**3GPP TSG-RAN3 Meeting #107-e *R3-201256***

**E-Meeting, 24 February – 6 March, 2020**

**Title:** (TP for WWC BL CR for TS 38.413) Support for interfacing wireline 5G access networks to the 5GC

**Source:** Huawei, Telecom Italia, BT, Broadcom

**Agenda item:** 21.2.3

**Document for:** Other

# 1. Introduction

**CB: # 38\_Email038-WWC\_TPs**

**- Check TPs 0390,0391,0392,0393 (from both AIs 21.2.2 and 21.2.3)**

**- revise if needed; check details**

**- go for agreement**

(HW)

Summary of offline disc [R3-201197](Inbox%5CR3-201197.zip)

0390 rev in [R3-201253](Inbox%5CR3-201253.zip)

0391 rev in [R3-201254](Inbox%5CR3-201254.zip)

0392 rev in [R3-201255](Inbox%5CR3-201255.zip)

0393 rev in [R3-201256](Inbox%5CR3-201256.zip)

# 2. Annex – TP

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| **1st 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 38.401: "NG-RAN; Architecture description".

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

[4] ITU-T Recommendation X.691 (07/2002): "Information technology – ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)".

[5] ITU-T Recommendation X.680 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[6] ITU-T Recommendation X.681 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".

[7] 3GPP TR 25.921 (version.7.0.0): "Guidelines and principles for protocol description and error handling".

[8] 3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

[9] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[10] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[11] 3GPP TS 32.422: "Trace control and configuration management".

[12] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in idle mode and in RRC inactive state".

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

[14] 3GPP TS 38.414: "NG-RAN; NG data transport".

[15] 3GPP TS 29.281: "General Packet Radio System (GPRS); Tunnelling Protocol User Plane (GTPv1-U)".

[16] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[17] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[18] 3GPP TS 38.331: "NG-RAN; Radio Resource Control (RRC) Protocol Specification".

[19] 3GPP TS 38.455: "NG-RAN; NR Positioning Protocol A (NRPPa)".

[20] 3GPP TS 23.007: "Technical Specification Group Core Network Terminals; Restoration procedures".

[21] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RRC); Protocol specification".

[22] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[23] 3GPP TS 23.003: "Numbering, addressing and identification".

[24] 3GPP TS 38.423: "NG-RAN; Xn Application Protocol (XnAP)".

[25] IETF RFC 5905 (2010-06): "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[26] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[27] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

[28] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[29] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode".

[30] 3GPP TS 29.531: "5G System; Network Slice Selection Services; Stage 3".

[x] 3GPP TS 23.316: "Wireless and wireline convergence access support for the 5G System (5GS)".

[y] CableLabs WR-TR-5WWC-ARCH: "5G Wireless Wireline Converged Core Architecture".

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| **2nd Change** |

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GC 5G Core Network

5QI 5G QoS Identifier

AMF Access and Mobility Management Function

CGI Cell Global Identifier

CP Control Plane

DL Downlink

EPC Evolved Packet Core

FN-RG Fixed Network Residential Gateway

GUAMI Globally Unique AMF Identifier

HFC Hybrid Fiber-Coax

IMEISV International Mobile station Equipment Identity and Software Version number

LMF Location Management Function

N3IWF Non 3GPP InterWorking Function

NGAP NG Application Protocol

NRPPa NR Positioning Protocol Annex

NSCI New Security Context Indicator

NSSAI Network Slice Selection Assistance Information

OTDOA Observed Time Difference of Arrival

PSCell Primary SCell

SCG Secondary Cell Group

SCTP Stream Control Transmission Protocol

SMF Session Management Function

S-NG-RAN node Secondary NG-RAN node

S-NSSAI Single Network Slice Selection Assistance Information

TAC Tracking Area Code

TAI Tracking Area Identity

TNAP Trusted Non-3GPP Access Point

TNGF Trusted Non-3GPP Gateway Function

TWAP Trusted WLAN Access Point

TWIF Trusted WLAN Interworking Function

TNLA Transport Network Layer Association

UP User Plane

UPF User Plane Function

W-AGF Wireline Access Gateway Function

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| **3rd Change** |

9.2.2.1 INITIAL CONTEXT SETUP REQUEST

This message is sent by the AMF to request the setup of a UE context.

