**3GPP TSG-SA3 Meeting #95-LI *s3i240732***

**Las Vegas, United States, 29th Oct 2024 - 1st Nov 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **33.127** | **CR** | **0266** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *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:*** | LI for IMS HSS Stage 2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | SA3-LI (OTD\_US) | | | | | | | | | |
| ***Source to TSG:*** | SA3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LI19 | | | | |  | ***Date:*** | | | 2024-10-30 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Currently there is no method for LI reporting from an HSS deployed to support IMS. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add one new IRI for subscriber record change at the EPC supporting HSS, add capability to report various IRI from IMS supporting HSS. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Solution will remain incomplete. CSPs may not be able to meet LI obligations. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3, 7.2.3.1, 7.2.3.3, 7.2.4 (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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i240695 | | | | | | | | |

\*\*START OF CHANGES\*\*

\*START OF FIRST CHANGE\*\*

## 3.3 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

5GMS 5G Media Streaming

5GS 5G System

AAnF AKMA Anchor Function

AC Application Client

ACR Application Context Relocation

ADMF LI Administration Function

AF Application Function

AF\_ID Application Function Identity

AKA Authentication and Key Agreement

A-KID AKMA Key IDentifier

AKMA Authentication and Key Management for Applications

AMF Access and Mobility Management Function

AS Application Server

AUSF Authentication Server Function

BBIFF Bearer Binding Intercept and Forward Function

BSS Business Support System

CAG Closed Access Group

CC Content of Communication

CP Control Plane

CPIM Common Presence and Instant Messaging

CPS Call Placement Service

CSI Cell Supplemental Information

CSP Communication Service Provider

CSR Cell Site Report

CUPS Control and User Plane Separation

DC-AS Data Channel Application Server

DCSF Data Channel Signalling Function

DN Data Network

DNAI Data Network Access Identifier

DoNAS Data over NAS

EAP Extensible Authentication Protocol

EAS Edge Application Server

ECGI E-UTRAN Cell Global Identifier

eCNAM Enhanced Calling Name

ECSP Edge Computing Service Provider

E-CSCF Emergency – Call Session Control Function

EDN Edge Data Network

EEC Edge Enabler Client

EECID Edge Enabler Client IDentifier

EES Edge Enabler Server

GPSI Generic Public Subscription Identifier

HMEE Hardware Mediated Execution Enclave

HR Home Routed

IBCF Interconnection Border Control Functions

ICF Identity Caching Function

IEF Identity Event Function

IMS-AGW IMS Access Gateway

IMS-HSS HSS supporting IMS services for 5GC

IM-MGW IM Media Gateway

IP Interception Product

IPPR Internet Protocol Packet Reporting

IQF Identity Query Function

IRI Intercept Related Information

KAF AKMA Application Key

KAKMA AKMA Anchor Key

KID Key IDentifier

KLI Decryption key(s) for services encrypted by CSP-provided keys

KSF Key Server Function

LAF Location Acquisition Function

LALS Lawful Access Location Services

LARF Location Acquisition Requesting Function

LBO Local Break Out

LEA Law Enforcement Agency

LEMF Law Enforcement Monitoring Facility

LI Lawful Interception

LI CA Lawful Interception Certificate Authority

LICF Lawful Interception Control Function

LI\_HI1 Lawful Interception Handover Interface 1

LI\_HI2 Lawful Interception Handover Interface 2

LI\_HI3 Lawful Interception Handover Interface 3

LI\_HI4 Lawful Interception Handover Interface 4

LI\_HILA Lawful Interception Handover Interface Location Acquisition

LI\_HIQR Lawful Interception Handover Interface Query Response

LIID Lawful Interception Identifier

LIPF Lawful Interception Provisioning Function

LIR Location Immediate Request

LI\_SI Lawful Interception System Information Interface

LISSF Lawful Interception State Storage Function

LI\_ST Lawful Interception State Transfer Interface

LI\_T1 Lawful Interception Internal Triggering Interface 1

LI\_T2 Lawful Interception Internal Triggering Interface 2

LI\_T3 Lawful Interception Internal Triggering Interface 3

LI\_X0 Lawful Interception Internal Interface 0

