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TECHNICAL SPECIFICATION

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).

The ASN.1, JSON Schema and XSD technical implementations are both available as an electronic attachment to the present document.

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 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.

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 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); LTE; 5G; 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 9293: "Transmission Control Protocol (TCP)".

[13] IETF RFC 768: "User Datagram Protocol".

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

[15] IETF RFC 5322: "Internet Message Format".

[16] WHATWG community: "HTML Living standard".

[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] Void.

[20] ISO/IEC 7812-1:2017: "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] DMA Technical Report 8350.2: "Department of Defense World Geodetic System 1984, Its Definition and Relationships With Local Geodetic Systems".

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

[25] ETSI TS 133 501: "5G; Security architecture and procedures for 5G System (3GPP TS 33.501)".

[26] IETF RFC 7542: "The Network Access Identifier".

[27] ETSI TS 124 501: "5G; Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3 (3GPP TS 24.501)".

[28] ETSI TS 103 120: "Lawful Interception (LI); Interface for warrant information".

[29] W3C® Recommendation 16 August 2006: "Extensible Markup Language (XML) 1.1 (Second Edition)".

[30] IETF RFC 6530: "Overview and Framework for Internationalized Email".

[31] IETF RFC 9542: "IANA Considerations and IETF Protocol and Documentation Usage for IEEE 802 Parameters".

[32] ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics".

[33] ETSI TS 129 571: "5G; 5G System; Common Data Types for Service Based Interfaces; Stage 3 (3GPP TS 29.571)".

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

[35] IETF Draft draft-bhutton-json-schema-01: "JSON Schema: A Media Type for Describing JSON Documents".

[36] ECMA-262: "ECMAScript® 2023 Language Specification".

[37] IEEE 802.1Q™-2014: "IEEE Standard for Local and metropolitan area networks -- Bridges and Bridged Networks".

[38] ISO 3779:2009: "Road vehicles — Vehicle identification number (VIN) — Content and structure".

[39] GSMA SGP.02: "Remote Provisioning Architecture for Embedded UICC Technical Specification".

[40] IETF RFC 3508: "H.323 Uniform Resource Locator (URL) Scheme Registration".

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 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.

Not applicable.

3 Definition of terms, symbols and abbreviations

3.1 Terms

Void.

3.2 Symbols

Void.

3.3 Abbreviations

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

3GPP	3rd Generation Partnership Project
AGL	Above Ground Level
AMSL	Above Mean Sea Level
APN	Access Point Name
ASCII	American Standard Code for Information Interchange
ASN.1	Abstract Syntax Notation One
CC	Content of Communication
CGI	Cell Global Identification
CI	Cell Identity
CIDR	Classless Inter-Domain Routing
CSP	Communications Service Provider
DNN	Data Network Name
ECGI	E-UTRAN Cell Global Identification
ECI	E-UTRAN Cell Identity
EID	eUICC IDentifier
EPV	Estimated Position error in Vertical (altitude)
EPX	Estimated Position error in X (longitude)
EPY	Estimated Position error in Y (latitude)
EUI	Extended Unique Identifier
eUICC	embedded Universal Integrated Circuit Card
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
GML	Geography Markup Language
GNSS	Global Navigation Satellite System
GPSD	GPS Daemon
GPSI	Generic Public Subscription Identifier
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)
IANA	Internet Assigned Numbers Authority
ICCID	Integrated Circuit Card IDentifier
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IEI	Information Element Identifier
IETF	Internet Engineering Task Force
IMEI	International Mobile station Equipment Identity
IMEISV	International Mobile station Equipment Identity and Software Version number
IMPI	IP Multimedia Private Identity
IMPU	IP Multimedia Public 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 Organization for Standardization
ITU-T	International Telecommunication Union - Telecommunication
JSON	JavaScript Object Notation
LAC	Location Area Code
LDID	Lawful Disclosure IDentifier
LEA	Law Enforcement Agency
LIID	Lawful Interception IDentifier
LTE	Long-Term Evolution
MAC	Media Access Control
MCC	Mobile Country Code
MNC	Mobile Network Code
MSISDN	Mobile Station International Subscriber Directory Number
NAI	Network Access Identifier
NCGI	NR Cell Global Identification
NCI	NR Cell Identity
NR	New Radio
PEI	Permanent Equipment Identifier
RFC	Request For Comments
SIP	Session Initialization Protocol
SMF	Session Management Function
SUCI	Subscription Concealed Identifier
SUPI	Subscription Permanent Identifier
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
UPF	User Plane Function
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTC	Coordinated Universal Time
UUID	Universally Unique IDentifier
VIN	Vehicle Identification Number
VLAN	Virtual Local Area Network
VRF	Virtual Routing and Forwarding
WGS84	World Geodetic System 1984
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 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 expression is defined per clause 5.4. Define the parameter in the XSD [2] in clause 7.1. When converting a regular expression to an XSD [2] pattern, escape any XML [29] markup characters in the regular expression per XML [29], section 2.4 to create a valid XSD [2] pattern.
- Define the parameter in the ASN.1 [3] in clause 7.2.
- Define the parameter in the JSON Schema [35] in clause 7.3. Unless otherwise specified, the JSON definition shall be a translation of the XSD definition, following the translation given in annex C.

5.2 Parameter naming conventions

Allowed characters

- The following character classes 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 uppercased. Any acronyms should be uppercased.

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.

5.4 Regular expression conventions

Regular expressions used for validation shall be limited to the regular expression capabilities supported by both XSD [2] patterns and ECMAScript regular expressions (see ECMA-262 [36], section 22.2.1, as used by JSON Schema [35] patterns).

Given the high disparity of regular expression implementations, the regular expressions should be limited to the following features (inspired by JSON Schema [35], section 6.4):

1) Individual Unicode characters. Unicode characters for XSD [2] need to be encoded using an appropriate XML [29] entity.
2) Character classes: "`[abc]`" (simple character classes), and "`[a-z]`" (range character classes).
3) Negated character classes: "`[^abc]`" (negated simple character classes), and "`[^a-z]`" (negated range character classes).
4) Simple quantifiers: "`*`" (zero or more occurrences), "`+`" (one or more occurrence), and "`?`" (zero or one occurrence).
5) Range quantifiers: "`{n}`" (exactly n occurrences), "`{n,m}`" (between n and m occurrences), and "`{n,}`" (at least n occurrences).
6) Grouping and alternation: "`(`" and "`)`" (simple grouping), and "`|`" (alternation).
7) Simple atoms: "`.`" (any character except new line and line feed).

As XSD [2] patterns are matched to the entire value, regular expressions shall not start with the anchor "`^`" or end with the anchor "`$`". When regular expressions are mapped to a JSON Schema [35] pattern per table C.2, the anchors are required.