

# ETSI TS 129 571 V15.5.1 (2019-10)



**5G;  
5G System;  
Common Data Types for Service Based Interfaces;  
Stage 3  
(3GPP TS 29.571 version 15.5.1 Release 15)**

PREVIEW  
https://standards.iteh.ai/standards/sist/031d813b-10fb-4351-b429-a0e7ac27471b/sist-031d813b-10fb-4351-b429-a0e7ac27471b-15.5.1-2019-10



---

**Reference**RTS/TSGC-0429571vf51

---

---

**Keywords**5G

---

**ETSI**

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  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

---

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

---

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2019.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

**3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

**GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

---

# Legal Notice

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

---

# 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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

# Contents

Intellectual Property Rights .....	2
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	6
1 Scope .....	7
2 References .....	7
3 Definitions and abbreviations.....	8
3.1 Definitions .....	8
3.2 Abbreviations .....	8
4 Overview .....	8
5 Common Data Types.....	8
5.1 Introduction .....	8
5.2 Data Types for Generic Usage .....	9
5.2.1 Introduction.....	9
5.2.2 Simple Data Types.....	9
5.2.3 Enumerations .....	13
5.2.3.1 Enumeration: PatchOperation .....	13
5.2.3.2 Enumeration: UriScheme .....	14
5.2.3.3 Enumeration: ChangeType.....	14
5.2.4 Structured Data Types .....	15
5.2.4.1 Type: ProblemDetails.....	15
5.2.4.2 Type: Link.....	15
5.2.4.3 Type PatchItem .....	16
5.2.4.4 Type: LinksValueSchema .....	16
5.2.4.5 Type: SelfLink .....	16
5.2.4.6 Type: InvalidParam .....	16
5.2.4.7 Type: LinkRm .....	16
5.2.4.8 Type ChangeItem .....	17
5.2.4.9 Type NotifyItem.....	17
5.2.4.10 Type: ComplexQuery.....	17
5.2.4.11 Type: Cnf .....	18
5.2.4.12 Type: Dnf .....	18
5.2.4.13 Type: CnfUnit .....	18
5.2.4.14 Type: DnfUnit.....	18
5.2.4.15 Type: Atom .....	18
5.3 Data Types related to Subscription, Identification and Numbering .....	19
5.3.1 Introduction.....	19
5.3.2 Simple Data Types.....	19
5.3.3 Enumerations .....	22
5.3.4 Structured Data Types .....	22
5.3.4.1 Type: Guami .....	22
5.3.4.2 Type: NetworkId .....	22
5.3.4.3 Type: GuamiRm.....	22
5.4 Data Types related to 5G Network.....	22
5.4.1 Introduction.....	22
5.4.2 Simple Data Types.....	22
5.4.3 Enumerations .....	25
5.4.3.1 Enumeration: AccessType .....	25
5.4.3.2 Enumeration: RatType .....	25
5.4.3.3 Enumeration: PduSessionType .....	25
5.4.3.4 Enumeration: UpIntegrity .....	26
5.4.3.5 Enumeration: UpConfidentiality .....	26
5.4.3.6 Enumeration: SscMode .....	26

5.4.3.7	Enumeration: DnaiChangeType .....	26
5.4.3.8	Enumeration: RestrictionType .....	27
5.4.3.9	Enumeration: CoreNetworkType .....	27
5.4.3.10	Enumeration: AccessTypeRm .....	27
5.4.3.11	Enumeration: RatTypeRm .....	27
5.4.3.12	Enumeration: PduSessionTypeRm .....	27
5.4.3.13	Enumeration: UpIntegrityRm .....	27
5.4.3.14	Enumeration: UpConfidentialityRm .....	27
5.4.3.15	Enumeration: SscModeRm .....	27
5.4.3.17	Enumeration: DnaiChangeTypeRm .....	28
5.4.3.18	Enumeration: RestrictionTypeRm .....	28
5.4.3.19	Enumeration: CoreNetworkType .....	28
5.4.3.20	Enumeration: PresenceState .....	28
5.4.4	Structured Data Types .....	28
5.4.4.1	Type: SubscribedDefaultQos .....	28
5.4.4.2	Type: Snsai .....	29
5.4.4.3	Type: PlmnId .....	29
5.4.4.4	Type: Tai .....	29
5.4.4.5	Type: Ecgi .....	30
5.4.4.6	Type: Ncgi .....	30
5.4.4.7	Type: UserLocation .....	30
5.4.4.8	Type: EutraLocation .....	31
5.4.4.9	Type: NrLocation .....	32
5.4.4.10	Type: N3gaLocation .....	32
5.4.4.11	Type: UpSecurity .....	33
5.4.4.12	Type: NgApCause .....	33
5.4.4.13	Type: BackupAmfInfo .....	33
5.4.4.14	Type: RefToBinaryData .....	33
5.4.4.15	Type RouteToLocation .....	34
5.4.4.16	Type RouteInformation .....	34
5.4.4.17	Type: Area .....	34
5.4.4.18	Type: ServiceAreaRestriction .....	35
5.4.4.19	Type: PlmnIdRm .....	35
5.4.4.20	Type: TaiRm .....	35
5.4.4.21	Type: EcgiRm .....	35
5.4.4.22	Type: NcgiRm .....	35
5.4.4.23	Type: EutraLocationRm .....	35
5.4.4.24	Type: NrLocationRm .....	35
5.4.4.25	Type: UpSecurityRm .....	35
5.4.4.26	Type: RefToBinaryDataRm .....	36
5.4.4.27	Type: PresenceInfo .....	36
5.4.4.28	Type: GlobalRanNodeId .....	37
5.4.4.29	Type: GNBId .....	37
5.4.4.30	Type: PresenceInfoRm .....	37
5.5	Data Types related to 5G QoS .....	37
5.5.1	Introduction .....	37
5.5.2	Simple Data Types .....	38
5.5.3	Enumerations .....	41
5.5.3.1	Enumeration: PreemptionCapability .....	41
5.5.3.2	Enumeration: PreemptionVulnerability .....	41
5.5.3.3	Enumeration: ReflectiveQosAttribute .....	41
5.5.3.4	Void .....	41
5.5.3.5	Enumeration: NotificationControl .....	41
5.5.3.6	Enumeration: QosResourceType .....	42
5.5.3.7	Enumeration: PreemptionCapabilityRm .....	42
5.5.3.8	Enumeration: PreemptionVulnerabilityRm .....	42
5.5.3.9	Enumeration: ReflectiveQosAttributeRm .....	42
5.5.3.10	Enumeration: NotificationControlRm .....	42
5.5.3.11	Enumeration: QosResourceTypeRm .....	42
5.5.3.12	Enumeration: AdditionalQosFlowInfo .....	42
5.5.4	Structured Data Types .....	43
5.5.4.1	Type: Arp .....	43

