**3GPP TSG-RAN WG3 Meeting #113-e *R3-214450***

**E-meeting, 16-26 Aug 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.463** | **CR** | **0632** | **rev** | **1** | **Current version:** | 16.6.0 |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Data forwarding address allocation for handover | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Samsung, China Telecom, Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | Direct\_data\_fw\_NR-Core | | | | |  | ***Date:*** | | | 2021-08-16 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In case of the non-disaggregated node case, the target gNB-CU-CP node is aware of whether direct data forwarding was requested so as to assign the correspinding TNL addresses for data forwarding.  But for the disaggregated node case, the CU-UP is not aware of the above information. Typically, CU-UP needs to differentiate with the following two cases.   * For the handover with direct data forwarding, the CU-UP can assign the TNL addresses from the direct UP interface space. * For the handover without direct data forwarding, the CU-UP can assign corresponding data fowarding addresses from the 5GS address space. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Add aDirect Forwarding Path Availability in the BEARER CONTEXT SETUP REQUEST message to indicate the handover with direct data forwarding.     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 it only impacts the handover with direct data forwarding. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The CU-UP is not able to assign the approriate data TNL addresses for direct data forwarding. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.3.1, 9.2.2.1, 9.3.1.aa, 9.4.4, 9.4.5, 9.4.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev1: R3-214450  Add co-signers and some cover page clean-up and text update. | | | | | | | | |

### 8.3.1 Bearer Context Setup

#### 8.3.1.1 General

The purpose of the Bearer Context Setup procedure is to allow the gNB-CU-CP to establish a bearer context in the gNB-CU-UP. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: Bearer Context Setup procedure: Successful Operation.

If the *Additional Handover Information* IE is included in the BEARER CONTEXT SETUP REQUEST message and set to “Discard PDCP SN”, the gNB-CU-UP shall, if supported, remove the forwarded PDCP SNs if received in the forwarded GTP-U packets, and deliver the forwarded PDCP SDUs to the UE, as specified in TS 38.300 [8].

If the *Direct Forwarding Path Availability* IE set to "direct path available" is included in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP may assign the UP Transport Layer Information for direct data forwarding from the appropriate address space, if applicable.

**<Unchanged Text Omitted>**

#### 9.2.2.1 BEARER CONTEXT SETUP REQUEST

This message is sent by the gNB-CU-CP to request the gNB-CU-UP to setup a bearer context.

Direction: gNB-CU-CP → gNB-CU-UP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU-CP UE E1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| Security Information | M |  | 9.3.1.10 |  | YES | reject |
| UE DL Aggregate Maximum Bit Rate | M |  | Bit Rate 9.3.1.20 |  | YES | reject |
| UE DL Maximum Integrity Protected Data Rate | O |  | Bit Rate 9.3.1.20 | The Bit Rate is a portion of the UE’s Maximum Integrity Protected Data Rate, and is enforced by the gNB-CU-UP node. | YES | reject |
| Serving PLMN | M |  | PLMN Identity  9.3.1.7 |  | YES | ignore |
| Activity Notification Level | M |  | 9.3.1.67 |  | YES | reject |
| UE Inactivity Timer | O |  | Inactivity Timer  9.3.1.54 | Included if the Activity Notification Level is set to UE. | - | - |
| Bearer Context Status Change | O |  | ENUMERATED (Suspend, Resume, …) | Indicates the status of the Bearer Context | YES | reject |
| CHOICE *System* | M |  |  |  | YES | reject |
| *>E-UTRAN* |  |  |  |  |  |  |
| >>DRB To Setup List | M |  | DRB To Setup List E-UTRAN  9.3.3.1 |  | YES | reject |
| >>Subscriber Profile ID for RAT/Frequency priority | O |  | 9.3.1.69 |  | YES | ignore |
| >>Additional RRM Policy Index | O |  | 9.3.1.70 |  | YES | Ignore |
| *>NG-RAN* |  |  |  |  |  |  |
| >>PDU Session Resource To Setup List | M |  | 9.3.3.2 |  | YES | reject |
| RAN UE ID | O |  | OCTET STRING (SIZE(8)) |  | YES | ignore |
| gNB-DU ID | O |  | 9.3.1.65 | Included whenever it is known by the gNB-CU-CP | YES | ignore |
| Trace Activation | O |  | 9.3.1.68 |  | YES | ignore |
| NPN Context Information | O |  | 9.3.1.84 |  | YES | reject |
| Management Based MDT PLMN List | O |  | MDT PLMN List  9.3.1.89 |  | YES | ignore |
| CHO Initiation | O |  | ENUMERATED (True, …) |  | YES | reject |
| Additional Handover Information | O |  | ENUMERATED(Discard PDCP SN, …) | If set to “Discard PDCP SN”, indicates that the forwarded PDCP SNs have to be removed | YES | Ignore |
| Direct Forwarding Path Availability | O |  | 9.3.1.aa |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofDRBs | Maximum no. of DRBs for a UE. Value is 32. |
| maxnoofPDUSessionResource | Maximum no. of PDU Sessions for a UE. Value is 256. |