Direction: AMF → NG-RAN node

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| Old AMF | O |  | AMF Name9.3.3.21 |  | YES | reject |
| UE Aggregate Maximum Bit Rate | C-ifPDUsessionResourceSetup |  | 9.3.1.58 |  | YES | reject |
| Core Network Assistance Information for RRC INACTIVE | O |  | 9.3.1.15 |  | YES | ignore |
| GUAMI | M |  | 9.3.3.3 |  | YES | reject |
| **PDU Session Resource Setup Request List** |  | *0..1* |  |  | YES | reject |
| **>PDU Session Resource Setup Request Item** |  | *1..<maxnoofPDUSessions>* |  |  | - |  |
| >>PDU Session ID | M |  | 9.3.1.50 |  | - |  |
| >>PDU Session NAS-PDU | O |  | NAS-PDU9.3.3.4 |  | - |  |
| >>S-NSSAI  | M |  | 9.3.1.24 |  | - |  |
| >>PDU Session Resource Setup Request Transfer | M |  | OCTET STRING | Containing the *PDU Session Resource Setup Request Transfer* IE specified in subclause 9.3.4.1. | - |  |
| Allowed NSSAI | M |  | 9.3.1.31 | Indicates the S-NSSAIs permitted by the network | YES | reject |
| UE Security Capabilities | M |  | 9.3.1.86 |  | YES | reject |
| Security Key | M |  | 9.3.1.87 |  | YES | reject |
| Trace Activation | O |  | 9.3.1.14 |  | YES | ignore |
| Mobility Restriction List | O |  | 9.3.1.85 |  | YES | ignore |
| UE Radio Capability | O |  | 9.3.1.74 |  | YES | ignore |
| Index to RAT/Frequency Selection Priority | O |  | 9.3.1.61 |  | YES | ignore |
| Masked IMEISV | O |  | 9.3.1.54 |  | YES | ignore |
| NAS-PDU | O |  | 9.3.3.4 |  | YES | ignore |
| Emergency Fallback Indicator | O |  | 9.3.1.26 |  | YES | reject |
| RRC Inactive Transition Report Request | O |  | 9.3.1.91 |  | YES | ignore |
| UE Radio Capability for Paging | O |  | 9.3.1.68 |  | YES | ignore |
| Redirection for Voice EPS Fallback  | O |  | 9.3.1.116 |  | YES | ignore |
| Location Reporting Request Type | O |  | 9.3.1.65 |  | YES | ignore |
| CN Assisted RAN Parameters Tuning | O |  | 9.3.1.119 |  | YES | ignore |
| RG Level Wireline Access Characteristics | O |  | OCTET STRING | Specified in TS 23. 316 [x]. Indicates the wireline access technology specific QoS information corresponding to a specific wireline access subscription. | YES | ignore |

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| **Range bound** | **Explanation** |
| maxnoofPDUSessions | Maximum no. of PDU sessions allowed towards one UE. Value is 256. |

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| **Condition** | **Explanation** |
| ifPDUsessionResourceSetup | This IE shall be present if the *PDU Session Resource Setup List* IE is present. |

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| **4th Change** |

9.2.5.3 UPLINK NAS TRANSPORT

This message is sent by the NG-RAN node and is used for carrying NAS information over the NG interface.

Direction: NG-RAN node → AMF

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| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| NAS-PDU | M |  | 9.3.3.4 |  | YES | reject |
| User Location Information | M |  | 9.3.1.16 |  | YES | Ignore |
| W-AGF Identity Information | O |  | Identity Information9.3.1.bb |  | YES | reject |

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| **5th Change** |

9.3.1.16 User Location Information

This IE is used to provide location information of the UE.

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| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *User Location Information* | M |  |  |  | - |  |
| >*E-UTRA user location information* |  |  |  |  |  |  |
| >>E-UTRA CGI | M |  | 9.3.1.9 |  | - |  |
| >>TAI | M |  | 9.3.3.11 |  | - |  |
| >>Age of Location | O |  | Time Stamp9.3.1.75 | Indicates the UTC time when the location information was generated. | - |  |
| >>PSCell Information | O |  | NG-RAN CGI9.3.1.73 |  | YES | ignore |
| >*NR user location information* |  |  |  |  |  |  |
| >>NR CGI | M |  | 9.3.1.7 |  | - |  |
| >>TAI | M |  | 9.3.3.11 |  | - |  |
| >>Age of Location | O |  | Time Stamp9.3.1.75 | Indicates the UTC time when the location information was generated. | - |  |
| >>PSCell Information | O |  | NG-RAN CGI9.3.1.73 |  | YES | ignore |
| >*N3IWF user location information* |  |  |  |  |  |  |
| >>IP Address | M |  | Transport Layer Address 9.3.2.4 | UE's local IP address used to reach the N3IWF | - |  |
| >>Port Number | O |  | OCTET STRING(SIZE(2)) | UDP or TCP source port number if NAT is detected. | - |  |
| >*TNGF user location information* |  |  |  |  |  |  |
| >>TNAP ID | M |  | FFS | TNAP Identifier used to identify the TNAP. Details in TS 23.501 [9]. | - |  |
| >>IP Address | M |  | Transport Layer Address 9.3.2.4 | UE's local IP address used to reach the TNGF. | - |  |
| >>Port Number | O |  | OCTET STRING(SIZE(2)) | UDP or TCP source port number if NAT is detected. | - |  |
| >*W-AGF user location information* |  |  |  |  |  |  |
| >>W-AGF user location information |  |  | 9.3.1.cc |  |  |  |
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| **6th Change** |