5.5.4.2	Type: Ambr .....	43
5.5.4.3	Type: Dynamic5Qi .....	43
5.5.4.4	Type: NonDynamic5Qi .....	44
5.5.4.5	Type: ArpRm .....	44
5.5.4.6	Type: AmbrRm .....	44
5.6	Data Types related to 5G Trace .....	44
5.6.1	Introduction .....	44
5.6.2	Simple Data Types .....	44
5.6.3	Enumerations .....	44
5.6.3.1	Enumeration: TraceDepth .....	44
5.6.3.2	Enumeration: TraceDepthRm .....	45
5.6.4	Structured Data Types .....	46
5.6.4.1	Type: TraceData .....	46
5.7	Data Types related to 5G Operator Determined Barring .....	48
5.7.1	Introduction .....	48
5.7.2	Simple Data Types .....	48
5.7.3	Enumerations .....	48
5.7.3.1	Enumeration: RoamingOdb .....	48
5.7.4.1	Enumeration: OdbPacketServices .....	48
5.7.4	Structured Data Types .....	49
5.7.4.1	Type: OdbData .....	49
5.8	Data Types related to Charging .....	49
5.8.1	Introduction .....	49
5.8.2	Simple Data Types .....	49
5.8.3	Enumerations .....	49
5.8.4	Structured Data Types .....	49
5.8.4.1	Type: SecondaryRatUsageReport .....	49
5.8.4.2	Type: QoSFlowUsageReport .....	50
5.8.4.3	Type: SecondaryRatUsageInfo .....	50
5.8.4.4	Type: VolumeTimedReport .....	50
<b>Annex A (normative):</b>	<b>OpenAPI specification .....</b>	<b>51</b>
A.1	General .....	51
A.2	Data related to Common Data Types .....	51
<b>Annex B (informative):</b>	<b>Change history .....</b>	<b>75</b>
History .....		78

---

# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
Full standard d:  
<https://standards.iteh.ai/catalog/standards/sist/031d813b-10fb-4351-b429-a0e7ac2747fb/etsi-ts-129-571-v15.5.1-2019-10>

---

# 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.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/031d813b-10fb-4351-b429-a0e7ac2747fb/etsi-ts-129-571-v15.5.1-2019-10>

Table 5.2.2-1: Simple Data Types

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/031d813b-10fb-4351-b429-a0e7ac2747fb/etsi-ts-129-571-v15.5.1-2019-10>



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: <code>^\{0-9a-fA-F\}{2}\{(-\{0-9a-fA-F\}{2})\}{5}\\$</code>
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.
VarUeld	string	String represents the SUPI or GPSI. Pattern: <code>^\{imsi-\{0-9\}\{5,15\}\nai-\.\+msisdn-\{0-9\}\{5,15\}\extid-\{^\+@\{^\+\}\}\}\\$</code> .
VarUeldRm	string	This data type is defined in the same way as the "VarUeld" data type, but with the OpenAPI "nullable: true" property.
TimeZone	string	String with format " <code>&lt;time-numoffset&gt;</code> " optionally appended by " <code>&lt;daylightSavingTime&gt;</code> ", where:  - <code>&lt;time-numoffset&gt;</code> 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];  - <code>&lt;daylightSavingTime&gt;</code> 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.