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Lawful Interception (LI); Dictionary for common parameters

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Foreword

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

It contains also the XSD technical implementation as attachment to the original document available from the ETSI site.

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).

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1 Scope

The present document defines a dictionary of parameters that are commonly used in multiple TC LI specifications. Aside from defining a dictionary, the present document aims to provide technical means for other specifications to use. It is encouraged to use the present document in the development of new specifications.

It is foreseen that regular maintenance of the present document is be required. As such release management requirements will be defined.

Before accepting any new common parameter, the present document will provide a set of requirements the parameter has to comply to in order to become a common parameter.

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] 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".
- [2] W3C Recommendation 5 April 2012: "W3C XML Schema Definition Language (XSD) 1.1 Part 2: Datatypes".
- [3] Recommendation ITU-T X.680: "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation".
- [4] Recommendation ITU-T E.164: "The international public telecommunication numbering plan".
- [5] Recommendation ITU-T E.212: "The international identification plan for public networks and subscriptions".
- [6] ETSI TS 123 003: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Numbering, addressing and identification (3GPP TS 23.003)".
- [7] ETSI TS 102 657: "Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data".
- [8] IETF RFC 791: "Internet Protocol".
- [9] IETF RFC 4632: "Classless Inter-domain Routing (CIDR): The Internet Address Assignment and Aggregation Plan".
- [10] IETF RFC 8200: "Internet Protocol, Version 6 (IPv6) Specification".
- [11] IETF RFC 4291: "IP Version 6 Addressing Architecture".
- [12] IETF RFC 793: "Transmission Control Protocol".
- [13] IETF RFC 768: "User Datagram Protocol".

- [14] IEEE 802.3™: "IEEE Standard for Ethernet".
- [15] IETF RFC 5322: "Internet Message Format".
- [16] W3C Recommendation 28 October 2014: "HTML5 A vocabulary and associated APIs for HTML and XHTML".
- [17] IETF RFC 4122: "A Universally Unique Identifier (UUID) URN Namespace".
- [18] ISO 3166-1: "Codes for the representation of names of countries and their subdivisions -- Part 1: Country codes".
- [19] IEEE Std 1003.1™-2008: "IEEE Standard for Information Technology - Portable Operating System Interface (POSIX(R))".
- [20] ISO/IEC 7812-1:2015: "Identification cards -- Identification of issuers -- Part 1: Numbering system".
- [21] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [22] IETF RFC 3966: "The tel URI for Telephone Numbers".
- [23] NIMA Technical Report 8350.2: "Department of Defense World Geodetic System 1984, Its Definition and Relationships With Local Geodetic Systems".

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 Abbreviations

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

ASCII	American Standard Code for Information Interchange
ASN.1	Abstract Syntax Notation One
CC	Content of Communication
CIDR	Classless Inter-Domain Routing
CSP	Communications Service Provider
HEX	HEXadecimal
HI	Handover Interface
HI1	Handover Interface port 1 (for administrative information)
HI2	Handover Interface port 2 (for Intercept Related Information)
HI3	Handover Interface port 3 (for Content of Communication)
IMEI	International Mobile station Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IRI	Intercept Related Information
ISO	International Organisation for Standardisation
ITU-T	International Telecommunication Union - Telecommunication
LEA	Law Enforcement Agency

LIID	Lawful Interception Identifier
MAC	Media Access Control
POSIX	Portable Operating System Interface
RFC	Request For Comments
SIP	Session Initialization Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
URI	Uniform Resource Identifier
UTC	Coordinated Universal Time
UUID	Universally Unique IDentifier
XML	eXtended Markup Language
XSD	XML Schema Definition

4 Release management

This clause describes the release management requirements. The requirements are:

- The version of the present document is defined as <major>.<minor>.<patch>.
- The major version should be incremented when making a backwards incompatible change.
- The minor version should be incremented when adding backwards compatible functionality.
- The patch version should be incremented when fixing a backwards compatible bug.
- Once a major version has been incremented, the previous major version will be supported for 2 years after publication of the new version. Change requests issued to a version that is no longer supported will need to be issued for the latest supported major version.

5 Parameter requirements

5.0 Introduction

This clause describes the requirements a parameter should comply to in order to be specified as a common parameter.

5.1 Parameter attributes

Name

- The parameter should be assigned a unique name. The naming conventions used are described in clause 5.2.

Description

- A description of the parameter should be provided.

Usage guidance

- If there are circumstances in which additional usage guidance is applicable, use cases may be described in this attribute.

References to other specifications

- If the parameter is specified in another specification (such as an RFC), a reference to that specification shall be provided. If possible, the reference should point to the exact clause or clause in the specification.

EXAMPLE: Specify one or more sample values of the parameter.

Technical means to define and validate the parameter

- If possible, provide a regular expression to specify the value that is accepted by this parameter. Implementations may be required to perform additional validation on the value. The regular expressions follow the IEEE POSIX [19], section 9 regular expression format but shall be limited to the regular expression capabilities supported by XSD [2].
- Define the parameter in the XSD [2] in section 7.1.
- Define the parameter in the ASN.1 [3] in section 7.2.

5.2 Parameter naming conventions

Allowed characters

- The following characters are allowed: A-Z, a-z and 0-9.

Camel casing

- The name of the parameter is to be CamelCased, where the first character is uppcased. Any acronyms should be uppcased.

EXAMPLE:

- IPv4Address.
- SIPURI.
- EmailAddress.

5.3 Technology conventions

The used technologies defined in clause 7 may impose requirements that conflict with the requirements in clauses 5.1 and 5.2. In the case of a conflict and in exceptional cases, it is allowed to deviate from the requirements above.

