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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 - NAF 742 C
Association à but non lucratif enregistrée à la
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Contents

Foreword

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1 Scope

The present document specifies the stage 3 protocol and data model for common data types that are used or may be expected to be used by multiple Service Based Interface APIs supported by the same or different Network Function(s).

The Principles and Guidelines for Services Definition are specified in 3GPP TS 29.501 [2].

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[3] OpenAPI: "OpenAPI 3.0.0 Specification", https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md.

[4] IETF RFC 1166: "Internet Numbers".

[5] IETF RFC 5952: "A recommendation for IPv6 address text representation".

[6] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

[7] 3GPP TS 23.003: "Numbering, addressing and identification".

[8] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[9] IETF RFC 7807: "Problem Details for HTTP APIs".

[10] IETF RFC 3339: "Date and Time on the Internet: Timestamps".

[11] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP) ".

[12] IETF RFC 6901: "JavaScript Object Notation (JSON) Pointer".

[13] 3GPP TS 24.007: "Mobile radio interface signalling layer 3; General aspects".

[14] IETF RFC 6902: "JavaScript Object Notation (JSON) Patch".

[15] IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

[16] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[17] IETF RFC 7042: "IANA Considerations and IETF Protocol and Documentation Usage for IEEE 802 Parameters".

[18] IETF RFC 6733: "Diameter Base Protocol".

[19] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[20] 3GPP TS 24.501: "Non-Access-Stratum (NAS) Protocol for 5G System (5GS); Stage 3".

[21] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[22] Void.

[23] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".

[24] ITU-T Recommendation Q.763 (1999): "Specifications of Signalling System No.7; Formats and codes".

[25] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[26] 3GPP TS 23.015: "Technical Realization of Operator Determined Barring".

[27] 3GPP TR 21.900: "Technical Specification Group working methods".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GC	5G Core Network
DNAI	Data Network Access Identifier
GPSI	Generic Public Subscription Identifier
GUAMI	Globally Unique AMF Identifier
PEI	Permanent Equipment Identifier
SBI	Service Based Interface
SUPI	Subscription Permanent Identifier

4 Overview

For the different 5GC SBI API, data types shall be defined. Data types identified as common data types shall be defined in this Technical specification and should be referenced from individual 5GC SBI API specifications.

Data types applicable or intended to be applicable to several 5GC SBI API specifications should be interpreted as common data types.

5 Common Data Types

5.1 Introduction

In the following clauses, common data types for the following areas are defined:

- Data types for generic usage;
- Data types for Subscription, Identification and Numbering;
- Data types related to 5G Network;

- Data types related to 5G QoS;
- Data types related to 5G Trace;
- Data types related to 5G ODBs.

5.2 Data Types for Generic Usage

5.2.1 Introduction

This clause defines common data types for generic usage.

5.2.2 Simple Data Types

This clause specifies common simple data types.

Table 5.2.2-1: Simple Data Types

<table>
<tr><th>Type Name</th><th>Type Definition</th><th>Description</th></tr>
<tr><td>Binary</td><td>string</td><td>String with format "binary" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>BinaryRm</td><td>string</td><td>This data type is defined in the same way as the "Binary" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Bytes</td><td>string</td><td>String with format "byte" as defined in OpenAPI Specification [3], i.e, base64-encoded characters,</td></tr>
<tr><td>BytesRm</td><td>string</td><td>This data type is defined in the same way as the "Bytes" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Date</td><td>string</td><td>String with format "date" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>DateRm</td><td>string</td><td>This data type is defined in the same way as the "Date" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>DateTime</td><td>string</td><td>String with format "date-time" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>DateTimeRm</td><td>string</td><td>This data type is defined in the same way as the "DateTime" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>DiameterIdentity</td><td>string</td><td>String containing a Diameter Identity, according to clause 4.3 of IETF RFC 6733 [18].
Pattern: '^([A-Za-z0-9]+([-A-Za-z0-9]+)\.)+[a-z]{2,}$'</td></tr>
<tr><td>DiameterIdentityRm</td><td>string</td><td>This data type is defined in the same way as the "DiameterIdentity" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Double</td><td>number</td><td>Number with format "double" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>DoubleRm</td><td>number</td><td>This data type is defined in the same way as the "Double" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>DurationSec</td><td>integer</td><td>Unsigned integer identifying a period of time in units of seconds.</td></tr>
<tr><td>DurationSecRm</td><td>integer</td><td>This data type is defined in the same way as the "DurationSec" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Float</td><td>number</td><td>Number with format "float" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>FloatRm</td><td>number</td><td>This data type is defined in the same way as the "Float" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Uint16</td><td>integer</td><td>Unsigned 16-bit integers, i.e. only value between 0 and 65535 are permissible.</td></tr>
<tr><td>Uint16Rm</td><td>integer</td><td>This data type is defined in the same way as the "Uint16" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Int32</td><td>integer</td><td>Integer with format "int32" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>Int32Rm</td><td>integer</td><td>This data type is defined in the same way as the "Int32" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Int64</td><td>integer</td><td>Integer with format "int64" as defined in OpenAPI Specification [3]</td></tr>
<tr><td>Int64Rm</td><td>integer</td><td>This data type is defined in the same way as the "Int64" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Ipv4Addr</td><td>string</td><td>String identifying a IPv4 address formatted in the "dotted decimal" notation as defined in in IETF RFC 1166 [4].
Pattern: '^(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])$'</td></tr>
<tr><td>Ipv4AddrRm</td><td>string</td><td>This data type is defined in the same way as the "Ipv4Addr" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Ipv6Addr</td><td>string</td><td>String identifying an IPv6 address formatted according to clause 4 of IETF RFC 5952 [5]. The mixed IPv4 IPv6 notation according to clause 5 of IETF RFC 5952 [5] shall not be used.
Pattern: '^((:|(0?|([1-9a-f][0-9a-f]{0,3}))):)((0?|([1-9a-f][0-9a-f]{0,3})):){0,6}(:|(0?|([1-9a-f][0-9a-f]{0,3})))$'
and
Pattern: '^((([^:]+:){7}([^:]+))|((([^:]+:)*[^:]+)?::(([^:]+:)*[^:]+)?))$'</td></tr>
<tr><td>Ipv6AddrRm</td><td>string</td><td>This data type is defined in the same way as the "Ipv6Addr" data type, but with the OpenAPI "nullable: true" property.</td></tr>
<tr><td>Ipv6Prefix</td><td>string</td><td>String identifying an IPv6 address prefix formatted according to clause 4 of IETF RFC 5952 [5].
Pattern: '^((:|(0?|([1-9a-f][0-9a-f]{0,3}))):)((0?|([1-9a-f][0-9a-f]{0,3})):){0,6}(:|(0?|([1-9a-f][0-9a-f]{0,3})))(\/(([0-9])|([0-9]{2})|(1[0-1][0-9])|(12[0-8])))$'
and
Pattern:
'^((([^:]+:){7}([^:]+))|((([^:]+:)*[^:]+)?::(([^:]+:)*[^:]+)?))(\/.+)$'</td></tr>
</table>

