3GPP TSG-RAN WG3 Meeting #129 R3-255785

Bengaluru, India, 25 - 29 August 2025

Agenda Item: 12.2

Source: Huawei

Title: (TP for WAB BL CR for TS 38.423) WAB-MT ID and Multi-hop prevention

Document for: Approval

# 1 Introduction

This paper is to provide TP to reflect the following agreements.

Agreements in RAN3#129 meeting:

**Keep the WAB-MT ID in the Xn BL CR. The “WAB-MT ID” sent from the WAB-gNB to the BH-gNB consists of the WAB-MT’s C-RNTI assigned by the BH-gNB and the cell id of BH-gNB´s cell serving the WAB MT.**

Agreements in RAN3#126 meeting:

**For HO, the target WAB-gNB should reject HO preparation including the S-NSSAI used for Backhauling.**

# Annex: TP for TS 38.423

*Start of Change*

#### 8.2.1.3 Unsuccessful Operation



Figure 8.2.1.3-1: Handover Preparation, unsuccessful operation

If the target NG-RAN node does not admit at least one PDU session resource, or a failure occurs during the Handover Preparation, the target NG-RAN node shall send the HANDOVER PREPARATION FAILURE message to the source NG-RAN node. The message shall contain the *Cause* IE with an appropriate value.

If the *Conditional Handover Information* *Request* IE is contained in the HANDOVER REQUEST message and the target NG-RAN node rejects the handover or a failure occurs during the Handover Preparation, the target NG-RAN node shall include the *Requested Target Cell ID* IE in the HANDOVER PREPARATION FAILURE message.

If the S-NSSAI dedicated to WAB-MT’s backhaul PDU session(s) is included in the *UE Context Information* IE in the HANDOVER REQUEST message, and the target NG-RAN node does not support serving the WAB-node, the target NG-RAN node shall send the HANDOVER PREPARATION FAILURE message to the source NG-RAN node. The HANDOVER PREPARATION FAILURE message shall contain the *Cause* IE with an appropriate value.

**Interactions with Handover Cancel procedure:**

If there is no response from the target NG-RAN node to the HANDOVER REQUEST message before timer TXnRELOCprep expires in the source NG-RAN node, the source NG-RAN node should cancel the Handover Preparation procedure towards the target NG-RAN node by initiating the Handover Cancel procedure with the appropriate value for the *Cause* IE. The source NG-RAN node shall ignore any HANDOVER REQUEST ACKNOWLEDGE or HANDOVER PREPARATION FAILURE message received after the initiation of the Handover Cancel procedure and remove any reference and release any resources related to the concerned Xn UE-associated signalling.

*Next Change*

#### 9.1.3.1 XN SETUP REQUEST

This message is sent by a NG-RAN node to a neighbouring NG-RAN node to transfer application data for an Xn-C interface instance.

Direction: NG-RAN node1  NG-RAN node2.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| Global NG-RAN Node ID | M |  | 9.2.2.3 |  | YES | reject |
| TAI Support List | M |  | 9.2.3.20 | List of supported TAs and associated characteristics. | YES | reject |
| AMF Region Information | M |  | 9.2.3.83 | Contains a list of all the AMF Regions to which the NG-RAN node belongs. | YES | reject |
| **List of Served Cells NR** |  | *0 .. <maxnoofCellsinNG-RAN node>* |  | Contains a list of cells served by the gNB. If a partial list of cells is signalled, it contains at least one cell per carrier configured at the gNB | YES | reject |
| >Served Cell Information NR | M |  | 9.2.2.11 |  | – |  |
| >Neighbour Information NR | O |  | 9.2.2.13 |  | – |  |
| >Neighbour Information E-UTRA | O |  | 9.2.2.14 |  | – |  |
| >Served Cell Specific Info Request | O |  | 9.2.2.102 |  | YES | ignore |
| **List of Served Cells E-UTRA** |  | *0 .. <maxnoofCellsinNG-RAN node>* |  | Contains a list of cells served by the ng-eNB. If a partial list of cells is signalled, it contains at least one cell per carrier configured at the ng-eNB | YES | reject |
| >Served Cell Information E-UTRA | M |  | 9.2.2.12 |  | – |  |
| >Neighbour Information NR | O |  | 9.2.2.13 |  | – |  |
| >Neighbour Information E-UTRA | O |  | 9.2.2.14 |  | – |  |
| >SFN Offset | O |  | 9.2.2.75 | Associated with the *ECGI* IE in the *Served Cell Information E-UTRA* IE | YES | ignore |
| Interface Instance Indication | O |  | 9.2.2.39 |  | YES | reject |
| TNL Configuration Info | O |  | 9.2.3.96 |  | YES | ignore |
| Partial List Indicator NR | O |  | Partial List Indicator9.2.2.46 | Value “partial” indicates that a partial list of cells is included in the *List of Served Cells* *NR* IE.  | YES | ignore |
| Cell and Capacity Assistance Information NR | O |  | 9.2.2.41 | Contains NR cell related assistance information. | YES | ignore |
| Partial List Indicator E-UTRA | O |  | Partial List Indicator9.2.2.46 | Value “partial” indicates that a partial list of cells is included in the *List of Served Cells E-UTRA.*  | YES | ignore |
| Cell and Capacity Assistance Information E-UTRA | O |  | 9.2.2.42 | Contains E-UTRA cell related assistance information.  | YES | ignore |
| Local NG-RAN Node Identifier | O |  | 9.2.2.101 |  | YES | ignore |
| **Neighbour NG-RAN Node List** |  | *0..<maxnoofNeighbourNG-RAN nodes>* |  |  | YES | ignore |
| >Global NG-RAN Node ID | M |  | 9.2.2.3 |  | – |  |
| >Local NG-RAN Node Identifier | M |  | 9.2.2.101 |  | – |  |
| WAB-MT Identifier  | O |  | 9.2.2.Y | Contains the identifier of the WAB-MT co-located with the WAB-gNB that sends this message, assigned by the WAB-MT’s BH-gNB. | YES | ignore |

