**3GPP TSG-SA5 Meeting #155S5-243372**

**Jeju, South Korea, 27 - 31 May 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Rel-19 clean up for TS 32.421 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Verizon | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI19 | | | | |  | ***Date:*** | | | 2024-05-11 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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:*** | | There are unnecesary characters in clause 1, two TCE description in Abbreviation clause 3.2, Editors’ note in Annex A.16.4 is not up to date. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Remove the unnecesary characters in clause 1.  2. Remove the duplicated TCE abbreviation.  3. Correct the information of 21.905.  4. Remove the editors’ note as 5G MDT measurements are updated already in the Rel-18 work. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Unnecesary characters, redundant TCE abbreviation and obsolete editors’ note may cause confusion. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 1,3.2, A.16.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

***First change***

# 1 Scope

The present document describes the requirements for the management of Trace and the reporting of Trace data (including FDD mode and TDD mode) across UMTS, EPS or 5G networks as it refers to subscriber tracing (tracing of IMSI or Public User Identity) and equipment tracing (tracing of IMEI or IMEISV). Trace also includes the ability to trace all active calls in a cell or multiple cells (Cell Traffic Trace). The present document also includes the description of Service Level Tracing (tracing of a specific service). It defines the administration of Trace Session activation/deactivation by the management system, the network or User Equipment (UE) itself via signalling, the generation of Trace results in the Network Elements (NEs) and UE and the transfer of these results to one or more Operations Systems.

GSM Trace is outside of the scope of this specification (see [7]).

The present document also describes the requirements for the management of Minimization of Drive Tests (MDT) across UMTS networks, EPS networks or 5G networks and Radio Link Failure (RLF) and RRC Connection Establishment Failure (RCEF) reporting across EPS networks and 5G networks.

The present document is built upon the basic Subscriber and UE Trace concept described in clause 4.   
The high-level requirements for Trace data, Trace Session activation/deactivation and Trace reporting are defined in clause 5. Clause 5 also contains an overview of use cases for Trace (the use cases are described in Annex A). Clause 6 defines the requirements for managing MDT. Clause 7 defines the requirements for managing RLF and RCEF reports.Trace control and configuration management are described in 3GPP TS 32.422 [2], and Trace data definition and management are described in 3GPP TS 32.423 [3].

The present document does not cover any Trace capability limitations within a NE (e.g. maximum number of simultaneous traced mobiles for a given NE) or any functionality related to these limitations (e.g. NE aborting a Trace Session due to resource limitations).

The objectives of the Trace specifications are:

a) to provide the descriptions for a standard set of Trace and MDT data;

b) to produce a common description of the management technique for Trace, MDT, RLF, and RCEF administration and result reporting;

c) to define a method for the reporting of Trace, MDT, RLF and RCEF results across the management interfaces.

The following is beyond the scope of the present document, and therefore the present document does not describe:

- tracing non-Subscriber or non-UE related events within an NE;

- tracing of all possible parties in a multi-party call (although multiple calls related to the IMSI specified in the Trace control and configuration parameters are traceable).

The definition of Trace and MDT data is intended to result in comparability of Trace and MDT data produced in a multi-vendor wireless UMTS, EPS and/or 5G network(s), for those Trace control and configuration parameters that can be standardised across all vendors' implementations.

Vendor specific extensions to the Trace control and configuration parameters and Trace and MDT data are discussed in 3GPP TS 32.422 [2] and 3GPP TS 32.423 [3].

All functions (trace, MDT etc.) specified in this specification support Network Sharing, with the following conditions:

- It is accepted that the recorded information from the shared nodes is available to the Primary Operator. Recorded information that is collected in a non shared node or cell will only be available to the operator managing the non shared node or cell.

- It is accepted that the recorded information from the shared network shall be delivered to the Participating Operator whose PLMN recording is requested, taking user consent into account. Operators must also agree on sharing the information, but how that agreement is done is outside the scope of this specification. The mapping of TCE IP addresses and TCE addresses must be coordinated among the operators that shares the network. How that coordination is done is outside the scope of this specification.

- It is accepted that the inter-PLMN recorded information for Logged MDT from the non-shared nodes of Participating Operators may be available to the Primary Operator.

- For signalling based activation, the operators that share a network must coordinate the TCE IP addresses and the TCE address mapping must be coordinated. How that coordination´ is done is outside the scope of this specification.

For UMTS and EPS the 3GPP Managment reference model, 3GPP TS 32.101 [1] is followed.

For 5GS the 3GPP Services Based Management Architecture, 3GPP TS 28.533 [20] is followed.

***Second change***

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [8], TS 32.101 [1] , TS 32.130 [13] , TS 23.501 [15], TS 38.300 [16] and the following apply:

RCEF RRC Connection Establishment Failure

RLF Radio Link Failure

TCE Trace Collection Entity

SCGF Second Cell Group Failure

***Third change***

## A.16.4 Post-conditions

The data consumer has the necessary data to perform the analytical tasks. The data (reported per UE) may include, but is not limited to:

- LTE MDT measurements (see TSs 37.320 [11] and 32.422 [2]) such as:

- M1: RSRP and RSRQ measurement by UE with Periodic, event A2 as reporting triggers;

- M2: Power Headroom (PH) measurement by UE;

- M3: Received Interference Power measurement by eNB;

- M4: Data Volume measurement separately for DL and UL by eNB;

- M5: Scheduled IP Throughput measurement separately for DL and UL by eNB.

- Radio Link Failure reports;

- RRC Connection Establishment Failure reports;

- Raw signalling messages (see TS 32.423 [3] clauses 4.13 and 4.29 for additional details);

- UE location information (see TS 32.423 [3] clause 4.16.2 for additional details).

The specific methods for analysing and/or correlating the captured data, as well as any actions that may be triggered by such analysis are out of scope of the present use case.