Ipv6PrefixRm	string	This data type is defined in the same way as the "Ipv6Prefix" data type, but with the OpenAPI "nullable: true" property.
MacAddr48	string	String identifying a MAC address formatted in the hexadecimal notation according to clause 1.1 and clause 2.1 of IETF RFC 7042 [17]. Pattern: '^([0-9a-fA-F]{2})((-[0-9a-fA-F]{2}){5})$'
MacAddr48Rm	string	This data type is defined in the same way as the "MacAddr48" data type, but with the OpenAPI "nullable: true" property.
SupportedFeatures	string	A string used to indicate the features supported by an API that is used as defined in clause 6.6 in 3GPP TS 29.500 [25]. The string shall contain a bitmask indicating supported features in hexadecimal representation: Each character in the string shall take a value of "0" to "9" or "A" to "F" and shall represent the support of 4 features as described in table 5.2.2-3. The most significant character representing the highest-numbered features shall appear first in the string, and the character representing features 1 to 4 shall appear last in the string. The list of features and their numbering (starting with 1) are defined separately for each API. If the string contains a lower number of characters than there are defined features for an API, all features that would be represented by characters that are not present in the string are not supported.
Uinteger	integer	Unsigned Integer, i.e. only value 0 and integers above 0 are permissible.
UintegerRm	integer	This data type is defined in the same way as the "Uinteger" data type, but with the OpenAPI "nullable: true" property.
Uint32	integer	Unsigned 32-bit integers, i.e. only value 0 and 32-bit integers above 0 are permissible.
Uint32Rm	integer	This data type is defined in the same way as the "UInt32" data type, but with the OpenAPI "nullable: true" property.
Uint64	integer	Unsigned 64-bit integers, i.e. only value 0 and 64-bit integers above 0 are permissible.
Uint64Rm	integer	This data type is defined in the same way as the "Uint64" data type, but with the OpenAPI "nullable: true" property.
Uri	string	String providing an URI formatted according to IETF RFC 3986 [6].
UriRm	string	This data type is defined in the same way as the "Uri" data type, but with the OpenAPI "nullable: true" property.
VarUeId	string	String represents the SUPI or GPSI. Pattern: "^(imsi-[0-9]{5,15}|nai-.+|msisdn-[0-9]{5,15}|extid-[^@]+@[^@]+|.+)$".
VarUeIdRm	string	This data type is defined in the same way as the "VarUeId" data type, but with the OpenAPI "nullable: true" property.
TimeZone	string	String with format "<time-numoffset>" optionally appended by "<daylightSavingTime>", where: - <time-numoffset> shall represent the time zone adjusted for daylight saving time and be encoded as time-numoffset as defined in clause 5.6 of IETF RFC 3339 [10]; - <daylightSavingTime> shall represent the adjustment that has been made and shall be encoded as "+1" or "+2" for a +1 or +2 hours adjustment. Example: "-08:00+1" (for 8 hours behind UTC, +1 hour adjustment for Daylight Saving Time).
TimeZoneRm	string	This data type is defined in the same way as the "TimeZone" data type, but with the OpenAPI "nullable: true" property.