3GPP TSG SA WG5 Meeting 137-e TDoc S5-213338

electronic meeting, online, 10 - 19 May 2021

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **32.298** | **CR** | **0868** | **rev** | **1** | **Current version:** | **16.8.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Correcting IPv6 text description |
|  |  |
| ***Source to WG:*** | Ericsson LM |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TEI16 |  | ***Date:*** | 2021-04-30 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The description of IPv6 address in text representation doesn’t describe if prefix length is allowed or not. |
|  |  |
| ***Summary of change:*** | Adding description for IPv6 that prefix length may be added. |
|  |  |
| ***Consequences if not approved:*** | How to represent the prefix length for IPv6 text representation is unclear and may lead to different interpretation and interoperability issues. |
|  |  |
| ***Clauses affected:*** | 2, 5.2.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Revision of S5-213338 |

|  |
| --- |
| **First change** |

# 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 TS 32.240: "Telecommunication management; Charging management; Charging Architecture and Principles".

[2] - [9] Void.

[10] 3GPP TS 32.250: "Telecommunication management; Charging management; Circuit Switched (CS) domain charging".

[11] 3GPP TS 32.251: "Telecommunication management; Charging management; Packet Switched (PS) domain charging".

[12] Void.

[13] 3GPP TS 32.253: "Telecommunication management; Charging management; Control Plane (CP) data transfer domain charging".

[14] 3GPP TS 32.254: "Telecommunication management; Charging management; Exposure function Northbound Application Program Interfaces (APIs) charging ".

[15] 3GPP TS 32.255: "Telecommunication management; Charging management; 5G Data connectivity domain charging; stage 2".

[16] 3GPP TS 32.256: "Telecommunication management; Charging management; 5G connection and mobility domain charging; stage 2".

[17] - [19] Void.

[20] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".

[21] - [29] Void.

[30] 3GPP TS 32.270: "Telecommunication management; Charging management; Multimedia Messaging Service (MMS) charging".

[31] 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".

[32] 3GPP TS 32.272: "Telecommunication management; Charging management; Push-to-talk over Cellular (PoC) charging".

[33] 3GPP TS 32.273: "Telecommunication management; Charging management; Multimedia Broadcast and Multicast Service (MBMS) charging".

[34] 3GPP TS 32.274: "Telecommunication management; Charging management; Short Message Service (SMS) charging".

[35] 3GPP TS 32.275: "Telecommunication management; Charging management; MultiMedia Telephony (MMTel) charging".

[36] Void.

[37] 3GPP TS 32.277: "Telecommunication management; Charging management; Proximity-based Services (ProSe) charging".

[38] 3GPP TS 32.278: "Telecommunication management; Charging management; Monitoring Event charging".

[39] void

[40] 3GPP TS 32.280: "Telecommunication management; Charging management; Advice of Charge (AoC) service".

[41] - [49] Void.

[50] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".

[51] Void.

[52] 3GPP TS 32.297: "Telecommunication management; Charging management; Charging Data Records (CDR) file format and transfer".

[53] - [56] Void.

[57] 3GPP TS 32.290: "Telecommunication management; Charging management; 5G system; Services, operations and procedures of charging using Service Based Interface (SBI)".

[58] 3GPP TS 32.291: "Telecommunication management; Charging management; 5G system; Charging service, stage 3".

[59]- [69] Void.

[70] 3GPP TS 28.201: "Charging management; Network slice performance and analytics charging in the 5G System (5GS); Stage 2".

[71] 3GPP TS 28.202: "Charging management; Network slice management charging in the 5G System (5GS); Stage 2".

[72]- [99] Void.

[100] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[101] 3GPP TS 22.115: "Service aspects; Charging and billing".

[102] 3GPP TS 22.002: "Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)".

[103] 3GPP TS 22.004: "General on supplementary services".

[104] 3GPP TS 22.024: "Description of Charge Advice Information (CAI)".

[105] – [199] void

[200] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[201] 3GPP TS 23.040: "Technical realization of Short Message Service (SMS)".

[202] 3GPP TS 23.060: "General Packet Radio Service (GPRS) Service description; Stage 2".

[203] 3GPP TS 23.203: "Policy and Charging control architecture".

[204] 3GPP TS 23.207: "End-to-end Quality of Service (QoS) concept and architecture".

[205] Void.

[206] 3GPP TS 23.140: "Multimedia Messaging Service (MMS); Functional description; Stage 2".