9.3.1.zz Global W-AGF ID

This IE is used to globally identify a W-AGF.

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| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| PLMN Identity | M |  | 9.3.3.5 |  |
| CHOICE *W-AGF ID* | M |  |  |  |
| >*W-AGF ID* |  |  |  |  |
| >>W-AGF ID | M |  | BIT STRING (SIZE(16, …)) |  |

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| **7th Change** |

9.3.1.cc W-AGF User Location Information

This IE indicates the location information via wireline access as specified in TS 23.316 [x].

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| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| CHOICE *W-AGF User Location Information* | M |  |  |  |
| >*Global Line ID* |  |  |  |  |
| >>Global Line ID | M |  | OCTET STRING | Encoded as defined in TS 23.003 [23]. |
| >*HFC Node ID* |  |  |  |  |
| >>HFC Node ID | M |  | OCTET STRING | Indicates the identifier of the HFC node as specified in [y]. Encoded as defined in TS 23.003 [23]. |

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| **8th Change** |

### 9.4.4 PDU Definitions

<Unchanged Text Omitted>

 id-WarningType,

 id-RIMInformationTransfer,

 id-RGLevelWirelineAccessCharacteristics,

 id-W-AGFIdentityInformation,

 id-AuthenticatedIndication

### <Unchanged Text Omitted>

UplinkNASTransport-IEs NGAP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY reject TYPE AMF-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-RAN-UE-NGAP-ID CRITICALITY reject TYPE RAN-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-NAS-PDU CRITICALITY reject TYPE NAS-PDU PRESENCE mandatory }|

 { ID id-UserLocationInformation CRITICALITY ignore TYPE UserLocationInformation PRESENCE mandatory }|

 { ID id-W-AGFIdentityInformation CRITICALITY reject TYPE IdentityInformation PRESENCE optional },

 ...

}

<Unchanged Text Omitted>

### 9.4.5 Information Element Definitions

<Unchanged Text Omitted>

FQDN ::= OCTET STRING

<Unchanged Text Omitted>

HFCNode-ID ::= OCTET STRING

GlobalLine-ID ::= OCTET STRING

<Unchanged Text Omitted>

RGLevelWirelineAccessCharacteristics ::= OCTET STRING

<Unchanged Text Omitted>

UserLocationInformationW-AGF ::= CHOICE {

 globalLine-ID GlobalLine-ID,

 hFCNode-ID HFCNode-ID,

 choice-Extensions ProtocolIE-SingleContainer { { UserLocationInformationW-AGF-ExtIEs} }

}

UserLocationInformationW-AGF-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

<Unchanged Text Omitted>

W-AGF-ID ::= CHOICE {

 w-AGF-ID BIT STRING (SIZE(16)),

 choice-Extensions ProtocolIE-SingleContainer { {W-AGF-ID-ExtIEs} }

}

W-AGF-ID-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

<Unchanged Text Omitted>

### 9.4.7 Constant Definitions

<Unchanged Text Omitted>

 id-RIMInformationTransfer ProtocolIE-ID ::= 175

 id-GUAMIType ProtocolIE-ID ::= 176

 id-RGLevelWirelineAccessCharacteristics ProtocolIE-ID ::= 177

 id-W-AGFIdentityInformation ProtocolIE-ID ::= 178

 id-GlobalTNGF-ID ProtocolIE-ID ::= 179

 id-GlobalTWIF-ID ProtocolIE-ID ::= 180

 id-GlobalW-AGF-ID ProtocolIE-ID ::= 181

 id-UserLocationInformationW-AGF ProtocolIE-ID ::= 182

 id-UserLocationInformationTNGF ProtocolIE-ID ::= 183

 id-AuthenticatedIndication ProtocolIE-ID ::= 184

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| **End of Changes** |