**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HELP***](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 | **X** |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | The ‘nfInstanceId’ is currently defined as mandatory in the trace record header definition. It is unclear however whether, or what, this attribute should contain, in particular for RAN NFs. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Change the support qualifier on ‘nfInstanceId’ to be conditional, clarify that it contains the Core NF identifier and add its definition.  Add additional attribute (as choice) to provide similar for RAN NFs. | | | | | | | | |
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| ***Consequences if not approved:*** | | Interoperabiity will suffer since the definition of the attribute and its applicability is unclear. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.2.1, G.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Follow up to S5-252680 with proposed solution per discussion on SA5#161 rapporteur call. No impact to yaml/yang in this proposal. | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st Change** |

### 5.2.2 Trace Record Header

The trace record header contains the common fields as specified in the Table 5.2.2-1, in addition it may also contain vendor specific extensions.

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| Trace Record Header field name | Description |
| timeStamp (M) | Time stamp (in milliseconds since Epoch) of when the streaming trace record is produced internally in the Producer encoded as (64 bit integer) |
| nfInstanceId (CM) | Unique id of the Core NF instance that produced this trace record represented by a (String). See TS 23.501 [18] clause 4.2.2. |
| nfType (CM) | Type of the Core NF that produced this trace record represented by a (String). See TS 23.501 [18] clause 4.2.2. |
| traceReference (M) | Trace Reference (see clause 5.6 of 3GPP TS 32.422 [3]) (represented by a 6 bytes octet string) See Note 6. |
| traceRecordingSessionReference (M) | Trace Recording Session Reference (see clause 5.7 of 3GPP TS 32.422 [3]) represented by a (2 byte octet string. See Note 1.) |
| traceRecordTypeId (M) | Identifier of the trace record type (see clause 5.2.4 for details) represented by an ENUM with the following values:  NORMAL,  TRACE\_SESSION\_START,  TRACE\_SESSION\_STOP, TRACE\_RECORDING\_SESSION\_START, TRACE\_RECORDING\_SESSION\_STOP, TRACE\_STREAM\_HEARTBEAT,  TRACE\_RECORDING\_SESSION\_NOT\_STARTED, TRACE\_RECORDING\_SESSION\_DROPPED\_EVENTS,  TRACE\_FILE\_OPEN,  TRACE\_FILE\_CLOSE,  TRACE\_FILE\_ABNORMAL\_CLOSED,  TRACE\_RECORDING\_SESSION\_THROTTLED\_START,  TRACE\_RECORDING\_SESSION\_THROTTLED\_STOP.  (See Note 2). |
| ranUeId (O) | RAN defined id to represent a UE (8 byte octet string. See Note 3.) |
| payloadSchemaURI (O) | URI identifying the schema to be used in order to decode the payload represented by a (String. See Note 4.) |
| CHOICE 2.1: globalGnbId (CM) | Global gNB ID, as defined in subclause 9.3.1.6 of 3GPP TS 38.413 [23]. Applicable for trace reported by gNB. (See Note 7). |
| CHOICE 3.1: gNB­DUId (CM) | Integer. See 'gNB-DU ID' in subclause 9.3.1.9 of TS 38.401 [22].  Applicable for trace reported by gNB-DU (See Note 7). |
| CHOICE 3.2: gNB­CUUPId (CM) | Integer. See 'gNB-CU-UP ID' in subclause 9.3.1.15 of TS 38.401 [22].  Applicable for trace reported by gNB-CU-UP (See Note 7). |
| gNB­CUName (CM) | String. See 'gNB-CU-CP ID' in subclause 9.3.1.15 of TS 37.483 [22].  Applicable for trace reported by gNB. |
|  |  |
| vendorExtension (O) | Vendor-specific extension(s) (See Note 5.) |
| CHOICE 1.1: traceRecordName (O) | A unique name string of a Trace Record. This attribute is not required for Administration events. |
| CHOICE 1.2: traceRecordId (O) | A unique integer ID of a Trace Record. |
| NOTE 1: The *traceRecordingSessionReference* must be present for the Streaming Trace Records with non-zero size payload where the payload carries data captured for a Trace Recording Session and in administrative messages related to a Trace Recording Session (e.g. "Trace Recording Session Start" or "Trace Recording Session Stop").  NOTE 2: The *traceRecordTypeId* with value "NORMAL" is used for Streaming Trace Records that do not carry an administrative message.  NOTE 3: The *ranUeId* field is present in the trace record header when the identifier is supported by RAN. If RAN UE Id (see 3GPP TS 37.483 [46] and 3GPP TS 38.473 [26]) has been captured in the traced signaling messages that value is used.  NOTE 4: The *payloadSchemaURI* is not required for Streaming Trace Records with payload of zero-size, or payload using common payload format (e.g. used to convey Streaming Trace administrative messages).  NOTE 5: The *vendorExtension* is typically a generic list of key-value pairs.  NOTE 6: The encoding of the Trace Reference is a 6-byte Octet String in BCD format. The first 3-byte Octet String is the PLMN ID which consists of MCC and MNC. The next 3-byte Octet String is the Trace ID. The PLMN ID is encoded as specified in clause 9.3.3.5 of 3GPP TS 38.413 [23].  NOTE 7: The choice of gNB identifiers depends on deployment. Choice 2 applies for non-split mode gNB deployment. Choice 3 applies for split-mode gNB deployment. | |

Table 5.2.2.1 : Common fields in the trace record header

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| **2nd Change** |

# G.2 Trace Record Protocol Buffer (GPB) definitions

Normative GPB Trace Record schema, defined per clause 5.2:

syntax = “proto3”;

/\* Trace Record per 3GPP 32.423 specification.