[207] 3GPP TS 23.172: "Technical realization of Circuit Switched (CS) multimedia service; UDI/RDI fallback and service modification; Stage 2".

[208] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[209] 3GPP TS 24.080: "Mobile radio Layer 3 supplementary service specification; Formats and coding".

[210] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[211] 3GPP TS 24.604: "Communication Diversion (CDIV) using IP Multimedia (IM); Protocol specification".

[212] 3GPP TS 25.413: "UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling".

[213] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".

[214] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[215] 3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".

[216] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".

[217] 3GPP TS 29.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification".

[218] 3GPP TS 29.140: "Multimedia Messaging Service (MMS); MM10 interface Diameter based protocol; Stage 3".

[219] 3GPP TS 29.207: "Policy control over Go interface".

[220] 3GPP TS 29.212: "Policy and Charging control over Gx reference point".

[221] 3GPP TS 29.214: "Policy and Charging Control; Reference points".

[222] 3GPP TS 29.272: "Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol".

[223] 3GPP TS 29.274: "Evolved GPRS Tunnelling Protocol for Control Plane (GTPv2-C); Stage 3".

[224] 3GPP TS 29.275: " Proxy Mobile IPv6 (PMIPv6) based Mobility and Tunnelling protocols; Stage 3".

[225] 3GPP TS 29.658: "SIP Transfer of IP Multimedia Service Tariff Information".

[226] 3GPP TS 36.413 "Evolved Universal Terrestrial Radio Access (E-UTRA); S1 Application Protocol (S1AP)".

[227] 3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".

[228] 3GPP TS 32.015: "Telecommunication management; Charging management; Charging data description for the Packet Switched (PS) domain".

[229] 3GPP TS 23.292: "IP Multimedia Subsystem (IMS) Centralized Services".

[230] 3GPP TS 29.338: "Diameter based protocols to support SMS capable MMEs".

[231] 3GPP TS 29.337: "Diameter-based T4 interface for communications with packet data networks and applications".

[232] 3GPP TS 29.229: "Cx and Dx Interfaces based on the Diameter protocol; Protocol Details".

[233] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[234] void

[235] 3GPP TS 23.303: "Proximity-based services (ProSe)".

[236] 3GPP TS 24.334: "Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects".

[237] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[238] - [240] Void.

[241] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[242] 3GPP TS 29.328: "IP Multimedia (IM) Subsystem Sh Interface; Signalling flows and message contents".

[243] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[244] 3GPP TS 29.128: "Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) interfaces for interworking with packet data networks and applications".

[245] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[246] 3GPP TS 23.503:"Policy and Charging Control Framework for the 5G System; Stage 2".

[247] 3GPP TS 23.501:"System Architecture for the 5G System".

[248] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[249] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[250] 3GPP TS 29.502: "5G System; Session Management Services; Stage 3".

[251] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[252] - [253] Void

[254] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[255] - [299] Void

[300] ITU-T Recommendation X.680 | ISO/IEC 8824-1: "Information technology; Abstract Syntax Notation One (ASN.1): Specification of Basic Notation".

[301] ITU-T Recommendation X.690 | ISO/IEC 8825-1: "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".

[302] ITU-T Recommendation X.691 | ISO/IEC 8825-2: "Information technology - ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)".

[303] ITU-T Recommendation X.693 | ISO/IEC 8825-4: "Information technology - ASN.1 encoding rules: XML encoding rules (XER)".

[304] ITU-T Recommendation X.711 CMIP:"Information technology – Open Systems Interconnection – Common Management Information Protocol".

[305] ITU-T Recommendation X.721 ISO/IEC 10165-2: " Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".

[306] ITU-T Recommendation X.227 ACSE: " Information technology - Open Systems Interconnection – Connection-oriented protocol for the Association Control Service Element: Protocol specification ".

[307] ITU-T Recommendation Q.773: "Transaction capabilities formats and encoding".

[308] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[309] ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT signalling system No. 7 for international ISDN interconnections".

[310] ETS 300 196: "Digital Subscriber Signalling System No. one (DSS1) protocol".

[311] OMA Location Working Group "Mobile Location Protocol Specification", [http://www.openmobilealliance.org].

[312] ETSI GSM 05.01: "Digital Cellular Telecommunications System (Phase 2+); Physical Layer on the Radio Path; General Description".

