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Technical Specification

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

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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 and PSTN.

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.

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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; ISDN User Part (ISUP) version 3 for the international interface".
- [6] ETSI EN 300 403-1 (V1.2.2): "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]".
- [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] ETSI EN 300 138-1: "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [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".
- [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".
- [26] Void.
- [27] Void.

- [28] Void.
- [29] ETSI EN 300 196-1 (V1.2.2): "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".
- [30] Void.
- [31] ITU-T Recommendation Q.850: "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".
- [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 ETS 300 392-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 1: Call identification".
- [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] ETSI EN 301 344: "Digital cellular telecommunications system (Phase 2+) (GSM); General Packet Radio Service (GPRS); Service description; Stage 2 (GSM 03.60)".
- [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] IETF RFC 2228: "FTP Security Extensions".
- [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+) (GSM); Universal Geographical Area Description (GAD) (GSM 03.32)".
- [58] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
- [59] IETF RFC 2543: "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: "Calling Line Identification Presentation (CLIP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol".

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.

communication: information transfer according to agreed conventions

Communication Identifier (CID): See definition in clause 6.

Communication Identity Number (CIN): See definition in clause 6.

Communications session: A 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

interception interface: physical and logical locations within the network operator's/access provider's/service provider's telecommunications facilities where access to the Content of Communication and Intercept Related Information is provided

NOTE: The interception interface is not necessarily a single, fixed point.

interception measure: technical measure which facilitates the interception of telecommunications traffic pursuant to the relevant national laws and regulations

interception subject: person or persons, specified in a lawful authorization, whose telecommunications are to be intercepted

Intercept Related Information (IRI): collection of information or data associated with telecommunication services involving the target identity, specifically communication associated information or data (including unsuccessful communication attempts), service associated information or data (e.g. service profile management by subscriber) and location information

Internal Interception Function (IIF): point within a network or network element at which the Content of Communication and the Intercept Related Information are made available