\* v16

\*/

enum TraceRecordType {

    NORMAL = 0;

    TRACE\_SESSION\_START = 1;

    TRACE\_SESSION\_STOP = 2;

    TRACE\_RECORDING\_SESSION\_START = 3;

    TRACE\_RECORDING\_SESSION\_STOP = 4;

    TRACE\_STREAM\_HEARTBEAT = 5;

    TRACE\_RECORDING\_SESSION\_DROPPED\_EVENTS = 6;

    TRACE\_RECORDING\_SESSION\_NOT\_STARTED = 7;

TRACE\_FILE\_OPEN = 8;

    TRACE\_FILE\_CLOSE = 9;

    TRACE\_FILE\_ABNORMAL\_CLOSED = 10;

TRACE\_RECORDING\_SESSION\_THROTTLED\_START = 11;

TRACE\_RECORDING\_SESSION\_THROTTLED\_STOP = 12;

TRACE\_SESSION\_NOT\_STARTED = 13;

}

message GlobalGnbId {

    bytes plmn\_identity = 1;

    int64 gnb\_id = 2;

}

message TraceRecordHeader {

int64 time\_stamp = 1;

string nf\_instance\_id = 2;

string nf\_type = 3;

bytes trace\_reference = 4;

bytes trace\_recording\_session\_ref = 5;

TraceRecordType trace\_rec\_type\_id = 6;

optional bytes ran\_ue\_id = 7;

optional string payload\_schema\_uri = 8;

  GlobalGnbId global\_gnb\_id = 9;

map<string, string> vendor\_extension = 10;

string gnb\_du\_id = 11;

string gnb\_cuup\_id = 12;

string gnb\_cu\_name = 13;

}

message TraceSessionStart {

  map<string, string> vendor\_extension = 1;

}

message TraceSessionStop {

  map<string, string> vendor\_extension = 1;

}

message TraceRecordingSessionStart {

map<string, string> vendor\_extension = 1;

}

message TraceRecordingSessionStop {

string reason = 2;

  map<string, string> vendor\_extension = 1;

}

message TraceStreamHeartbeat {

  map<string, string> vendor\_extension = 1;

}

message TraceRecordingSessionDroppedEvents {

  int64 number\_of\_dropped\_events = 1;

  map<string, string> vendor\_extension = 2;

}

message TraceRecordingSessionNotStarted {

string reason = 1;

  map<string, string> vendor\_extension = 2;

}

message TraceFileOpen {

map<string, string> vendor\_extension = 1;

}

message TraceFileClose {

map<string, string> vendor\_extension = 1;

}

message TraceFileAbnormalClosed {

string reason = 1;

  map<string, string> vendor\_extension = 2;

}

message TraceRecordingSessionThrottledStart {

string reason = 1;

  map<string, string> vendor\_extension = 2;

}

message TraceRecordingSessionThrottledStop {

  map<string, string> vendor\_extension = 1;

}

message TraceSessionNotStarted {

string reason = 1;

  map<string, string> vendor\_extension = 2;

}

message CommonTracePayload {

  oneof record\_payload {

    TraceSessionStart trace\_session\_start = 1;

    TraceSessionStop trace\_session\_stop = 2;

    TraceRecordingSessionStart trace\_recording\_session\_start = 3;

    TraceRecordingSessionStop trace\_recording\_session\_stop = 4;

    TraceStreamHeartbeat trace\_stream\_heartbeat = 5;

    TraceRecordingSessionDroppedEvents trace\_recording\_session\_dropped\_events = 6;

    TraceRecordingSessionNotStarted trace\_recording\_session\_not\_started = 7;

  TraceFileOpen trace\_file\_open = 8;

    TraceFileClose trace\_file\_close = 9;

    TraceFileAbnormalClosed trace\_file\_abnormal\_closed = 10;

TraceRecordingSessionThrottledStart trace\_recording\_session\_throttled\_start = 11;

TraceRecordingSessionThrottledStop trace\_recording\_session\_throttled\_stop = 12;

TraceSessionNotStarted trace\_session\_not\_started = 13;

}

}

message TraceRecordPayload {

optional int64 payload\_size = 1;

bytes binary\_payload = 2;

}

message TraceRecord {

TraceRecordHeader header = 1;

TraceRecordPayload payload = 2;

}

message StreamingTraceRecord {

TraceRecord record = 1;

optional CommonTracePayload administrative\_message = 2;

}

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| **End of Changes** |