[313] ETSI GSM 08.08: "European Digital Cellular Telecommunication System (Phase 2); Mobile-Services Switching Centre - Base Station System (MSC - BSS) Interface Layer 3 Specification".

[314] ETSI TS 283 034 v2.2.0: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment Sub-System (NASS); e4 interface based on the DIAMETER protocol".

[315] ITU-T Recommendation X.121: " International numbering plan for public data networks ".

[316] – [399] void

[400] IETF RFC 822 (1982): "Standard for the format of arpa internet text messages".

[401] IETF RFC 3261(2002): "SIP: Session Initiation Protocol".

[402] IETF RFC 3966 (2004): "The tel URI for Telephone Numbers".

[403] IETF RFC 3265 (2002): "Session Initiation Protocol (SIP)-Specific Event Notification".

[404] IETF RFC 7315 (2014): "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

[405] IETF RFC 2486 (1999): "The Network Access Identifier".

[406] IETF RFC 4566 (2006): "SDP: Session Description Protocol".

[407] IETF RFC 5031 (2008): "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".

[408] IEEE Std 802.11-2012™: "IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

[409] IETF RFC 4776 (2006): "Dynamic Host Configuration Protocol (DHCPv4 and DHCPv6) Option for Civic Addresses Configuration Information".

[410] IETF RFC 4122 (200): "A Universally Unique IDentifier (UUID) URN Namespace".

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

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

[413] – [600] void

[601] Broadband Forum TR-134: "Broadband Policy Control Framework (BPCF)".

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| --- |
| **Second change** |

### 5.2.1 Generic ASN.1 definitions

This subclause contains generic CDR syntax definitions, where the term "generic" implies that these constructs are applicable for more than one domain/service/subsystem. Examples of this are syntax definitions that are imported from non-charging 3GPP TSs, e.g. TS 29.002 [214].

.$GenericChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) genericChargingDataTypes (0) asn1Module (0) version2 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

AddressString,

ISDN-AddressString,

LCSClientExternalID,

LCSClientInternalID

FROM MAP-CommonDataTypes { itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3) map-CommonDataTypes (18) version18 (18) }

-- from TS 29.002 [214]

PositionMethodFailure-Diagnostic,

UnauthorizedLCSClient-Diagnostic

FROM MAP-ER-DataTypes { itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3) map-ER-DataTypes (17) version18 (18)}

-- from TS 29.002 [214]

ObjectInstance

FROM CMIP-1 {joint-iso-itu-t ms (9) cmip (1) modules (0) protocol (3)}

-- from Rec. X.711 [304]

ManagementExtension

FROM Attribute-ASN1Module {joint-iso-itu-t ms (9) smi (3) part2 (2) asn1Module (2) 1}

-- from Rec. X.721 [305]

AE-title

FROM ACSE-1 {joint-iso-itu-t association-control (2) modules (0) apdus (0) version1 (1) };

-- Note that the syntax of AE-title to be used is from

-- ITU-T Rec. X.227[306) / ISO 8650 corrigendum and not "ANY"

--

-- Generic Data Types

--

BCDDirectoryNumber ::= OCTET STRING

--

-- This type contains the binary coded decimal representation of

-- a directory number e.g. calling/called/connected/translated number.

-- The encoding of the octet string is in accordance with the

-- the elements "Calling party BCD number", "Called party BCD number"

-- and "Connected number" defined in TS 24.008 [208].

-- This encoding includes type of number and number plan information

-- together with a BCD encoded digit string.

-- It may also contain both a presentation and screening indicator

-- (octet 3a).

-- For the avoidance of doubt, this field does not include

 -- octets 1 and 2, the element name and length, as this would be

-- redundant.

--

CallDuration ::= INTEGER

--

-- The call duration is counted in seconds.

-- For successful calls /sessions / PDP contexts, this is the chargeable duration.

-- For call attempts this is the call holding time.

--

CalledNumber ::= BCDDirectoryNumber

CallingNumber ::= BCDDirectoryNumber

CellId ::= OCTET STRING (SIZE(2))

--

-- Coded according to TS 24.008 [208]

--

ChargeIndicator ::= INTEGER

{

 noCharge (0),

 charge (1)

}

CauseForRecClosing ::= INTEGER

--

-- Cause codes 0 to 15 are defined 'CauseForTerm' (cause for termination)

-- There is no direct correlation between these two types.