**<Unchanged Text Omitted>**

#### 9.3.1.aa Direct Forwarding Path Availability

This IE indicates whether a direct forwarding path is available.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Direct Forwarding Path Availability | M |  | ENUMERATED (direct path available, …) |  |

**<Unchanged Text Omitted>**

### 9.4.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for E1AP

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E1AP-PDU-Contents {

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

ngran-access (22) modules (3) e1ap (5) version1 (1) e1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**<Unchanged Text Omitted>**

ExtendedSliceSupportList,

TransportLayerAddress,

AdditionalHandoverInfo,

Extended-NR-CGI-Support-List,

DirectForwardingPathAvailability

**<Unchanged Text Omitted>**

id-ExtendedSliceSupportList,

id-AdditionalHandoverInfo,

id-Extended-NR-CGI-Support-List,

id-DirectForwardingPathAvailability,

**<Unchanged Text Omitted>**

BearerContextSetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { BearerContextSetupRequestIEs} },

...

}

BearerContextSetupRequestIEs E1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-CP-UE-E1AP-ID CRITICALITY reject TYPE GNB-CU-CP-UE-E1AP-ID PRESENCE mandatory }|

{ ID id-SecurityInformation CRITICALITY reject TYPE SecurityInformation PRESENCE mandatory }|

{ ID id-UEDLAggregateMaximumBitRate CRITICALITY reject TYPE BitRate PRESENCE mandatory }|

{ ID id-UEDLMaximumIntegrityProtectedDataRate CRITICALITY reject TYPE BitRate PRESENCE optional }|

{ ID id-Serving-PLMN CRITICALITY ignore TYPE PLMN-Identity PRESENCE mandatory }|

{ ID id-ActivityNotificationLevel CRITICALITY reject TYPE ActivityNotificationLevel PRESENCE mandatory }|

{ ID id-UE-Inactivity-Timer CRITICALITY reject TYPE Inactivity-Timer PRESENCE optional }|

{ ID id-BearerContextStatusChange CRITICALITY reject TYPE BearerContextStatusChange PRESENCE optional }|

{ ID id-System-BearerContextSetupRequest CRITICALITY reject TYPE System-BearerContextSetupRequest PRESENCE mandatory }|

{ ID id-RANUEID CRITICALITY ignore TYPE RANUEID PRESENCE optional }|

{ ID id-GNB-DU-ID CRITICALITY ignore TYPE GNB-DU-ID PRESENCE optional }|

{ ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional }|

{ ID id-NPNContextInfo CRITICALITY reject TYPE NPNContextInfo PRESENCE optional}|

{ ID id-ManagementBasedMDTPLMNList CRITICALITY ignore TYPE MDTPLMNList PRESENCE optional}|

{ ID id-CHOInitiation CRITICALITY reject TYPE CHOInitiation PRESENCE optional }|

{ ID id-AdditionalHandoverInfo CRITICALITY ignore TYPE AdditionalHandoverInfo PRESENCE optional }|

{ ID id-DirectForwardingPathAvailability CRITICALITY ignore TYPE DirectForwardingPathAvailability PRESENCE optional },

...

}

**<Unchanged Text Omitted>**

### 9.4.5 Information Element Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E1AP-IEs {

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

ngran-access (22) modules (3) e1ap (5) version1 (1) e1ap-IEs (2) }

**<Unchanged Text Omitted>**

DirectForwardingPathAvailability ::= ENUMERATED {

direct-path-available,

...

}

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**<Unchanged Text Omitted>**

id-AdditionalHandoverInfo ProtocolIE-ID ::= 134

id-Extended-NR-CGI-Support-List ProtocolIE-ID ::= 135

id-DirectForwardingPathAvailability ProtocolIE-ID ::= bbb

**<Unchanged Text Omitted>**