6 Parameter dictionary

LIID

Name	LIID
Description	<p>For each target identity related to an interception measure, the authorized CSP operator shall assign a special Lawful Interception IDentifier (LIID), which has been agreed between the LEA and the CSP. It is used within parameters of all HI interface ports.</p> <p>Using an indirect identification, pointing to a target identity makes it easier to keep the knowledge about a specific interception target limited within the authorized CSP operators and the handling agents at the LEA.</p> <p>The Lawful Interception IDentifier LIID is a component of the CC delivery procedure and of the IRI records. It shall be used within any information exchanged at the Handover Interfaces HI2 and HI3 for identification and correlation purposes.</p> <p>The LIID format shall consist of alphanumeric characters. It might for example, among other information, contain a lawful authorization reference number, and the date, when the lawful authorization was issued.</p> <p>The authorized CSP shall either enter a unique LIID for each target identity of the interception subject or as a national option a single LIID for multiple target identities all pertaining to the same interception subject.</p>

	<p>EXAMPLE: The interception subject has a telephony service with three telephone numbers. The CSP enters for each telephone number an own LIID, or optionally enters one LIID for all three telephone numbers.</p> <p>If more than one LEA intercepts the same target identity, there shall be unique LIIDs assigned, relating to each LEA.</p>
Usage guidance	The LIID is defined as an OCTET STRING in ASN.1. This means it is possible to use binary octets or ASCII printable characters to express the LIID. To correctly handle this, the parameter accepts both variations.
References	ETSI TS 102 232-1 [1], clause 5.2.2.
Example	zzz123 (ASCII printable LIID) 46565527098f6bcd4621d373cade4e832627b4f6ff00ff00ff (Binary LIID, represented in HEX)
Regular expression	^(?!~]{1,25}) ([0-9a-f]{26,50})\$
XSD	LIID, simpleType
ASN.1	LIID, OCTET STRING

UTCDateTime

Name	UTCDateTime
Description	A UTC timestamp with second precision.
Usage guidance	-
References	W3C XML Schema Definition Language [2], section 3.3.7
Example	2015-12-27T13:37:00Z
Regular expression	^[0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}z\$
XSD	UTCDateTime, simpleType
ASN.1	Not defined

UTCMicrosecondDateTime

Name	UTCMicrosecondDateTime
Description	A UTC timestamp with microsecond precision.
Usage guidance	-
References	W3C XML Schema Definition Language [2], section 3.3.7
Example	2015-12-27T13:37:00.012345Z
Regular expression	^[0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}\.[0-9]{6}z\$
XSD	UTCMicrosecondDateTime, simpleType
ASN.1	Not defined

QualifiedDateTime

Name	QualifiedDateTime
Description	A timestamp with second precision and timezone qualifier.
Usage guidance	-
References	W3C XML Schema Definition Language 1.1 Part 2: Datatypes [2], section 3.3.7
Example	2015-12-27T13:37:00+02:00
Regular expression	^[0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}(z [+-][0-9]{2}:[0-9]{2})\$
XSD	QualifiedDateTime, simpleType
ASN.1	QualifiedDateTime, GeneralizedTime Timestamps shall be provided with a timezone qualifier. The fractional part of a second shall not be present. Local time format shall not be used.

QualifiedMicrosecondDateTime

Name	QualifiedMicrosecondDateTime
Description	A timestamp with microsecond precision and timezone qualifier.
Usage guidance	-
References	W3C XML Schema Definition Language 1.1 Part 2: Datatypes [2], section 3.3.7
Example	2015-12-27T13:37:00.012345+02:00
Regular expression	$^{[0-9]\{4\}-[0-9]\{2\}-[0-9]\{2\}T[0-9]\{2\}:[0-9]\{2\}:[0-9]\{2\}\. [0-9]\{6\} (Z [+ -][0-9]\{2\}:[0-9]\{2\}) \$$
XSD	QualifiedMicrosecondDateTime, simpleType
ASN.1	QualifiedMicrosecondDateTime, GeneralizedTime Timestamps shall be provided with a timezone qualifier. The fractional part of a second with no more than 6 digits shall be present. Local time format shall not be used.

InternationalE164

Name	InternationalE164
Description	E.164 Number in fully international format, written as decimal digits.
Usage guidance	-
References	Recommendation ITU-T E.164 [4], clause 6
Example	31612345678
Regular expression	$^{[0-9]\{1,15\} \$$
XSD	InternationalE164, simpleType
ASN.1	Not defined

IMSI

Name	IMSI
Description	International Mobile Subscriber Identity, written as decimal digits.
Usage guidance	-
References	Recommendation ITU-T E.212 [5], clause 6.1 3GPP TS 23.003 [6], clause 2.2 and clause 2.3
Example	204081234567890
Regular expression	$^{[0-9]\{6,15\} \$$
XSD	IMSI, simpleType
ASN.1	Not defined

IMEI

Name	IMEI
Description	International Mobile station Equipment Identity, written as decimal digits without the Luhn check digit, annex B of ISO/IEC 7812-1 [20].
Usage guidance	To avoid implementation issues, the IMEI parameter explicitly excludes the Luhn check digit, annex B of ISO/IEC 7812-1 [20]. (See notes 1 and 2)
References	3GPP TS 23.003 [6], clause 6
Example	35395803121326
Regular expression	$^{[0-9]\{14\} \$$
XSD	IMEI, simpleType
ASN.1	Not defined

NOTE 1: ETSI TS 102 657 [7], clause E.3 identifies potential issues with the inclusion/exclusion of the check digit. As such, the IMEI parameter is explicitly specified without the check digit.

NOTE 2: The IMEICheckDigit parameter can be used when the check digit is explicitly required.