--

-- LCS related causes belong to the MAP error causes acc. TS 29.002 [214]

--

-- In PGW-CDR and SGW-CDR the value servingNodeChange is used for partial record

-- generation due to Serving Node Address list Overflow

-- In SGSN servingNodeChange indicates the SGSN change

--

-- sWGChange value is used in both the S-GW, TWAG and ePDG for inter serving node change

--

{

 normalRelease (0),

 partialRecord (1),

 abnormalRelease (4),

 cAMELInitCallRelease (5),

 volumeLimit (16),

 timeLimit (17),

 servingNodeChange (18),

 maxChangeCond (19),

 managementIntervention (20),

 intraSGSNIntersystemChange (21),

 rATChange (22),

 mSTimeZoneChange (23),

 sGSNPLMNIDChange (24),

 sGWChange (25),

 aPNAMBRChange (26),

 mOExceptionDataCounterReceipt (27),

 unauthorizedRequestingNetwork (52),

 unauthorizedLCSClient (53),

 positionMethodFailure (54),

 unknownOrUnreachableLCSClient (58),

 listofDownstreamNodeChange (59)

}

CauseForTerm ::= INTEGER

--

-- Cause codes from 16 up to 31 are defined as 'CauseForRecClosing'

-- (cause for record closing).

-- There is no direct correlation between these two types.

--

-- LCS related causes belong to the MAP error causes acc. TS 29.002 [214].

--

{

 normalRelease (0),

 partialRecord (1),

 partialRecordCallReestablishment (2),

 unsuccessfulCallAttempt (3),

 abnormalRelease (4),

 cAMELInitCallRelease (5),

 unauthorizedRequestingNetwork (52),

 unauthorizedLCSClient (53),

 positionMethodFailure (54),

 unknownOrUnreachableLCSClient (58)

}

ChargingID ::= INTEGER (0..4294967295)

--

-- Generated in P-GW, part of IP-CAN bearer

-- 0..4294967295 is equivalent to 0..2\*\*32-1

--

CivicAddressInformation ::= OCTET STRING

--

-- as defined in subclause 3.1 of IETF RFC 4776 [409] excluding the first 3 octets.

--

CNIPMulticastDistribution ::= ENUMERATED

{

 nO-IP-MULTICAST (0),

 iP-MULTICAST (1)

}

DataVolumeOctets ::= INTEGER

--

-- The volume of data transferred in octets.

--

DynamicAddressFlag ::= BOOLEAN

Diagnostics ::= CHOICE

{

 gsm0408Cause [0] INTEGER,

 -- See TS 24.008 [208]

 gsm0902MapErrorValue [1] INTEGER,

 --

 -- Note: The value to be stored here corresponds to the local values defined in the MAP-Errors

 -- and MAP-DialogueInformation modules, for full details see TS 29.002 [214].

 --

 itu-tQ767Cause [2] INTEGER,

 -- See Q.767 [309]

 networkSpecificCause [3] ManagementExtension,

 -- To be defined by network operator

 manufacturerSpecificCause [4] ManagementExtension,

 -- To be defined by manufacturer

 -- May be used for CHF generated diagnostics

 positionMethodFailureCause [5] PositionMethodFailure-Diagnostic,

 -- See TS 29.002 [214]

 unauthorizedLCSClientCause [6] UnauthorizedLCSClient-Diagnostic,

 -- See TS 29.002 [214]

 diameterResultCodeAndExperimentalResult [7] INTEGER

 -- See TS 29.338 [230], TS 29.337 [231], TS 29.128 [244]

-- May be used for Nchf received diagnostics

}

DiameterIdentity ::= OCTET STRING

EnhancedDiagnostics ::= SEQUENCE

{

 rANNASCause [0] SEQUENCE OF RANNASCause

}

GSNAddress ::= IPAddress

InvolvedParty ::= CHOICE

{

 sIP-URI [0] GraphicString, -- refer to rfc3261 [401]

 tEL-URI [1] GraphicString, -- refer to rfc3966 [402]

 uRN [2] GraphicString, -- refer to rfc5031 [407]

 iSDN-E164 [3] GraphicString, -- refer to ITU-T Recommendation E.164[308]

 externalId [4] UTF8String -- refer to clause 19.7.2 TS 23.003 [200]

}

IPAddress ::= CHOICE

{

 iPBinaryAddress IPBinaryAddress,

 iPTextRepresentedAddress IPTextRepresentedAddress

}

IPBinaryAddress ::= CHOICE

{

 iPBinV4Address [0] IPBinV4Address,

 iPBinV6Address IPBinV6AddressWithOrWithoutPrefixLength

}

IPBinV4Address ::= OCTET STRING (SIZE(4))

