**3GPP TSG-SA3 Meeting #81-LI-e-a *s3i210220***

**Online,** **12th Apr 2021 - 16th Apr 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **33.127** | **CR** | **0117** | **rev** | **4** | **Current version:** | **17.0.0** |  |
|  |
| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | NEF Services in 5GS in TS 33.127 |
|  |  |
| ***Source to WG:*** | SA3LI (Ministère Economie et Finances) |
| ***Source to TSG:*** | SA3 |
|  |  |
| ***Work item code:*** | LI17 |  | ***Date:*** | 2021-04-15 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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:*** | NEF services in 5GS cannot be intercepted |
|  |  |
| ***Summary of change:*** | Adds LI stage 2 for NEF services in 5GS |
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| ***Consequences if not approved:*** | Regulatory difficulties for CSP as NEF services in 5GS LI solution would continue to be missing |
|  |  |
| ***Clauses affected:*** | 2, 6.2.X (New), 6.2.X.2 (New), 6.2.X.3 (New), 6.2.X.4 (New) |
|  |  |
|  | **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:*** | Related to CR s3i210221 (stage 3) |
|  |  |
| ***This CR's revision history:*** | s3i210220 |

First 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 23.501: "System Architecture for the 5G System".

[3] 3GPP TS 33.126: "Lawful interception requirements".

[4] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[5] 3GPP TS 23.271: "Functional stage 2 description of Location Services (LCS)".

[6] OMA-TS-MLP-V3\_5-20181211-C: "Open Mobile Alliance; Mobile Location Protocol, Candidate Version 3.5" <https://www.openmobilealliance.org/release/MLS/V1_4-20181211-C/OMA-TS-MLP-V3_5-20181211-C.pdf>

[7] ETSI TS 103 120: "Lawful Interception (LI); Interface for warrant information".

[8] ETSI TS 103 221-1: "Lawful Interception (LI); Internal Network Interfaces; Part 1: X1 ".

[9] 3GPP TS 33.501: "Security Architecture and Procedures for the 5G System".

[10] ETSI GR NFV-SEC 011: "Network Functions Virtualisation (NFV); Security; Report on NFV LI Architecture".

[11] 3GPP TS 33.107: "3G Security; Lawful interception architecture and functions".

[12] 3GPP TS 23.214: "Architecture enhancements for control and user plane separation of EPC nodes; Stage 2".

[13] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[14] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[15] 3GPP TS 33.128: "Protocol and Procedures for Lawful Interception; Stage 3".

[16] ETSI TS 103 221-2: " Lawful Interception (LI); Internal Network Interfaces; Part 2: X2/X3".

[17] MMS Architecture OMA-AD-MMS-V1\_3-20110913-A.

[18] Multimedia Messaging Service Encapsulation Protocol OMA-TS-MMS\_ENC-V1\_3-20110913-A.

[19] 3GPP TS 22.140: "Multimedia Messaging Service (MMS); Stage 1".

[20] ETSI GS NFV-IFA 026: "Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Architecture enhancement for Security Management Specification".

[21] 3GPP TS 33.108: "Handover Interface for Lawful Interception (LI)".

[22] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for
Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[23] 3GPP TS 23.402: "Architecture enhancements for non-3GPP accesses".

[24] 3GPP TS 23.280: "Common functional architecture to support mission critical services; Stage 2".

[25] OMA-AD-PoC-V2\_1-20110802-A: "Push to talk over Cellular (PoC) Architecture".

[26] GSMA IR.92: "IMS Profile for Voice and SMS".

[27] GSMA NG.114: "IMS Profile for Voice, Video and Messaging over 5GS".

[28] 3GPP TS 24.147: "Conferencing using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3".

[29] ETSI GS NFV-SEC 012: "Network Functions Virtualisation (NFV) Release 3; Security; System architecture specification for execution of sensitive NFV components".

[XX] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[XY] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[XZ] 3GPP IS 29.503: "5G System; Unified Data Management Services; Stage 3".

Second change

6.2.X. LI at NEF

The present document specifies NEF as POI for :

* NIDD
* Device triggering
* MSISDN-less MO SMS
* UE Parameter provisioning

6.2.X.1. LI for NIDD using NEF

6.2.X.2. LI for Device triggering

6.2.X.2.1. Architecture

Device triggering is the means by which an AF sends information to the UE via the NEF to trigger the UE to perform application specific actions that include initiating communication with the AF (see TS 23.502 [4] and TS 29.522 [XX]).

