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Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic

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Technical Specification

Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic

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Lawful Interception

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Foreword

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

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1 Scope

The present document is step 3 of a three-step approach to describe a generic Handover Interface for the provision of lawful interception from a Network Operator, an Access Provider or a Service Provider (NWO/AP/SvP) to the Law Enforcement Agencies (LEAs). The provision of lawful interception is a requirement of national law, which is usually mandatory for the operation of any telecommunication service.

Step 1 contains the requirements for lawful interception from a users (LEAs) point of view and is published in TS 101 331 [1].

Step 2 describes the derived network functions and the general architecture (or functional model) and is published in ES 201 158 [2].

The present document specifies:

- the *generic flow of information* as well as the procedures and information elements, which are applicable to any future telecommunication network or service;
- the network/service specific protocols relating to the provision of lawful interception at the Handover Interface, for the following networks/services:
 - switched circuit; and
 - packet data.

The technologies covered in the present document are: GSM, TETRA, GPRS, ISDN, PSTN, fixed NGN (including PSTN/ISDN emulation) and fixed IMS PSTN simulation.

NOTE 1: Handover for TETRA is not fully developed.

NOTE 2: As new networks and/or services are developed, the present document will be expanded as the relevant standards become available.

NOTE 3: Current version of the present specification does not contain fixed NGN (including PSTN/ISDN emulation) nor fixed IMS PSTN simulation stage 3 descriptions yet.

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

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

NOTE: The numbering of the references is kept in line with the numbering as used in version 1.1.1 and version 2.1.1 of ES 201 671.

- [1] ETSI TS 101 331: "Telecommunications security; Lawful Interception (LI); Requirements of Law Enforcement Agencies".
- [2] ETSI ES 201 158: "Telecommunications security; Lawful Interception (LI); Requirements for network functions".
- [3] ETSI ETR 330: "Security Techniques Advisory Group (STAG); A guide to legislative and regulatory environment".

- [4] Void.
- [5] 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".
- [6] ETSI EN 300 403-1 (V1.3.2): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

NOTE: Reference [6] is specific, because the format of the sub parameters "dSS1-Format, DSS1-parameters-codeset-0", "DSS1-SS-parameters-codeset-0" and "UUS1-Content" are defined by V1.3.2.

- [7] Void.
- [8] Void.
- [9] Void.
- [10] ETSI EN 300 061-1: "Integrated Services Digital Network (ISDN); Subaddressing (SUB) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [11] Void.
- [12] Void.
- [13] Void.
- [14] ETSI EN 300 097-1: "Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [15] Void.
- [16] ETSI EN 300 130-1: "Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [17] Void.
- [18] Void.
- [19] ETSI EN 300 185-1: "Integrated Services Digital Network (ISDN); Conference call, add-on (CONF) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [20] ETSI EN 300 188-1: "Integrated Services Digital Network (ISDN); Three-Party (3PTY) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [21] ETSI EN 300 207-1 (V1.2.5): "Integrated Services Digital Network (ISDN); Diversion supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

NOTE: Reference [21] is specific, because the format of the sub parameters for "DSS1-SS-Invoke-Components" is defined by V1.2.5.

- [22] Void.
- [23] ETSI EN 300 286-1: "Integrated Services Digital Network (ISDN); User-to-User Signalling (UUS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [24] Void.

- [25] ETSI EN 300 369-1 (V1.2.4): "Integrated Services Digital Network (ISDN); Explicit Call Transfer (ECT) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

NOTE: Reference [25] is specific, because the format of the sub parameters for "DSS1-SS-Invoke-Components" is defined by V1.2.4.

[26] Void.

[27] Void.

[28] Void.

- [29] ETSI EN 300 196-1 (V1.3.2): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

NOTE: Reference [29] is specific, because several parameter format definitions point to V1.3.2.

[30] Void.

- [31] ITU-T Recommendation Q.850 (1988): "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".

NOTE: Reference [31] is specific, because several parameter format definitions point to version 1988.

- [32] ETSI ETS 300 974: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile Application Part (MAP) specification (GSM 09.02)".

- [33] ITU-T Recommendation X.680: "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".

- [34] ITU-T Recommendation X.690: "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".

- [35] ITU-T Recommendation X.880: "Information technology - Remote Operations: Concepts, model and notation".

- [36] ITU-T Recommendation X.881: "Information technology - Remote Operations: OSI realizations - Remote Operations Service Element (ROSE) service definition".

- [37] ITU-T Recommendation X.882: "Information technology - Remote Operations: OSI realizations - Remote Operations Service Element (ROSE) protocol specification".

[38] Void.

- [39] ETSI EN 300 122-1: "Integrated Services Digital Network (ISDN); Generic keypad protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

- [40] ETSI EN 300 392-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design".