IPBinV6Address ::= OCTET STRING (SIZE(16))

IPBinV6AddressWithOrWithoutPrefixLength ::= CHOICE

{

 iPBinV6Address [1] IPBinV6Address,

 iPBinV6AddressWithPrefix [4] IPBinV6AddressWithPrefixLength

}

IPBinV6AddressWithPrefixLength ::= SEQUENCE

{

 iPBinV6Address IPBinV6Address,

 pDPAddressPrefixLength PDPAddressPrefixLength DEFAULT 64

}

IPTextRepresentedAddress ::= CHOICE

{ --

 -- IPv4 address are formatted in the "dotted decimal" notation according to IETF RFC 1166 [411].

 -- IPv6 address are formatted according to clause 4 of IETF RFC 5952 [412]. The mixed IPv4 IPv6

 -- notation according to clause 5 of IETF RFC 5952 [412] is not used.

 -- IPv6 address prefix are formatted in the "/" notation and according to clause 4 of

 -- IETF RFC 5952 [412].

 --

 iPTextV4Address [2] IA5String (SIZE(7..15)),

 iPTextV6Address [3] IA5String (SIZE(15..45))

}

LCSCause ::= OCTET STRING (SIZE(1))

--

-- See LCS Cause Value, TS 49.031 [227]

--

LCSClientIdentity ::= SEQUENCE

{

 lcsClientExternalID [0] LCSClientExternalID OPTIONAL,

 lcsClientDialedByMS [1] AddressString OPTIONAL,

 lcsClientInternalID [2] LCSClientInternalID OPTIONAL

}

LCSQoSInfo ::= OCTET STRING (SIZE(4))

--

-- See LCS QoS IE, TS 49.031 [227]

--

LevelOfCAMELService ::= BIT STRING

{

 basic (0),

 callDurationSupervision (1),

 onlineCharging (2)

}

LocalSequenceNumber ::= INTEGER (0..4294967295)

--

-- Sequence number of the record in this node

-- 0.. 4294967295 is equivalent to 0..2\*\*32-1, unsigned integer in four octets

--

LocationAreaAndCell ::= SEQUENCE

{

 locationAreaCode [0] LocationAreaCode,

 cellId [1] CellId,

 mCC-MNC [2] MCC-MNC OPTIONAL

}

LocationAreaCode ::= OCTET STRING (SIZE(2))

--

-- See TS 24.008 [208]

--

ManagementExtensions ::= SET OF ManagementExtension

MBMS2G3GIndicator ::= ENUMERATED

{

 twoG (0), -- For GERAN access only

 threeG (1), -- For UTRAN access only

 twoG-AND-threeG (2) -- For both UTRAN and GERAN access

}

MBMSInformation ::= SET

{

 tMGI [1] TMGI OPTIONAL,

 mBMSSessionIdentity [2] MBMSSessionIdentity OPTIONAL,

 mBMSServiceType [3] MBMSServiceType OPTIONAL,

 mBMSUserServiceType [4] MBMSUserServiceType OPTIONAL, -- only supported in the BM-SC

 mBMS2G3GIndicator [5] MBMS2G3GIndicator OPTIONAL,

 fileRepairSupported [6] BOOLEAN OPTIONAL, -- only supported in the BM-SC

 rAI [7] RoutingAreaCode OPTIONAL, -- only supported in the BM-SC

 mBMSServiceArea [8] MBMSServiceArea OPTIONAL,

 requiredMBMSBearerCaps [9] RequiredMBMSBearerCapabilities OPTIONAL,

 mBMSGWAddress [10] GSNAddress OPTIONAL,

 cNIPMulticastDistribution [11] CNIPMulticastDistribution OPTIONAL,

 mBMSDataTransferStart [12] MBMSTime OPTIONAL,

 mBMSDataTransferStop [13] MBMSTime OPTIONAL

}

MBMSServiceArea ::= OCTET STRING

MBMSServiceType ::= ENUMERATED

{

 mULTICAST (0),

 bROADCAST (1)

}

MBMSSessionIdentity ::= OCTET STRING (SIZE (1))

--

-- This octet string is a 1:1 copy of the contents of the MBMS-Session-Identity

-- AVP specified in TS 29.061 [82]

--

MBMSTime ::= OCTET STRING (SIZE (8))

--

-- This value indicates the time in seconds relative to 00:00:00 on 1 January 1900 (calculated as

-- continuous time without leap seconds and traceable to a common time reference) where binary

-- encoding of the integer part is in the first 32 bits and binary encoding of the fraction part in

-- the last 32 bits. The fraction part is expressed with a granularity of 1 /2\*\*32 second as

-- specified in TS 29.061 [82].

