ETSI TS 103 221-2 V1.10.1 (2026-03)

TECHNICAL SPECIFICATION

Lawful Interception (LI); Internal Network Interfaces; Part 2: X2/X3

Reference
RTS/LI-00310-2

Keywords
interface, lawful interception

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 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Contents

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 IPR online database.

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™**, **LTE™** and **5G™** logo are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

Foreword

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

The present document is part 2 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

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 defines an electronic interface for the transmission of intercepted information as part of Lawful Interception. This interface is used from points of interception to LI mediation functions.

Typical reference models for LI define an interface between Law Enforcement Agencies (LEAs) and Communication Service Providers (CSPs), called the handover interface. They also define an internal network interface within the CSP domain between administration/mediation functions for lawful interception and network internal functions, which facilitates the interception of communication. This internal network interface typically consists of several sub-interfaces; initial configuration of the network internal elements of lawful interception (X0), administration (X1), transmission of intercept related information (X2) and transmission of content of communication (X3). The present document specifies a protocol for delivering X2 and X3.

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 in the ETSI docbox.

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

[2] 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".

[3] IEEE Std 1003.1™-2017: "IEEE Approved Draft Standard for Information Technology -- Portable Operating System Interface (POSIX™)".

[4] IETF RFC 791: "Internet Protocol", (September 1981).

[5] IETF RFC 8200: "Internet Protocol, Version 6 (IPv6) Specification", (July 2017).

[6] IEEE 802.3™: "IEEE Standard for Ethernet".

[7] IETF RFC 3550: "RTP: A Transport Protocol for Real-Time Applications", (July 2003).

[8] IETF RFC 3261: "SIP: Session Initiation Protocol", (June 2002).

[9] IETF RFC 2131: "Dynamic Host Configuration Protocol", (March 1997).

[10] IETF RFC 2865: "Remote Authentication Dial In User Service (RADIUS)", (June 2000).

[11] ETSI TS 129 281: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; General Packet Radio System (GPRS) Tunnelling Protocol User Plane (GTPv1-U) (3GPP TS 29.281)".

[12] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2", (August 2208).

NOTE: Obsoleted by IETF RFC 8446.

[13] IETF RFC 7525: "Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)", (May 2015).

[14] IETF RFC 6125: "Representation and Verification of Domain-Based Application Service Identity within Internet Public Key Infrastructure Using X.509 (PKIX) Certificates in the Context of Transport Layer Security (TLS)", (March 2011).

[15] 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)".

[16] IETF RFC 1123: "Requirements for Internet Hosts - Application and Support", (October 1989).

[17] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)", (September 2007).

[18] Void.

[19] IETF RFC 8446: "The Transport Layer Security (TLS) Protocol Version 1.3", (August 2018).

[20] ETSI TS 133 128: "LTE; 5G; Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Security; Protocol and procedures for Lawful Interception (LI); Stage 3 (3GPP TS 33.128)".

[21] IETF RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", (November 1996).

[22] IANA: "Assigned Internet Protocol Numbers".

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

[24] ETSI TS 123 401: "LTE; General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access (3GPP TS 23.401)".

[25] IETF RFC 4566: "SDP: Session Description Protocol", (July 2006).

[26] ETSI TS 104 000: "Lawful Interception (LI); Internal Network Interface X0".

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 may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

[i.1] OWASP TLS Cheat Sheet.

[i.2] ETSI TS 102 232-5: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 5: Service-specific details for IP Multimedia Services".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 103 221-1 [1] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 103 221-1 [1] and the following apply:

3GPP	3rd Generation Partnership Project
AXRI	Additional XID Related Information
CSP	Communications Service Provider
DHCP	Dynamic Host Configuration Protocol
DID	Domain IDentifier
GTP	GPRS Tunnelling Protocol
GTP-U	GPRS Tunnelling Protocol - User
GW	GateWay
IP	Internet Protocol
IPID	Interception Point IDentifier
LI	Lawful Interception
MDF	Mediation and Delivery Function
NAT	Network Address Translation
NF	Network Function
NFID	Network Function IDentifier
OWASP	Open Web Application Security Protocol
PDU	Protocol Data Unit
POI	Point Of Interception
RADIUS	Remote Access Dial In User Service
RTP	Realtime Transport Protocol
SDO	Standards Development Organization
SIP	Session Initiation Protocol
TC	Technical Committee
TCP	Transmission Control Protocol
TLS	Transport Layer Security
TLV	Tag - Length - Value
UDP	User Datagram Protocol
UTC	Coordinated Universal Time
UUID	Unique Universal IDentifier
xCC	X3 Content of Communications
xIRI	X2 Intercept Related Information
XID	X1 IDentifier

4 Introduction and reference model

4.1 Reference model

The X2/X3 interface is based on communication between:

a) The Point Of Interception (POI), which performs interception.

b) The Mediation and Delivery Function (MDF), which performs the necessary translation, correlation and mediation for onward handover over material to LEAs via the HI2 and HI3 interfaces.

The X2/X3 reference model is shown in figure 4.1-1.

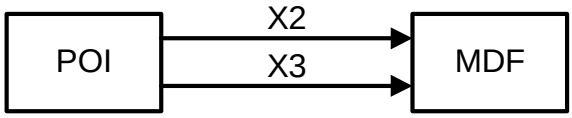

Figure 4.1-1: Reference Model