The device trigger request is authorized by NEF by submitting the GPSI of the UE to the UDM. After successful authorization, NEF forwards the Device trigger request with the SUPI of the UE to the corresponding SMSC to be delivered to that UE.

The device trigger may be recalled or replaced by the AF if the UE is not reachable at the time the AF has delivered the device trigger to the UE.

6.2.X.2.2. Target identities

The LIPF present in the ADMF provisions the intercept information associated with the following target identities to the IRI-POI present in the NEF:

- SUPI.

- GPSI.

The interception performed on the above two identities are mutually independent, even though, an xIRI may contain the information about the other identities when available.

6.2.X.2.3. IRI events

The IRI-POI present in the NEF shall generate xIRI, when it detects the following specific events or information related to the device triggering service:

- device trigger.

- device trigger replacement.

- device trigger cancellation.

- device trigger report notification.

The device trigger xIRI is generated when the IRI-POI present in the NEF detects that a device trigger has been received from an AF and is delivered to the SMSC for the target UE.

The device trigger replacement xIRI is generated when the IRI-POI present in the NEF detects that a device trigger replacement has been received from an AF and delivered to the SMSC to replace previously submitted device trigger message which is not yet delivered to the target UE.

The device trigger cancellation xIRI is generated when the IRI-POI in the NEF detects that a device trigger cancellation has been received from an AF and delivered to the SMSC to recall previously submitted device trigger which is not yet delivered to the target UE.

The device trigger report notification xIRI is generated when the IRI-POI present in the NEF detects that a device trigger report is returned to the AF with a cause value indicating the trigger delivery outcome (e.g. succeeded, unknown or failed and the reason for the failure).

6.2.X.3. LI for MSISDN-less MO SMS

6.2.X.3.1 Architecture

An MSISDN-less MO SMS is sent by a UE without MSISDN as originator and received by a third party application as destination (i.e., AF) via SMSC and NEF. MSISDN-less means that the GPSI of the UE is not an MSISDN but an External Identifier which form is username@realm. MSISDN-less MO-SMS service allows MSISDN-less UE to send small data to an AF using SMS-MO. The SMS-MO received by the SMS-SC through MO submission TS 23.040 [XY] procedures, is directly forwarded to the NEF for further transfer to the recipient AF (see TS 23.502 [4] and TS 29.522 [XX]).

The NEF queries the UDM with the SUPI of the UE, obtains the corresponding GPSI of the UE sending the SMS, and forwards it to the AF including the GPSI (i.e., external identifier) of the originating UE.

6.2.X.3.2. Target identities

The LIPF present in the ADMF provisions the intercept information associated with the following target identities to the IRI-POI present in the NEF:

- SUPI.

- GPSI.

The interception performed on the above two identities are mutually independent, even though, an xIRI may contain the information about the other identities when available.

6.2.X.3.1. IRI events

The IRI-POI present in the NEF shall generate xIRI, when it detects the following specific events or information related to the MSISDN-less MO SMS:

- MSISDN-less MO SMS.

The MSISDN-less MO SMS xIRI is generated when the IRI-POI present in the NEF detects that a MSISDN-less MO SMS has been received from a target UE by the NEF and is delivered to the recipient AF.

6.2.X.4. Parameter provisioning

6.2.X.4.1 Architecture

Parameter provisioning is a capability exposed by NEF to AF (see TS 23.502 [4] and TS 29.522 [XX]). The AF can use this capability to tell the network when a device is expected to communicate. The core network can then use this information to create assistance information for the RAN. The RAN may then use the assistance information to minimize UE state transitions. The AF provides the Expected UE behavior data specified in TS 29.503 [XZ] to NEF, and NEF updates the UE subscription data via UDM. Each parameter within the Expected UE Behaviour shall have an associating validity time. The validity time indicates when the Expected UE Behaviour parameter expires. The validity time may be set to indicate that the particular Expected UE Behaviour parameter has no expiration time.

6.2.X.4.2. Target identities

The LIPF present in the ADMF provisions the intercept information associated with the following target identities to the IRI-POI present in the NEF:

- GPSI.

6.2.X.4.3. IRI events

The IRI-POI present in the NEF shall generate xIRI, when it detects the following specific events or information related to Parameter provisioning:

- Expected UE behavior update

The Expected UE behavior update xIRI is generated when the IRI-POI present in the NEF detects that an AF sent a request to create, update, delete or get Expected UE behavior data related to the targe UE and the NEF updates or gets these data from the UE subscription profile via UDM.

End of changes