--

MBMSUserServiceType ::= ENUMERATED

{

 dOWNLOAD (0),

 sTREAMING (1)

}

MCC-MNC ::= OCTET STRING (SIZE(3))

--

-- See TS 24.008 [208]

--

MessageClass ::= ENUMERATED

{

 personal (0),

 advertisement (1),

 information-service (2),

 auto (3)

}

MessageReference ::= OCTET STRING

--

-- The default value shall be one octet set to 0

--

MSCAddress ::= AddressString

MscNo ::= ISDN-AddressString

--

-- See TS 23.003 [200]

--

MSISDN ::= ISDN-AddressString

--

-- See TS 23.003 [200]

--

MSTimeZone ::= OCTET STRING (SIZE (2))

--

-- 1. Octet: Time Zone and 2. Octet: Daylight saving time, see TS 29.060 [215]

--

NodeID ::= IA5String (SIZE(1..20))

NodeAddress ::= CHOICE

{

 iPAddress [0] IPAddress,

 domainName [1] GraphicString

}

PDPAddressPrefixLength ::=INTEGER (1..64)

--

-- This is an integer indicating the length of the PDP/PDN IPv6 address prefix

-- and the default value is 64 bits.

--

PDPAddress ::= CHOICE

{

 iPAddress [0] IPAddress

-- eTSIAddress [1] ETSIAddress

-- has only been used in earlier releases for X.121 format

}

PLMN-Id ::= OCTET STRING (SIZE (3))

--

-- This is in the same format as octets 2, 3 and 4 of the Routing Area Identity (RAI) IE specified

-- in TS 29.060 [215]

--

PositioningData ::= OCTET STRING (SIZE(1..33))

--

-- See Positioning Data IE (octet 3..n), TS 49.031 [227]

--

PriorityType ::= ENUMERATED

{

 low (0),

 normal (1),

 high (2)

}

RANNASCause ::= OCTET STRING

-- This octet string is a 1:1 copy of the contents (i.e. starting with octet 5)

-- of the "RAN/NAS Cause" information element specified in TS 29.274 [223].

RATType ::= INTEGER (0..255)

--

--This integer is 1:1 copy of the RAT type value as defined in TS 29.061 [215].

--

RecordingEntity ::= AddressString

RecordType ::= INTEGER

--

-- Record values 0..17 and 87,89 are CS specific. The contents are defined in TS 32.250 [10]

--

{

 moCallRecord (0),

 mtCallRecord (1),

 roamingRecord (2),

 incGatewayRecord (3),

 outGatewayRecord (4),

 transitCallRecord (5),

 moSMSRecord (6),

 mtSMSRecord (7),

 moSMSIWRecord (8),

 mtSMSGWRecord (9),

 ssActionRecord (10),

 hlrIntRecord (11),

 locUpdateHLRRecord (12),

 locUpdateVLRRecord (13),

 commonEquipRecord (14),

 moTraceRecord (15), -- used in earlier releases

 mtTraceRecord (16), -- used in earlier releases

 termCAMELRecord (17),

--

-- Record values 18..22 are GPRS specific. The contents are defined in TS 32.251 [11]

--

 sgsnPDPRecord (18),

 sgsnMMRecord (20),

 sgsnSMORecord (21), -- also MME UE originated SMS record

 sgsnSMTRecord (22), -- also MME UE terminated SMS record

--

-- Record values 23..25 are CS-LCS specific. The contents are defined in TS 32.250 [10]

--

 mtLCSRecord (23),

 moLCSRecord (24),

 niLCSRecord (25),

--

-- Record values 26..28 are GPRS-LCS specific. The contents are defined in TS 32.251 [11]

--

 sgsnMTLCSRecord (26),

 sgsnMOLCSRecord (27),

 sgsnNILCSRecord (28),

--

-- Record values 30..62 are MMS specific. The contents are defined in TS 32.270 [30]