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| --- | --- |
| Range bound | Explanation |
| maxnoofCellsinNG-RAN node | Maximum no. cells that can be served by a NG-RAN node. Value is 16384. |
| maxnoofNeighbourNG-RAN nodes | Maximum no. of neighbour NG-RAN nodes. Value is 256. |

*Next Change*

#### 9.1.3.2 XN SETUP RESPONSE

This message is sent by a NG-RAN node to a neighbouring NG-RAN node to transfer application data for an Xn-C interface instance.

Direction: NG-RAN node2 🡪 NG-RAN node1.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| Global NG-RAN Node ID | M |  | 9.2.2.3 |  | YES | reject |
| TAI Support List | M |  | 9.2.3.20 | List of supported TAs and associated characteristics. | YES | reject |
| **List of Served Cells NR** |  | *0 .. <maxnoofCellsinNG-RAN node>* |  | Contains a list of cells served by the gNB. If a partial list of cells is signalled, it contains at least one cell per carrier configured at the gNB | YES | reject |
| >Served Cell Information NR | M |  | 9.2.2.11 |  | – |  |
| >Neighbour Information NR | O |  | 9.2.2.13 |  | – |  |
| >Neighbour Information E-UTRA | O |  | 9.2.2.14 |  | – |  |
| >Served Cell Specific Info Request | O |  | 9.2.2.102 | This IE is not used in this version of the specification. | YES | ignore |
| **List of Served Cells E-UTRA** |  | *0 .. <maxnoofCellsinNG-RAN node>* |  | Contains a list of cells served by the ng-eNB. If a partial list of cells is signalled, it contains at least one cell per carrier configured at the gNB | YES | reject |
| >Served Cell Information E-UTRA | M |  | 9.2.2.12 |  | – |  |
| >Neighbour Information NR | O |  | 9.2.2.13 |  | – |  |
| >Neighbour Information E-UTRA | O |  | 9.2.2.14 |  | – |  |
| >SFN Offset | O |  | 9.2.2.75 | Associated with the *ECGI* IE in the *Served Cell Information E-UTRA* IE | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| AMF Region Information | O |  | 9.2.3.83 | Contains a list of all the AMF Regions to which the NG-RAN node belongs. | YES | reject |
| Interface Instance Indication | O |  | 9.2.2.39 |  | YES | reject |
| TNL Configuration Info | O |  | 9.2.3.96 |  | YES | ignore |
| Partial List Indicator NR | O |  | Partial List Indicator9.2.2.46 | Value “partial” indicates that a partial list of cells is included in the *List of Served Cells* *NR* IE.  | YES | ignore |
| Cell and Capacity Assistance Information NR | O |  | 9.2.2.41 | Contains NR cell related assistance information. | YES | ignore |
| Partial List Indicator E-UTRA | O |  | Partial List Indicator9.2.2.46 | Value “partial” indicates that a partial list of cells is included in the *List of Served Cells E-UTRA.*  | YES | ignore |
| Cell and Capacity Assistance Information E-UTRA | O |  | 9.2.2.42 | Contains E-UTRA cell related assistance information.  | YES | ignore |
| Local NG-RAN Node Identifier | O  |  | 9.2.2.101 |  | YES | ignore |
| **Neighbour NG-RAN Node List** |  | *0..<maxnoofNeighbourNG-RAN nodes>* |  |  | YES | ignore |
| >Global NG-RAN Node ID | M |  | 9.2.2.3 |  | – |  |
| >Local NG-RAN Node Identifier | M |  | 9.2.2.101 |  | – |  |
| WAB-MT Identifier | O |  | 9.2.2.Y | Contains the identifier of the WAB-MT co-located with the WAB-gNB that sends this message, assigned by the WAB-MT’s BH-gNB. | YES | ignore |