LI\_X1 Lawful Interception Internal Interface 1

LI\_X2 Lawful Interception Internal Interface 2

LI\_X2\_LA Lawful Interception Internal Interface 2 Location Acquisition

LI\_X3 Lawful Interception Internal Interface 3

LI\_X3A Lawful Interception Internal Interface 3 Aggregator

LI\_XEM1 Lawful Interception Internal Interface Event Management Interface 1

LI\_XER Lawful Interception Internal Interface Event Record

LI\_XLA Lawful Interception Internal Interface Location Acquisition

LI\_XQR Lawful Interception Internal Interface Query Response

LMF Location Management Function

LMISF LI Mirror IMS State Function

LMISF-CC LMISF for the handling of CC

LMISF-IRI LMISF for the handling of IRI

LTF Location Triggering Function

MA Multi-Access

MANO Management and Orchestration

MDF Mediation and Delivery Function

MDF2 Mediation and Delivery Function 2

MDF3 Mediation and Delivery Function 3

MF Media Function

MRFP Multimedia Resource Function Processor

MSRP Message Session Relay Protocol

N3A Non-3GPP Access

N3IWF Non 3GPP Inter Working Function

N9HR N9 Home Routed

NAS Non-Access Stratum

NCGI NR Cell Global Identity

NEF Network Exposure Function

NFV Network Function Virtualisation

NFVI Network Function Virtualisation Infrastructure

NFVO Network Function Virtualisation Orchestrator

NIDD Non-IP Data Delivery

NNI Network to Network Interfaces

NPLI Network Provided Location Information

NR New Radio

NRF Network Repository Function

NSSF Network Slice Selection Function

NWDAF Network Data Analytics Function

OSS Operations Support System

PAG POI Aggregator

PCF Policy Control Function

P-CSCF Proxy - Call Session Control Function

PEI Permanent Equipment Identifier

PGW PDN Gateway

PGW-C PDN Gateway Control Plane

PGW-U PDN Gateway User Plane

POI Point Of Interception

PLMN Public Land Mobile Network

PTC Push to Talk over Cellular

RCD Rich Call Data

RCS Rich Communication Suite

S8HR S8 Home Routed

SCEF Service Capability Exposure Function

SCS Service Capability Server

SGW Serving Gateway

SGW-C Serving Gateway Control Plane

SGW-U Serving Gateway User Plane

SHAKEN Signature-based Handling of Asserted information using toKENs

SIRF System Information Retrieval Function

S-CSCF Serving - Call Session Control Function

SIP Session Initiation Protocol

SMF Session Management Function

SMSF SMS-Function

STF Security Terminating Function

STIR Secure Telephony Identity Revisited

SUCI Subscriber Concealed Identifier

SUPI Subscriber Permanent Identifier

TAI Tracking Area Identity

TF Triggering Function

TLS Transport Layer Security

TNGF Trusted Non-3GPP Gateway Function

TrGW Transit Gateway

TWIF Trusted WLAN Interworking Function

UDM Unified Data Management

UDR Unified Data Repository

UDSF Unstructured Data Storage Function

UPF User Plane Function

VNF Virtual Network Function

VNFC Virtual Network Function Component

W-AFG Wireline Access Gateway Function

xCC LI\_X3 Content of Communication

xIRI LI\_X2 Intercept Related Information

\*\*END OF FIRST CHANGE\*\*

\*START OF SECOND CHANGE\*\*

#### 7.2.3.1 Architecture

The [HSS](https://en.wikipedia.org/wiki/Home_Subscriber_Server) contains subscription-related information for users served by the CSP. The HSS provides the support functions for mobility management, session setup, user authentication and access authorization.

The HSS shall have LI capabilities to generate the xIRIs as described in clause 7.2.3.3. The present document specifies two options for HSS LI capabilities:

1. Use TS 33.107 [11] and TS 33.108 [21] natively as defined in those documents.

2. Use the capabilities specified below in the present document for stage 2 and in TS 33.128 [15] for stage 3.

When the deployed architecture supports service based interfaces between the HSS and IMS (e.g. Nhss\_IMS), TS 33.128 [15] shall be used for stage 3 LI reporting. For details of stage 2 requirements, see clause 7.2.4 of the present document.

Extending the generic LI architecture presented in clause 5, figure 7.2-2 below gives a reference point representation the LI architecture with HSS as a CP NF providing the IRI-POI functions.



Figure 7.2-2: LI architecture for LI at HSS

The LICF present in the ADMF receives the warrant from an LEA, derives the intercept information from the warrant and provides it to the LIPF.

