



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

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Contents

Intellectual Property Rights	8
Foreword.....	8
Modal verbs terminology.....	8
1 Scope	9
2 References	9
2.1 Normative references	9
2.2 Informative references.....	12
3 Definition of terms, symbols and abbreviations.....	12
3.1 Terms.....	12
3.2 Symbols.....	13
3.3 Abbreviations	13
4 Overview of handover interface.....	15
4.1 Reference model.....	15
4.2 Structure of document and applicable communication domains	16
4.3 Categories of retained data	17
4.4 Handover Interface port 1 (HI-A) and Handover Interface port 2 (HI-B).....	17
4.5 Model used for the RDHI.....	18
5 Handover interface message flows.....	18
5.1 Overview	18
5.1.1 Summary of this clause.....	18
5.1.2 Message flow modes.....	18
5.1.3 Delivery cases.....	19
5.1.4 "Active" requests and "closed" requests	19
5.1.5 Errors and failure situations	19
5.1.5.1 Error and failure types.....	19
5.1.5.2 Request process failure feedback.....	20
5.1.5.3 Other errors	20
5.1.5.4 Missing messages.....	20
5.1.6 Cancelling a request.....	21
5.1.7 Delivery of results.....	21
5.1.8 State diagram	22
5.1.9 Supplementary Messages.....	23
5.2 Message flows for general situation	23
5.2.1 Delivery of a response	23
5.2.2 Cancellation of request	24
5.2.3 Multi-part delivery	25
5.3 Message flows for Authorized-Organization-initiated scenario	26
5.3.1 Delivery of results or a failure response	26
5.3.2 Cancellation of request	27
5.3.3 Multi-part delivery	28
5.4 Message types for HI-A and HI-B.....	29
5.5 HI-A and HI-B addressing.....	30
6 Definition of the elements for retained data messages.....	30
6.1 Header information.....	30
6.1.1 Use of header information	30
6.1.2 RequestID field specification.....	30
6.1.3 CSP Identifiers.....	31
6.1.3.1 Use of CSP identifiers (CSPID).....	31
6.1.3.2 Third Party CSP Identifier (thirdPartyCSPID).....	31
6.1.4 Timestamp (timeStamp)	31
6.1.5 RequestType (requestType).....	31
6.1.6 RequestFlag (requestFlag).....	31
6.2 Retained Data response	31

6.2.1	General.....	31
6.2.2	Additional information in response messages.....	32
6.2.2.1	Record number (recordNumber)	32
6.2.2.2	Response status (ResponseStatus).....	32
6.2.3	Volatile information.....	32
6.2.4	Unavailable parameters.....	32
6.3	Retained Data requests	33
6.3.1	Information contained within a request	33
6.3.2	Format of a request	33
6.3.3	Additional information in requests	34
6.3.3.1	Priority of a request.....	34
6.3.3.2	Maximum hits	34
6.3.3.3	Maximum records per batch.....	34
6.3.3.4	Number of records limit.....	35
6.4	Error messages	35
7	Data exchange techniques	35
7.1	General	35
7.2	HTTP data exchange	35
7.2.1	Basic configuration.....	35
7.2.2	Single client/server	36
7.2.3	Mutual client/server	36
7.2.4	Details common to both single and mutual cases	36
7.3	Direct TCP data exchange.....	36
7.3.0	General.....	36
7.3.1	Application layer	37
7.3.2	Transport layer.....	37
7.3.2.1	Introduction.....	37
7.3.2.2	TCP settings	37
7.3.3	Network layer	37
7.3.4	Delivery networks.....	37
8	Security Measures	38
8.1	General	38
8.2	Connection Level Security.....	38
8.3	Application Level Security.....	38
8.4	Technical Security Measures.....	39
8.4.1	General.....	39
8.4.2	Connection Level.....	39
8.4.3	Application Level	39
8.4.3.1	Hashes	39
8.4.3.2	Digital Signatures.....	39
8.4.3.3	HI-B Non-Repudiation.....	39
8.4.3.4	Digital Signatures and Message Structure.....	40
Annex A (normative):	Data fields	41
A.1	Summary	41
A.1.1	Introduction to data fields.....	41
A.1.2	Choice of data modelling language	41
A.1.3	Overview	41
A.2	Parameter definition for common fields.....	42
A.2.1	RetainedDataHeader.....	42
A.2.1.1	Parameters.....	42
A.2.1.2	RequestID parameters.....	42
A.2.2	RetainedDataPayload	42
A.2.2.1	RequestMessage parameters	42
A.2.2.2	RequestAcknowledgement parameters	43
A.2.2.3	ResponseMessage parameters.....	43
A.2.2.4	GetStatusMessage parameters	43
A.2.2.5	StatusMessage parameters	43
A.2.2.6	ErrorMessage parameters	44