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| --- | --- |
| Range bound | Explanation |
| maxnoofCellsinNG-RAN node | Maximum no. cells that can be served by a NG-RAN node. Value is 16384. |
| maxnoofNeighbourNG-RAN nodes | Maximum no. of neighbour NG-RAN nodes. Value is 256. |

*Next Change*

#### 9.1.3.4 NG-RAN NODE CONFIGURATION UPDATE

This message is sent by a NG-RAN node to a neighbouring NG-RAN node to transfer updated information for an Xn-C interface instance.

Direction: NG-RAN node1  NG-RAN node2.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| TAI Support List | O |  | 9.2.3.20 | List of supported TAs and associated characteristics. | GLOBAL | reject |
| CHOICE *Initiating NodeType* | M |  |  |  | YES | ignore |
| *>gNB* |  |  |  |  |  |  |
| >>Served Cells To Update NR | O |  | 9.2.2.15 |  | YES | ignore |
| >>Cell Assistance Information NR | O |  | 9.2.2.17 |  | YES | ignore |
| >>Cell Assistance Information E-UTRA | O |  | 9.2.2.43 |  | YES | ignore |
| >>Served Cell Specific Info Request | O |  | 9.2.2.102 |  | YES | ignore |
| *>ng-eNB* |  |  |  |  |  |  |
| >>Served Cells to Update E-UTRA | O |  | 9.2.2.16 |  | YES | ignore |
| >>Cell Assistance Information NR | O |  | 9.2.2.17 |  | YES | ignore |
| >>Cell Assistance Information E-UTRA | O |  | 9.2.2.43 |  | YES | ignore |
| **TNLA To Add List** |  | *0..1* |  |  | YES | ignore |
| **>TNLA To Add Item** |  | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Information | M |  | CP Transport Layer Information9.2.3.31 | CP Transport Layer Information of NG-RAN node1 | – |  |
| >>TNL Association Usage | M |  | 9.2.3.84 |  | – |  |
| **TNLA To Update List**  |  | *0..1* |  |  | YES | ignore |
| **>TNLA To Update Item** |  | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Information | M |  | CP Transport Layer Information9.2.3.31 | CP Transport Layer Information of NG-RAN node1 | – |  |
| >>TNL Association Usage | O |  | 9.2.3.84 |  | – |  |
| **TNLA To Remove List** |  | *0..1* |  |  | YES | ignore |
| **>TNLA To Remove Item** |  | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Information | M |  | CP Transport Layer Information9.2.3.31 | CP Transport Layer Information of NG-RAN node1 | – |  |
| Global NG-RAN Node ID | O |  | 9.2.2.3 |  | YES | reject |
| AMF Region Information To Add | O |  | AMF Region Information9.2.3.83 | List of all added AMF Regions to which the NG-RAN node belongs. | YES | reject |
| AMF Region Information To Delete | O |  | AMF Region Information9.2.3.83 | List of all deleted AMF Regions to which the NG-RAN node belongs. | YES | reject |
| Interface Instance Indication | O |  | 9.2.2.39 |  | YES | reject |
| TNL Configuration Info | O |  | 9.2.3.96 |  | YES | ignore |
| **Coverage Modification List** |  | *0 .. 1* |  | List of cells with modified coverage. | GLOBAL | reject |
| **>Coverage Modification Item** |  | *0 .. <maxnoofCellsinNG-RAN node>* |  |  | – |  |
| >>Global NG-RAN Cell Identity | M |  | Global Cell Identity9.2.2.73 | Global Cell Identity of the cell to be modified. In this version of the specification, only a NG-RAN cell identifier can be included. | – |  |
| >>Cell Coverage State | M |  | INTEGER (0..63, …) | Value ‘0’ indicates that the cell is inactive. Other values Indicates that the cell is active and also indicates the coverage configuration of the concerned cell. | – |  |
| >>Cell Deployment Status Indicator | O |  | ENUMERATED(pre-change-notification, ...) | Indicates the Cell Coverage State is planned to be used at the next reconfiguration. | – |  |
| **>>Cell Replacing Info** | C-ifCellDeploymentStatusIndicatorPresent |  |  |  | – |  |
| **>>>Replacing Cells** |  | *0 .. <maxnoofCellsinNG-RAN node>* |  |  | – |  |
| >>>>Global NG-RAN Cell Identity |  |  | Global Cell Identity9.2.2.73 | Global Cell Identity of a cell that may replace all or part of the coverage of the cell to be modified. In this version of the specification, only a NG-RAN cell identifier can be included. | – |  |
| **>>SSB Coverage Modification List** |  | *0..1* |  | List of SSB beams with modified coverage. | – |  |
| **>>>SSB Coverage Modification Item** |  | *0..<maxnoofSSBAreas>* |  |  | – |  |
| >>>>SSB Index | M |  | INTEGER (0..63) | Identifier of the SSB beam to be modified. | – |  |
| >>>>SSB Coverage State | M |  | INTEGER (0..15, …) | Value ‘0’ indicates that the SSB beam is inactive. Other values Indicates that the SSB beam is active and also indicates the coverage configuration of the concerned SSB beam. | – |  |
| >>Coverage Modification Cause | O |  | ENUMERATED (coverage, cell edge capacity, ..., network energy saving) | Indicates the reason for the coverage modification in NG-RAN node1. | YES | ignore |
| Local NG-RAN Node Identifier | O |  | 9.2.2.101 |  | YES | ignore |
| **Neighbour NG-RAN Node List** |  | *0..<maxnoofNeighbourNG-RAN nodes>* |  |  | YES | ignore |
| *>*Global NG-RAN Node ID | M |  | 9.2.2.3 |  | – |  |
| >Local NG-RAN Node Identifier | M |  | 9.2.2.101 |  | – |  |
| Local NG-RAN Node Identifier Removal | O |  | Local NG-RAN Node Identifier9.2.2.101 |  | YES | ignore |
| WAB-MT Identifier | O |  | 9.2.2.Y | Contains the identifier of the WAB-MT co-located with theWAB-gNB that sends this message, assigned by the WAB-MT’s BH-gNB. | YES | ignore |