- [41] ETSI TS 124 008: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 (3GPP TS 24.008 version 5.6.0 Release 5)".

- [42] ETSI TS 101 509: "Digital cellular telecommunications system (Phase 2+) (GSM); Lawful interception; Stage 2 (3GPP TS 03.33)".

- [43] ETSI TS 100 927: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification (3GPP TS 03.03)".

[44] Void.

- [45] ETSI TS 101 347: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface (3GPP TS 09.60)".
- [46] IETF RFC 959: "File Transfer Protocol".
- [47] Void.
- [48] ITU-T Recommendation Q.763: "Signalling System No.7 - ISDN User Part formats and codes".
- [49] ETSI TS 101 393: "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); GPRS Charging (GSM 12.15)".
- [50] Void.
- [51] IETF RFC 791: "Internet Protocol".
- [52] IETF RFC 793: "Transmission Control Protocol".
- [53] Void.
- [54] ETSI EN 300 089: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".
- [55] ETSI TS 100 940: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface; Layer 3 specification (3GPP TS 04.08)".
- [56] ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".
- [57] ETSI TS 101 109: "Digital cellular telecommunications system (Phase 2+); Universal Geographical Area Description (GAD) (3GPP TS 03.32)".
- [58] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
- [59] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [60] ETSI TS 129 060: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface (3GPP TS 29.060)".
- [61] ETSI TS 133 108: "Universal Mobile Telecommunications System (UMTS); 3G security; Handover interface for Lawful Interception (LI) (3GPP TS 33.108)".
- [62] ETSI TS 125 431: "Universal Mobile Telecommunications System (UMTS); UTRAN Iub interface Layer 1 (3GPP TS 25.431)".
- [63] ITU-T Recommendation Q.731.3: "Stage 3 description for number identification supplementary services using Signalling System No. 7: Calling line identification presentation (CLIP)".
- [64] ITU-T Recommendation Q.951.1: "Stage 3 description for number identification supplementary services using DSS 1: Direct-dialling-in (DDI)".
- [65] ITU-T Recommendation Q.951.3: "Stage 3 description for number identification supplementary services using DSS 1: Calling line identification presentation".
- [66] ETSI EN 300 092 (all parts): "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol".
- [67] ISO 3166-1: "Codes for the representation of names of countries and their subdivisions - Part 1: Country codes".
- [68] IETF RFC 2806: "URLs for Telephone Calls".
- [69] Void.

3 Definitions and abbreviations

3.1 Definitions

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

access provider: provides a user of some network with access from the user's terminal to that network

NOTE: This definition applies specifically for the present document. In a particular case, the access provider and network operator may be a common commercial entity.

activation/deactivation of supplementary services: procedures for activation, which is the operation of bringing the service into the "ready for invocation" state, and deactivation, which is the complementary action

(to) buffer: temporary storing of information in case the necessary telecommunication connection to transport information to the LEMF is temporarily unavailable

call: any temporarily switched connection capable of transferring information between two or more users of a telecommunications system

NOTE: In this context a user may be a person or a machine.

CC link: communication channel for HI3 information between a mediation function and a LEMF

NOTE: It is used for transmission of the Content of Communication. This term refers to circuit switched only.

CC Link Identifier (CCLID): See definition in clause A.1 of TS 101 671.

communication: information transfer according to agreed conventions

Communication Identifier (CID): See definition in clause 6 of TS 101 671.

Communication Identity Number (CIN): See definition in clause 6 of TS 101 671.

communications session: session consists of either a single self-contained transaction or a series of protocol data units that together form a single self-contained communication

Content of Communication (CC): information exchanged between two or more users of a telecommunications service, excluding Intercept Related Information

NOTE: This includes information which may, as part of some telecommunications service, be stored by one user for subsequent retrieval by another.

Handover Interface (HI): physical and logical interface across which the interception measures are requested from network operator/access provider/service provider, and the results of interception are delivered from a network operator/access provider/service provider to a law enforcement monitoring facility

identity: technical label which may represent the origin or destination of any telecommunications traffic, as a rule clearly identified by a physical telecommunications identity number (such as a telephone number) or the logical or virtual telecommunications identity number (such as a personal number) which the subscriber can assign to a physical access on a case-by-case basis

information: intelligence or knowledge capable of being represented in forms suitable for communication, storage or processing

NOTE: Information may be represented for example by signs, symbols, pictures or sounds.

interception: action (based on the law), performed by a network operator/access provider/service provider, of making available certain information and providing that information to a law enforcement monitoring facility

NOTE: In the present document the term interception is not used to describe the action of observing communications by a law enforcement agency.

interception configuration information: information related to the configuration of interception