A.2.3	GenericSubscriberInfo.....	44
A.2.3.1	Parameters.....	44
A.2.3.2	OrganizationInfo parameters	44
A.2.3.3	IndividualInfo parameters.....	45
A.2.3.4	ContractInformation parameters	45
A.2.4	PaymentDetails.....	46
A.3	ASN.1 definitions.....	46
A.3.1	General	46
A.3.1.1	ASN.1 syntax tree.....	46
A.3.1.2	General remarks on ASN.1	46
A.3.2	ASN.1 Definitions for message headers.....	47
A.3.2.1	Message wrappers.....	47
A.3.2.2	Message headers	47
A.3.3	ASN.1 definitions for common fields.....	52
A.3.4	Schematic representation of top level ASN.1.....	56
Annex B (normative): Service-specific details for telephony services.....		58
B.1	Scope.....	58
B.2	Telephony fields.....	58
B.2.1	General	58
B.2.2	Telephony Subscriber.....	58
B.2.2.0	General.....	58
B.2.2.1	subscriber ID.....	58
B.2.2.2	genericSubscriberInfo.....	59
B.2.2.3	telephonySubscriberInfo.....	59
B.2.2.4	subscribedTelephonyServices.....	59
B.2.2.4.1	Description	59
B.2.3	Telephony Billing Details	60
B.2.3.0	General	60
B.2.3.1	BillingRecords	60
B.2.4	TelephonyServiceUsage.....	61
B.2.4.1	Parameters.....	61
B.2.4.2	PartyInformation.....	61
B.2.4.3	SMSInformation	62
B.2.4.4	MmsInformation	62
B.2.5	TelephonyDevice.....	62
B.2.5.1	General.....	62
B.2.6	TelephonyNetworkElement.....	63
B.2.6.1	General.....	63
B.2.6.2	Location parameters.....	63
B.2.6.2.1	General	63
B.2.6.2.2	GSM Location Information.....	64
B.2.6.2.3	UMTS Location Information	65
B.2.6.2.4	Extended Location	65
B.2.6.3	TransmitterDetails parameters	65
B.2.6.3.1	General	65
B.3	ASN.1 definitions for telephony	65
B.4	Schematic view of ASN.1 definitions	80
Annex C (normative): Service-specific details for asynchronous message services.....		82
C.1	Scope.....	82
C.2	Descriptions.....	82
C.2.1	General	82
C.2.2	MsgSubscriber.....	83
C.2.2.0	General.....	83
C.2.2.1	MsgSubscriberID.....	83
C.2.2.2	MsgStore.....	83
C.2.2.3	MsgStoreID.....	83

C.2.2.4	MsgAddress	84
C.2.2.5	MsgProviderID	84
C.2.2.6	MsgForwardingAddresses	84
C.2.2.7	MsgStoreSubscriberRelatedIDs	84
C.2.3	MsgServiceUsage	84
C.2.3.0	General	84
C.2.3.1	MsgTransmission	84
C.2.3.2	MsgStoreOperation	85
C.2.4	MsgBillingDetails parameters	85
C.2.4.0	General	85
C.2.4.1	MsgBillingRecords	86
C.3	ASN.1 definitions for asynchronous message services	86
C.4	Schematic view of ASN.1 definitions	89
Annex D (normative): Service-specific details for synchronous multi-media services		90
D.1	Scope	90
D.2	Multimedia fields	90
D.2.1	General	90
D.2.2	Multimedia Subscriber	90
D.2.2.0	General	90
D.2.2.1	subscriberID	91
D.2.2.2	genericSubscriberInfo	91
D.2.2.3	multimediaSubscriberInfo	91
D.2.2.4	subscribedMultimediaServices	91
D.2.2.4.1	Description	91
D.2.3	MultimediaBillingDetails	92
D.2.3.1	MultimediaBillingDetails	92
D.2.3.2	MultimediaBillingAddress	93
D.2.3.3	MultimediaBillingRecords	93
D.2.4	Multimedia ServiceUsage	93
D.2.4.1	Parameters	93
D.2.4.2	PartyInformation	94
D.2.4.3	IMSInformation	95
D.2.4.4	MediaComponents	95
D.2.5	MultimediaDevice	96
D.2.5.1	General	96
D.3	ASN.1 definitions for Multimedia	96
D.4	Schematic view of ASN.1 definitions	103
Annex E (normative): Service-specific details for network access services		105
E.1	Scope	105
E.2	Descriptions	105
E.2.1	General	105
E.2.2	NASubscriber	105
E.2.3	NAServiceSubscription	106
E.2.4	NAServiceUsage	106
E.2.5	NADevice	112
E.2.6	NANwElement	112
E.2.7	NABillingDetails	112
E.3	ASN.1 definitions for network access services	113
E.4	Schematic view of ASN.1 definitions	123
Annex F (informative): Basic set of search routines for Retained Data		124
F.1	Example set of search routines	124
F.1.1	Overview	124