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| --- | --- |
| Range bound | Explanation |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the NG RAN nodes. Value is 32. |
| maxnoofCellsinNG-RAN node | Maximum no. cells that can be served by a NG-RAN node. Value is 16384. |
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a cell. Value is 64. |
| maxnoofNeighbourNG-RAN nodes | Maximum no. of neighbour NG-RAN nodes. Value is 256. |

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| Condition | Explanation |
| ifCellDeploymentStatusIndicatorPresent | This IE shall be present if the *Cell Deployment Status Indicator* IE is present. |

*Next Change*

#### 9.1.3.5 NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE

This message is sent by a neighbouring NG-RAN node to a peer node to acknowledge update of information for a TNL association.

Direction: NG-RAN node2 🡪 NG-RAN node1.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| CHOICE *Responding NodeType* | M |  |  |  | YES | ignore |
| >*ng-eNB* |  |  |  |  |  |  |
| **>>Served E-UTRA Cells** |  | *0 .. < maxnoofCellsinNG-RANnode>* |  | Complete or limited list of cells served by an ng-eNB, if requested by NG-RAN node1. | YES | ignore |
| >>>Served Cell Information E-UTRA | M |  | 9.2.2.12 |  | – |  |
| >>>Neighbour Information NR | O |  | 9.2.2.13 | NR neighbours. | – |  |
| >>>Neighbour Information E-UTRA | O |  | 9.2.2.14 | E-UTRA neighbours | – |  |
| >>>SFN Offset | O |  | 9.2.2.75 | Associated with the *ECGI* IE in the *Served Cell Information E-UTRA* IE | YES | ignore |
| >>Partial List Indicator E-UTRA | O |  | Partial List Indicator9.2.2.46 | Value “partial” indicates that a partial list of cells is included in the *Served E-UTRA Cells* IE  | YES | ignore |
| >>Cell and Capacity Assistance Information E-UTRA | O |  | 9.2.2.42 | Contains E-UTRA cell related assistance information. | YES | ignore |
| >*gNB* |  |  |  |  |  |  |
| **>>Served NR Cells** |  | *0 .. < maxnoofCellsinNG-RANnode>* |  | Complete or limited list of cells served by a gNB, if requested by NG-RAN node1. | – |  |
| >>>Served Cell Information NR | M |  | 9.2.2.11 |  | – |  |
| >>>Neighbour Information NR | O |  | 9.2.2.13 | NR neighbours. | – |  |
| >>>Neighbour Information E-UTRA | O |  | 9.2.2.14 | E-UTRA neighbours | – |  |
| >>>Served Cell Specific Info Request | O |  | 9.2.2.102 |  | YES | ignore |
| >>Partial List Indicator NR | O |  | Partial List Indicator9.2.2.46 | Value “partial” indicates that a partial list of cells is included in the *Served NR Cells* IE  | YES | ignore |
| >>Cell and Capacity Assistance Information NR | O |  | 9.2.2.41 | Contains NR cell related assistance information. | YES | ignore |
| **TNLA Setup List**  |  | *0..1* |  |  | YES | ignore |
