPsec tunnel mode is used to protect this F1 and non-F1 traffic, the IP address(es) refer to the outer tunnel addresses. The allocation of the inner tunnel IP address(es) is outside of 3GPP scope.

NOTE:     The non-F1 traffic of an IAB-node includes all IP traffic that is not used for the management or transport of F1-C as specified in TS 38.472 [xx] or F1-U as specified in TS 38.474 [7]. The non-F1 traffic may include, e.g., OAM traffic if it is transferred using the BH RLC channel.

In case of IAB-donor-based IP address allocation, the IP address(es) is(are) allocated by the IAB-donor-CU or IAB-donor-DU. In both cases, the IAB-node requests the IP address(es) via RRC from the IAB-donor-CU. It includes a separate IP address request for each usage, where the usages defined are all traffic, F1-U, F1-C and non-F1. The IAB-donor-CU may initiate the IAB TNL Address Allocation procedure to obtain IP addresses from the IAB-donor-DU. The IAB-donor-CU sends the IP addresses allocated for each usage to the IAB-node via RRC.

The IAB-node may be allocated one or multiple IPv6 addresses or one 64-bit IPv6 prefix for each usage and/or one or multiple IPv4 addresses for each usage. Each allocated IP address/IPv6 prefix is unique within the IAB network and routable from the wireline network.

In case of OAM-based IP address allocation, the IAB-node informs the IAB-donor-CU via an UL RRC message about the IP address(es) it received for each purpose. This occurs before the IAB node uses the IP address(es) for UL and/or DL traffic.

The IAB-donor-CU configures the IAB-donor-DU with mappings between IP header fields and L2 parameters (BAP Routing ID, BH RLC channels) used for DL traffic. Each mapping configuration may hold an IPv4 address, IPv6 address or a 64-bit IPv6 prefix. In case of two mapping entries matching the same IP header where one holds an IPv6 prefix and the other holds a full IPv6 address, the one with full IPv6 address takes precedence at the IAB-donor-DU.

In case of IAB-donor-allocated IP addresses, the IAB-node’s IP address(es) can be updated using DL RRC signalling.

For F1-C traffic transfer for NSA IAB, the LTE leg and NR leg should use separate IP address pairs {IAB-DU’s IP address, IAB-donor-CU’s IP address}. How the IAB-DU gets the remote IP end point(s) and its own IP address for LTE leg is not specified in this release.

End of Change