F.1.2	Summary of search case	124
F.1.3	Subscriber records	124
F.2	Telephony data	125
F.2.1	Telephony subscriber	125
F.2.2	Telephony billing details	125
F.2.3	Telephony service usage	125
F.2.4	Telephony network element	126
F.3	Messaging data	126
F.3.1	Message subscriber	126
F.3.2	Message service usage	126
F.4	Network Access data	127
F.4.1	NA subscriber	127
F.4.2	NA service usage	127
Annex G (informative): Examples of search routines		128
G.1	Introduction	128
G.2	Example for telephony subscriber query in clause F.2.1	128
G.3	Example for telephony service usage query in clause F.2.3	129
Annex H (informative): Further information on data categories		130
H.1	General	130
H.2	Further information on subscriber data	130
H.2.1	Subscriber data requests	130
H.2.2	Generic subscriber data records	130
H.2.3	Service Specific Subscriber Reply Data	131
H.3	Further information on usage data	131
H.3.1	Usage requests	131
H.3.2	Usage data categories	132
H.3.3	Usage: Traffic Data (Reply)	132
H.3.4	Usage: Traffic Data related information (Reply)	132
H.3.5	Usage: communication independent user activities (Reply)	132
H.3.6	Usage: network Activity Data (Reply)	132
H.4	Further information on network element data	133
H.4.1	Network element requests	133
H.4.2	Network Configuration Data Reply Data	133
Annex I (informative): Manual techniques		134
Annex J (informative): Single versus multi-part deliveries		135
J.1	General	135
J.2	Criteria for multi-part delivery	135
J.3	Subscriptions into the future	136
Annex K (informative): Change Request History		137
History		141

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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

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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.

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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.

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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	Network 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

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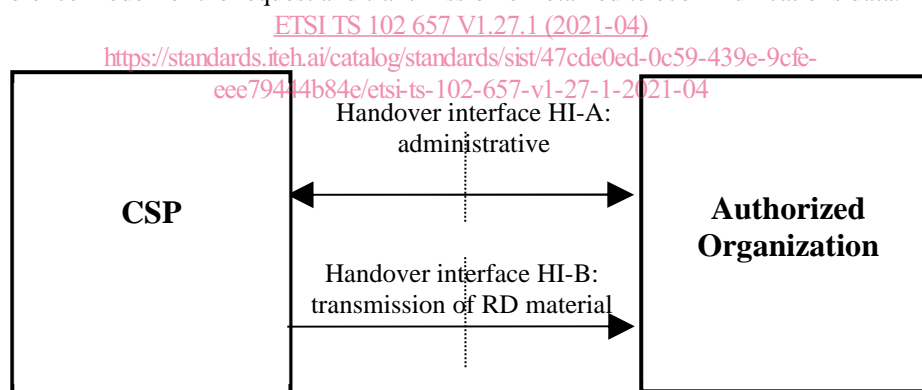
TV	TeleVision
UDM	Unified Data Management
UDP	User Datagram Protocol
UE	User Equipment
UICC	Universal Integrated Circuit Card
UMTS	Universal Mobile Telecommunication System
UPF	User Plane Function
URI	Uniform Resource Identifier
UTC	Universal Time Coordinated
UTF	Unicode Transformation Format
UTM	Universal 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.