--

 mMO1SRecord (30),

 mMO4FRqRecord (31),

 mMO4FRsRecord (32),

 mMO4DRecord (33),

 mMO1DRecord (34),

 mMO4RRecord (35),

 mMO1RRecord (36),

 mMOMDRecord (37),

 mMR4FRecord (38),

 mMR1NRqRecord (39),

 mMR1NRsRecord (40),

 mMR1RtRecord (41),

 mMR1AFRecord (42),

 mMR4DRqRecord (43),

 mMR4DRsRecord (44),

 mMR1RRRecord (45),

 mMR4RRqRecord (46),

 mMR4RRsRecord (47),

 mMRMDRecord (48),

 mMFRecord (49),

 mMBx1SRecord (50),

 mMBx1VRecord (51),

 mMBx1URecord (52),

 mMBx1DRecord (53),

 mM7SRecord (54),

 mM7DRqRecord (55),

 mM7DRsRecord (56),

 mM7CRecord (57),

 mM7RRecord (58),

 mM7DRRqRecord (59),

 mM7DRRsRecord (60),

 mM7RRqRecord (61),

 mM7RRsRecord (62),

--

-- Record values 63..70, 82, 89..91 are IMS specific.

-- The contents are defined in TS 32.260 [20]

--

 sCSCFRecord (63),

 pCSCFRecord (64),

 iCSCFRecord (65),

 mRFCRecord (66),

 mGCFRecord (67),

 bGCFRecord (68),

 aSRecord (69),

 eCSCFRecord (70),

 iBCFRecord (82),

 tRFRecord (89),

 tFRecord (90),

aTCFRecord (91),

--

-- Record values 71..75 are LCS specific. The contents are defined in TS 32.271 [31]

--

 lCSGMORecord (71),

 lCSRGMTRecord (72),

 lCSHGMTRecord (73),

 lCSVGMTRecord (74),

 lCSGNIRecord (75),

--

-- Record values 76..79,86 are MBMS specific.

-- The contents are defined in TS 32.251 [11] and TS 32.273 [33]

--

-- Record values 76,77 and 86 are MBMS bearer context specific

--

 sgsnMBMSRecord (76),

 ggsnMBMSRecord (77),

 gwMBMSRecord (86),

--

-- Record values 78 and 79 are MBMS service specific and defined in TS 32.273 [33]

--

 sUBBMSCRecord (78),

 cONTENTBMSCRecord (79),

--

-- Record Values 80..81 are PoC specific. The contents are defined in TS 32.272 [32]

--

 pPFRecord (80),

 cPFRecord (81),

--

-- Record values 84,85 and 92,95,96, 97 are EPC specific.

-- The contents are defined in TS 32.251 [11]

--

 sGWRecord (84),

 pGWRecord (85),

 tDFRecord (92),

 iPERecord (95),

 ePDGRecord (96),

 tWAGRecord (97),

--

-- Record Value 83 is MMTel specific. The contents are defined in TS 32.275 [35]

--

 mMTelRecord (83),

--

-- Record value 87,88 and 89 are CS specific. The contents are defined in TS 32.250 [10]

--

 mSCsRVCCRecord (87),

 mMTRFRecord (88),

 iCSRegisterRecord (99),

--

-- Record values 93 and 94 are SMS specific. The contents are defined in TS 32.274 [34]

--

 sCSMORecord (93),

 sCSMTRecord (94),

--

-- Record values 100, 101 and 102 are ProSe specific. The contents are defined in TS 32.277 [36]

--

 pFDDRecord (100),

 pFEDRecord (101),

 pFDCRecord (102),

--

-- Record values103 and 104 are Monitoring Event specific. The contents are defined in TS

-- 32.278 [38]

--

 mECORecord (103),

 mERERecord (104),

--

-- Record values 105 to 106 are CP data transfer specific. The contents are defined in TS

-- 32.253 [13]

--

 cPDTSCERecord (105),

 cPDTSNNRecord (106), --

-- Record values 110 to 113 are SMS specific. The contents are defined in TS

-- 32.274 [34]

--

 sCDVTT4Record (110),

 sCSMOT4Record (111),

 iSMSMORecord (112),

 iSMSMTRecord (113),

--

-- Record values 120 are Exposure Function API specific. The contents are defined in TS

-- 32.254 [14]

--

 eASCERecord (120),

--

-- Record values from 200 are specific to Charging Function domain

--

 chargingFunctionRecord (200)

--

}

RequiredMBMSBearerCapabilities ::= OCTET STRING (SIZE (3..14))

--

-- This octet string is a 1:1 copy of the contents (i.e. starting with octet 5) of the

-- "Quality of service Profile" information element specified in TS 29.060 [75].

