ETSI TS 102 657 V1.27.1 (2021-04)

Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data

Reference
RTS/LI-00199

Keywords
handover, retention

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:
http://www.etsi.org/standards-search

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx

If you find errors in the present document, please send your comment to one of the following services:
https://portal.etsi.org/People/CommiteeSupportStaff.aspx

Contents

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Lawful Interception (LI).

The ASN.1 module and XML schema are also available as an electronic attachment to the original document from the ETSI site (see details in clause A.3.1.2).

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document is based on requirements from ETSI TS 102 656 [2].

The present document contains handover requirements and a handover specification for the data that is identified in national legislations on Retained Data.

The present document considers both the requesting of retained data and the delivery of the results.

The present document defines an electronic interface. An informative annex describes how this interface may be adapted for manual techniques. Apart from in annex I, the present document does not consider manual techniques.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] Void.

[2] ETSI TS 102 656: "Lawful Interception (LI); Retained Data; Requirements of Law Enforcement Agencies for handling Retained Data".

[3] ETSI TS 102 232-1: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery".

[4] ISO 3166-1: "Codes for the representation of names of countries and their subdivisions -- Part 1: Country codes".

[5] ISO 4217: "Codes for the representation of currencies".

[6] ETSI TS 101 671: "Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic".

NOTE: ETSI TS 101 671 is in status "historical" and is not maintained.

[7] ETSI EN 300 356 (all parts): "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface".

[8] ETSI TS 100 974: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification (3GPP TS 09.02)".

[9] ETSI TS 124 008: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 (3GPP TS 24.008)".

[10] Void.

[11] ETSI TS 133 108: "Universal Mobile Telecommunications System (UMTS); LTE; Digital cellular telecommunications system (Phase 2+) (GSM); 3G security; Handover interface for Lawful Interception (LI) (3GPP TS 33.108)".

[12] ETSI TS 101 109 (V7.2.0): "Digital cellular telecommunications system (Phase 2+); Universal Geographical Area Description (GAD) (3GPP TS 03.32 version 7.2.0 Release 1998)".

[13] FIPS PUB 186-4: "Digital Signature Standard (DSS)".

[14] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[15] IETF RFC 2818: "HTTP Over TLS".

[16] ETSI TS 123 040: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Technical realization of the Short Message Service (SMS) (3GPP TS 23.040)".

[17] IETF RFC 793: "Transmission Control Protocol".

[18] IETF RFC 5681: "TCP Congestion Control".

NOTE: IETF RFC 5681 obsoletes IETF RFC 2581: "TCP Congestion Control".

[19] IETF RFC 6298: "Computing TCP's Retransmission Timer".

NOTE: IETF RFC 6298 obsoletes IETF RFC 2988: "Computing TCP's Retransmission Timer".

[20] IETF RFC 1122: "Requirements for Internet Hosts - Communication Layers".

[21] IETF RFC 791: "Internet Protocol".

[22] ETSI ES 282 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN Emulation Sub-system (PES); Functional architecture".

[23] Void.

[24] IETF RFC 5322: "Internet Message Format".

NOTE: IETF RFC 5322 obsoletes IETF RFC 2822: "Internet Message Format".

[25] ETSI TS 123 228: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228)".

[26] IETF RFC 3261: "SIP: Session Initiation Protocol".

[27] IETF RFC 4506: "XDR: External Data Representation Standard".

[28] ISO 13616-1:2020: "Financial services -- International Bank Account Number (IBAN) -- Part 1: Structure of the IBAN".

[29] ISO 9362:2014: "Banking -- Banking Telecommunication Messages -- Business Identifier Code (BIC)".

[30] Void.

[31] ETSI TS 125 413: "Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling (3GPP TS 25.413)".

[32] ETSI TS 129 274: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; 3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3 (3GPP TS 29.274)".

[33] ETSI TS 129 061: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN) (3GPP TS 29.061)".

[34] ETSI TS 129 118: "Universal Mobile Telecommunications System (UMTS); LTE; Mobility Management Entity (MME) - Visitor Location Register (VLR) SGs interface specification (3GPP TS 29.118)".

[35] ETSI TS 123 272: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Circuit Switched (CS) fallback in Evolved Packet System (EPS); Stage 2 (3GPP TS 23.272)".

[36] ETSI TS 133 234: "Universal Mobile Telecommunications System (UMTS); LTE; 3G security; Wireless Local Area Network (WLAN) interworking security (3GPP TS 33.234)".

[37] W3C® Recommendation 21 March 2017: "XML Path Language (XPath) 3.1".

[38] ETSI TS 123 008: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Organization of subscriber data (3GPP TS 23.008)".

[39] ETSI TS 124 229: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229)".

[40] ISO 639-1:2002: "Codes for the representation of names of languages -- Part 1: Alpha-2 code".