The LIPF present in the ADMF provisions IRI-POI (over LI\_X1) present in the HSS and MDF2.

The IRI-POI present in the HSS detects the target UE's service area registration and subscription related functions, generates and delivers the xIRI to the MDF2 over LI\_X2. The MDF2 generates and delivers the IRI messages based on received xIRI to the LEMF over LI\_HI2.

The HSS shall provide the IRI-POI functions independent of the services on which the interception is active.

When multiple intercepts are active, IRI-POI functions in the HSS may send one xIRI which can then be distributed to the LEMFs associated with those multiple intercepts from the MDF2.

\*\*END OF SECOND CHANGE\*\*

\*\*START OF THIRD CHANGE\*\*

#### 7.2.3.3 IRI events

The IRI-POI present in the HSS shall generate xIRI, when it detects the applicable events specified in TS 33.107 [11].

The IRI-POI present in the HSS shall also generate a start of intercept with already registered target xIRI when the IRI-POI present in the HSS detects that intercept has been activated for a UE that has existing context in the HSS. Format of this xIRI is described in TS 33.128 [5] clause 7.2.3.3.3.

The IRI-POI present in the EPC supporting HSS shall generate a subscriber record change record when the IRI-POI in the EPC-HSS observes an update to the IMEI context for the target at the HSS.

If HSS-UDM interworking is supported, the IRI-POI present in the HSS shall generate a serving system xIRI as defined in TS 33.128 [5] clause 7.2.3.3.2.

A serving system xIRI is generated when the IRI-POI present in the HSS detects that the HSS has received a roaming status update from the UDM as part of a UE context update.

NOTE: The serving system xIRI may carry the information of one or more serving systems based on the target UE's network connectivity.

\*\*END OF THIRD CHANGE\*\*

\*\*START OF FOURTH CHANGE\*\*

### 7.2.4 LI at the IMS supporting HSS

#### 7.2.4.1 Architecture

The present document defines an IMS-HSS as an HSS that supports service based interfaces for connection to the 5GC. The IMS-[HSS](https://en.wikipedia.org/wiki/Home_Subscriber_Server" \o "Home Subscriber Server) contains subscription-related information IMS users served by the CSP. The IMS-HSS provides the support functions for mobility management, session setup, user authentication and access authorization to a 5G network in support of enhanced IMS services (e.g. VoNR).

The IMS-HSS shall have LI capabilities to generate the xIRIs as described in clause 7.2.4.3.

When the deployed architecture supports service based interfaces between the HSS and IMS (e.g. Nhss\_IMS), TS 33.128 [15] shall be used for stage 3 LI reporting.

The presented in figure 7.2-2 in clause 7.2.3.1 gives a reference point representation the LI architecture with HSS (or IMS-HSS) presented as an NF providing the IRI-POI functions.

#### 7.2.4.2 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 IMS-HSS:

- IMSI.

- IMEI.

- MSISDN.

- IMPU/IMPI.

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

#### 7.2.4.3 IRI events

The IRI-POI present in the IMS-HSS shall generate xIRI, when it detects the following specific events or information:

- Start of interception with registered target.

- Serving system.

- Subscriber record change.

A start of intercept with registered target xIRI when the IRI-POI present in the IMS-HSS detects that intercept has been activated for a UE that has existing registration context in the IMS-HSS. Format of this xIRI is described in TS 33.128 [5] clause 7.2.4.3.2.

A serving system xIRI is generated when the IRI-POI present in the IMS-HSS detects that the IMS-HSS has received a roaming status update from the UDM as part of a UE context update or has received an authorization request including a visited network identifier.

NOTE: The serving system xIRI may carry the information of one or more serving systems based on the target UE's network connectivity.

A subscriber record change xIRI is generated when the IRI-POI in the IMS-HSS observes an update to the subscriber information for the target at the IMS-HSS.

#### 7.2.4.4 Common IRI parameters

The list of xIRI parameters is specified in TS 33.128 [15]. All xIRIs shall include the following information:

- Target identity.

- Time stamp.

#### 7.2.4.5 Specific IRI parameters

The parameters in each xIRI are defined in TS 33.128 [15].

#### 7.2.4.6 Network topologies

The IMS-HSS shall provide the IRI-POI functions in the following network topology cases:

- Non-roaming case.

- Roaming case, in HPLMN.

\*\*END OF FOURTH CHANGE\*\*

\*\*END OF ALL CHANGES\*\*