--

RoutingAreaCode ::= OCTET STRING (SIZE(1))

--

-- See TS 24.008 [208]

--

SCSASAddress ::= SET

--

--

--

{

 sCSAddress [1] IPAddress,

 sCSRealm [2] DiameterIdentity

}

Session-Id ::= GraphicString

--

-- rfc3261 [401]: example for SIP CALL-ID: f81d4fae-7dec-11d0-a765-00a0c91e6bf6@foo.bar.com

--

ServiceContextID ::= UTF8String

ServiceSpecificInfo ::= SEQUENCE

{

 serviceSpecificData [0] GraphicString OPTIONAL,
 serviceSpecificType [1] INTEGER OPTIONAL

}

SMSResult ::= Diagnostics

SmsTpDestinationNumber ::= OCTET STRING

--

-- This type contains the binary coded decimal representation of

-- the SMS address field the encoding of the octet string is in

-- accordance with the definition of address fields in TS 23.040 [201].

-- This encoding includes type of number and numbering plan indication

-- together with the address value range.

--

SubscriberEquipmentNumber ::= SET

--

-- If SubscriberEquipmentType is set to IMEISV and IMEI is received, the number of digits is 15.

--

{

 subscriberEquipmentNumberType [0] SubscriberEquipmentType,

 subscriberEquipmentNumberData [1] OCTET STRING

}

SubscriberEquipmentType ::= ENUMERATED

--

-- It should be noted that depending on the services, not all equipment types are applicable.

-- For IMS equipment types 0 and 3 are applicable.

-- In 5GS, for PEI defined as:

-- - IMEI or IMEISV, iMEISV type is used and the data is per TS 23.003 [200] format.

-- - MAC address, mAC type is used, and the data is converted from JSON format of the PEI

-- described in TS 29.571 [249].

-- - EUI-64, uEI64 type is used, and the data is converted from JSON format of the PEI

-- described in TS 29.571 [249].

{

 iMEISV (0),

 mAC (1),

 eUI64 (2),

 modifiedEUI64 (3)

}

SubscriptionID ::= SET

--

-- See TS 23.003 [200] and TS 29.571 [249]

--

{

 subscriptionIDType [0] SubscriptionIDType,

 subscriptionIDData [1] UTF8String

}

SubscriptionIDType ::= ENUMERATED

{

 eND-USER-E164 (0),

 eND-USER-IMSI (1),

 eND-USER-SIP-URI (2),

 eND-USER-NAI (3),

 eND-USER-PRIVATE (4)

--

-- eND-USER-NAI can be used for externalIdentifier.

-- eND-USER-IMSI can be used for 5G BRG or 5G CRG.

-- eND-USER-NAI can be used for GLI or GCI for wireline access network scenarios

-- NAI format for GCI and GLI is specified in 28.15.5 and 28.15.6 of TS 23.003 [200].

--

}

SystemType ::= ENUMERATED

 --

 -- "unknown" is not to be used in PS domain.

 --

{

 unknown (0),

 iuUTRAN (1),

 gERAN (2)

}

ThreeGPPPSDataOffStatus ::= ENUMERATED

{

 active (0),

 inactive (1)

}

TimeStamp ::= OCTET STRING (SIZE(9))

--

-- The contents of this field are a compact form of the UTCTime format

-- containing local time plus an offset to universal time. Binary coded

-- decimal encoding is employed for the digits to reduce the storage and

-- transmission overhead

-- e.g. YYMMDDhhmmssShhmm

-- where

-- YY = Year 00 to 99 BCD encoded

-- MM = Month 01 to 12 BCD encoded

-- DD = Day 01 to 31 BCD encoded

-- hh = hour 00 to 23 BCD encoded

-- mm = minute 00 to 59 BCD encoded

-- ss = second 00 to 59 BCD encoded

-- S = Sign 0 = "+", "-" ASCII encoded

-- hh = hour 00 to 23 BCD encoded

-- mm = minute 00 to 59 BCD encoded

--

TMGI ::= OCTET STRING

--

-- This octet string is a 1:1 copy of the contents (i.e. starting with octet 4)

-- of the "TMGI" information element specified in TS 29.060 [75].

--

.#END

|  |
| --- |
| **End of changes** |