[41] ETSI TS 123 003: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Numbering, addressing and identification (3GPP TS 23.003)".

[42] ETSI TS 138 413: "5G; NG-RAN; NG Application Protocol (NGAP) (3GPP TS 38.413)".

[43] ETSI TS 129 571: "5G; 5G system; Common Data Types for Service Based Interfaces; Stage 3 (3GPP TS 29.571)".

[44] ETSI TS 136 413: "LTE; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP) (3GPP TS 36.413)".

[45] ETSI TS 123 501: "5G; System architecture for the 5G System (5GS) (3GPP TS 23.501)".

[46] ETSI TS 132 291:"5G; Telecommunication management; Charging management; 5G system, Charging service; Stage 3 (3GPP TS 32.291)".

[47] ETSI TS 132 255: "5G; Telecommunication management; Charging management; 5G Data connectivity domain charging; Stage 2 (3GPP TS 32.255)".

[48] ETSI TS 129 520: "5G; 5G System; Network Data Analytics Services; Stage 3 (3GPP TS 29.520)".

[49] ETSI TS 132 251: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Packet Switched (PS) domain charging (3GPP TS 32.251)".

[50] ETSI TS 137 340: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; NR; Multi-connectivity; Overall description; Stage-2 (3GPP TS 37.340)".

[51] Recommendation ITU-T Q.850: "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN user part".

[52] Recommendation ITU-T E.164: " The international public telecommunication numbering plan".

[53] GSMA SGP.02: "Remote Provisioning Architecture for Embedded UICC Technical Specification".

[54] Recommendation ITU-T G.984.1: "Gigabit-capable passive optical networks (GPON): General characteristics".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the following terms apply:

Authorized Organization (AO): any authority legally authorized to request or receive retained data e.g. a Law Enforcement Agency

Handover Interface A (HI-A): administrative handover interface comprising requests for information and their responses

Handover Interface B (HI-B): data handover interface comprising the retained data transmission of information

issuing authority: any entity possessing the necessary jurisdiction and authority pursuant to law to compel a service provider to deliver retained subscriber information or traffic data specified in a query

lawful authorization: permission granted to an Authorized Organization under certain conditions to request specified telecommunications retained data and requiring co-operation from a network operator/service provider/access provider

NOTE: Typically, this refers to a warrant or order issued by a lawfully authorized body.

location information: information relating to the geographic, physical or logical location of an identity relating to an interception subject

number: any address (E.164, IP, email, URI) used for routing in a network or in a service on a user level or network/service level

receiving authority: any entity possessing the necessary authority pursuant to law and the technical means to receive retained subscriber information or traffic data delivered by a service provider

request: legal requirement for a Communications Service Provider (CSP) to disclose retained data in accordance with relevant national law

response to request of information: response from the CSP to the authorized organization acknowledging or rejecting a request for information

retained data record: set of data elements for a specific subscriber/user related to a specific service transaction

service transaction: instance of a service given by a CSP to a subscriber/user

service transaction record: set of data elements describing a service transaction (details to be determined)

transmission of information: transmission of retained data from the CSP to the receiving authority

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACK	ACKnowledge
ADSL	Asymmetric Digital Subscriber Line
AMF	Access and Mobility management Function
AMFID	AMF IDentifier
AO	Authorized Organization
APN	Access Point Name
ASCII	American Standard Code for Information Interchange
ASN	Abstract Syntax Notation
BER	Basic Encoding Rules
BIC	Business Identifier Code
CAN	Connectivity Access Network
CGI	Cell Global Identity
CHF	CHarging Function
CPE	Customer Premises Equipment
CS	Circuit Switched
CSP	Communications Service Provider
CSPID	CSP IDentifier
DR	Data Retention
DSA	Digital Signature Algorithm
DSL	Digital Subscriber Line
DSS	Digital Signature Standard
DVD	Digital Versatile Disc or Digital Video Disc
eCGI	e-UTRAN Cell Global ID
EID	Embedded (UICC) IDentifier
EMS	Enhanced Messaging Service
EN-DC	E-UTRA-NR Dual Connectivity
EPC	Enhanced Packet Core
EPS	Evolved Packet System
eUICC	embedded UICC
FFS	For Further Study
FIPS	Federal Information Processing Standard
GCI	Global Cable Identifier
GGSN	Gateway GPRS Support Node
GLI	Global Line Identifier
GPRS	General Packet Radio Service
GPSI	Generic Public Subscription Identifier
GSM	Global System for Mobile communications
GW	GateWay
HI	Handover Interface
HI-A	Handover Interface A
HI-B	Handover Interface B
HTTP	HyperText Transfer Protocol
HTTPS	HyperText Transfer Protocol over Secure Socket Layer
IANA	Internet Assigned Numbers Authority
IBAN	International Banking Account Number
ICCID	Integrated Circuit Card ID
ID	IDentifier
IE	Information Element
IEI	Information Element Identifier
IMAP	Internet Message Access Protocol
IMEI	International Mobile Equipment Identity
IMEISV	IMEI Software Version
IMPI	IP Multimedia Private Identity