| **>TNLA Setup Item** |  | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Address | M |  | CP Transport Layer Information9.2.3.31 | CP Transport Layer Information as received from NG-RAN node1 | – |  |
| **TNLA Failed to Setup List** |  | *0..1* |  |  | YES | ignore |
| **>TNLA Failed To Setup Item** |  | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Address | M |  | CP Transport Layer Information9.2.3.31 | CP Transport Layer Information as received from NG-RAN node1 | – |  |
| >>Cause | M |  | 9.2.3.2 |  | – |  |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| Interface Instance Indication | O |  | 9.2.2.39 |  | YES | reject |
| TNL Configuration Info | O |  | 9.2.3.96 |  | YES | ignore |
| Local NG-RAN Node Identifier | O |  | 9.2.2.101 |  | YES | ignore |
| **Neighbour NG-RAN Node List** |  | *0..<maxnoofNeighbourNG-RAN nodes>* |  |  | YES | ignore |
| >Global NG-RAN Node ID | M |  | 9.2.2.3 |  | – |  |
| >Local NG-RAN Node Identifier | M |  | 9.2.2.101 |  | – |  |
| Local NG-RAN Node Identifier Removal |  |  | Local NG-RAN Node Identifier9.2.2.101 |  | YES | ignore |
| WAB-MT Identifier | O |  | 9.2.2.Y | Contains the identifier of the WAB-MT co-located with the WAB-gNB that sends this message, assigned by the WAB-MT’s BH-gNB. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellsinNGRANnode | Maximum no. cells that can be served by an NG-RAN node.Value is 16384. |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between NG-RAN nodes. Value is 32. |
| maxnoofNeighbourNG-RAN nodes | Maximum no. of neighbour NG-RAN nodes. Value is 256. |

*Next Change*

#### 9.2.2.Y WAB-MT Identifier

This IE contains the WAB-MT’s identifier, which includes the NR CGI of the WAB-MT’s serving cell and the C-RNTI allocated to the WAB-MT.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| --- | --- | --- | --- | --- |
| NR CGI | M |  | 9.2.2.7 | The WAB-MT’s serving cell ID. |
| C-RNTI | M |  | BIT STRING (SIZE (16)) | C-RNTI allocated to the WAB-MT by the BH-gNB. |

*Next Change*

### 9.3.5 Information Element definitions

-- ASN1START

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-- Information Element Definitions

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XnAP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

-- W

WAB-MT-ID ::= SEQUENCE {

 nrCGI NR-CGI,

 cRNTI BIT STRING (SIZE(16)),

 iE-Extensions ProtocolExtensionContainer { { WAB-MT-ID-ExtIEs } } OPTIONAL,

 ...

}

WAB-MT-ID-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

WLANMeasurementConfiguration ::= SEQUENCE {

 wlanMeasConfig WLANMeasConfig,

 wlanMeasConfigNameList WLANMeasConfigNameList OPTIONAL,

 wlan-rssi ENUMERATED {true, ...} OPTIONAL,

 wlan-rtt ENUMERATED {true, ...} OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { WLANMeasurementConfiguration-ExtIEs } } OPTIONAL,

 ...

}

*End of Change*