IMS	IP Multimedia Subsystem
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IPSec	Internet Protocol Security
IRI	Intercept Related Information
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
LAN	Local Area Network
LEA	Law Enforcement Agency
MAC	Media Access Control
MCC	Mobile Country Code
ME	Mobile Equipment
MF-B	Mediation Function B
MME	Mobility Management Entity
MMS	Multimedia Messaging Service
MNC	Mobile Network Code
MS	Mobile Station
MSC	Mobile Switching Centre
MSISDN	Mobile Subscriber ISDN number
MSN	Multiple Subscriber Number
NA	Network Access
NAI	Netework Access Identifier
NAS	Network Access Server
NAT	Network Address Translation
NCGI	NR Cell Global Identity
NCI	NR Cell Identity
NF	Network Function
NGAP	Next Generation Application Protocol
NR	New Radio
PAT	Port Address Translation
PDN	Public Data Network
PDP	Packet Data Protocol
PDU	Protocol Data Unit
PEI	Permanent Equipment Identifier
PLMN	Public Land Mobile Network
PPP	Point-to-Point Protocol
PS	Packet Switched
PSTN	Public Switched Telephone Network
PUK	Personal Unblocking Key
RAI	Routing Area Identifier
RAN	Radio Access Network
RAT	Radio Access Technology
RCI	Radio Configuration Identifier
RD	Retained Data
RDHI	Retained Data Handover Interface
SAI	Service Area Identifier
SC	SMS Centre
SD	Slice Differentiator
SDP	Session Description Protocol
SGSN	Serving GPRS Support Node
SHA	Secure Hash Algorithm
SIM	Subscriber Identity Module
SIP	Session Initiation Protocol
SMF	Session Management Function
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SUPI	Subscriber Permanent Identifier
TAI	Tracking Area Identity
TCP	Transmission Control Protocol
TL	Latency Time
TLS	Transport Layer Security
TR	Time of the Request

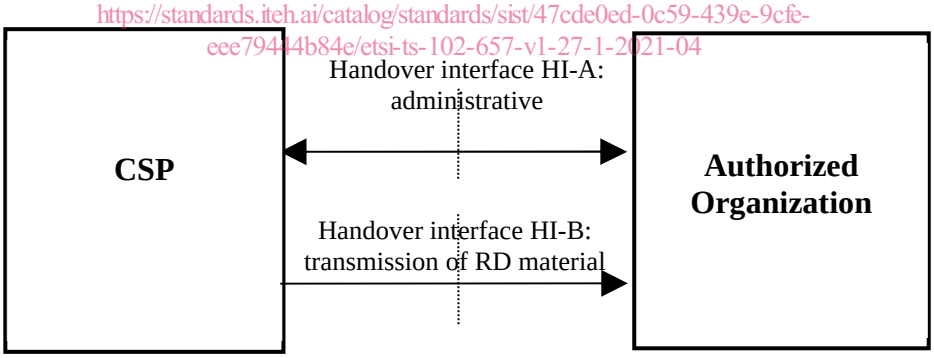
TV	TeleVision
UDM	Unified Data Management
UDP	User Datagram Protocol
UE	User Equipment
UICC	Universal Integrated Circuit Card
UMTS	Universal Mobile Telecommunication System
UPF	User Plane Function
URI	Uniform Resource Identifier
UTC	Universal Time Coordinated
UTF	Unicode Transformation Format
UTM	Universal Transverse Mercator
UTRAN	UMTS Terrestrial Radio Access Network
UUID	Universally Unique IDentifier
VAT	Value Added Tax
WGS	World Geodetic System
WLAN	Wireless Local Access Network
XML	eXtensible Markup Language
XPATH	XML Path Language
XSD	eXtensible markup language Schema Definition language

4 Overview of handover interface

4.1 Reference model

The generic Handover Interface adopts a two-port structure such that administrative request/response information (HI-A) and Retained Data Information (HI-B) are logically separated.

Figure 1 is the reference model for the request and transmission of retained telecommunications data.



NOTE 1: The term Authorized Organization covers any agency legally authorized to make RDHI requests (see clause 3.1).
NOTE 2: HI-B delivers data from CSP to the Authorized Organization. There may be related supporting lower level messages from the Authorized Organization to CSP on HI-B.

Figure 1: Functional diagram showing handover interface HI

Each of these two parties can be expanded to show some of their internal functions. This is not to proscribe how implementations of the present document should be organized and is purely informational.

Within the CSP block, three internal CSP functions can be identified: an administrative function to manage the RD requests and responses; a data collection function to collect data from the various internal network elements and prepare the data for retention; a data store management function to index and store the data, execute queries and manage the maximum retention period for RD.