**3GPP TSG-SA5 Meeting #131e *S5-203124rev1***

**e-meeting 25th May-3rd June 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.298** | **CR** | **0814** | **rev** | **-** | **Current version:** | **16.4.1** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Add PDU Address in for IPv6 multi-homing | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI 16 | | | | |  | ***Date:*** | | | 2020-05-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | 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 can be 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The PDU Addresses per PSA for IPv6 multi-homing is not specified in TS 32.298. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | This contribution is to add IPv6 multi-homing address for PSA in Multiple Unit Usage for IPv6 multi-homing, including in the charging data request/response and CDR. The adding of IPv6 multi-homing address is associated to UPF ID, that not need to add new trigger(s). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | In IPv6 multi-homing scenario, IPv6 multi-homing is not supported.. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.5.2, 5.1.5.1.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

|  |
| --- |
| **First change to TS 32.298** |

##### 5.1.5.1.4 List of Multiple Unit Usage

This list applicable in CHF-CDR and includes one or more containers.

Each container includes the following fields:

- **Rating Group** This field holds the rating group. The parameter corresponds to the Charging Key as specified in TS 23.203 [203]

**- Used Unit Container** This field holds the used units and information connected to the reported units.

- **PDU Container Information** This field holds the 5G data connectivity specific information described in TS 32.255 [15].

**- UPF ID** This field holds the UPF identifier used to identify the UPF when reporting the usage for the UPF.

**- Used multi-homing address** This field holds the IPv6 address/Prefix used by PSA to transfer service flow for IPv6 multi-homing.

|  |
| --- |
| **Second change to TS 32.298** |

#### 5.2.5.2 CHF CDRs

This subclause contains the abstract syntax definitions that are specific to the CHF CDR types defined in this document.

.$CHFChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) chfChargingDataTypes (15) asn1Module (0) version1 (0)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

CallDuration,

CauseForRecClosing,

ChargingID,

DataVolumeOctets,

Diagnostics,

EnhancedDiagnostics,

DynamicAddressFlag,

InvolvedParty,

IPAddress,

LocalSequenceNumber,

ManagementExtensions,

MessageClass,

MessageReference,

MSTimeZone,

NodeAddress,

PLMN-Id,

PriorityType,

RATType,

RecordType,

ServiceSpecificInfo,

Session-Id,

SubscriberEquipmentNumber,

SubscriptionID,

ThreeGPPPSDataOffStatus,

TimeStamp

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

AddressString

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

ChargingCharacteristics,

ChargingRuleBaseName,

ChChSelectionMode,

EventBasedChargingInformation,

PresenceReportingAreaInfo,

RatingGroupId,

ServiceIdentifier

FROM GPRSChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) gprsChargingDataTypes (2) asn1Module (0) version2 (1)}

OriginatorInfo,

RecipientInfo,

SMMessageType,

SMSResult,

SMSStatus

FROM SMSChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) smsChargingDataTypes (10) asn1Module (0) version2 (1)}

APIDirection

FROM ExposureFunctionAPIChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) exposureFunctionAPIChargingDataTypes (14) asn1Module (0) version2 (1)}

;

--

-- CHF RECORDS

--

CHFRecord ::= CHOICE

--

-- Record values 200..201 are specific

--

{

chargingFunctionRecord [200] ChargingRecord

}

ChargingRecord ::= SET

{

recordType [0] RecordType,

recordingNetworkFunctionID [1] NetworkFunctionName,

subscriberIdentifier [2] SubscriptionID OPTIONAL,

nFunctionConsumerInformation [3] NetworkFunctionInformation,

triggers [4] SEQUENCE OF Trigger OPTIONAL,

listOfMultipleUnitUsage [5] SEQUENCE OF MultipleUnitUsage OPTIONAL,

recordOpeningTime [6] TimeStamp,

duration [7] CallDuration,

recordSequenceNumber [8] INTEGER OPTIONAL,

causeForRecClosing [9] CauseForRecClosing,

diagnostics [10] Diagnostics OPTIONAL,

localRecordSequenceNumber [11] LocalSequenceNumber OPTIONAL,

recordExtensions [12] ManagementExtensions OPTIONAL,

pDUSessionChargingInformation [13] PDUSessionChargingInformation OPTIONAL,

roamingQBCInformation [14] RoamingQBCInformation OPTIONAL,

sMSChargingInformation [15] SMSChargingInformation OPTIONAL,

chargingSessionIdentifier [16] ChargingSessionIdentifier OPTIONAL,

exposureFunctionAPIInformation [17] ExposureFunctionAPIInformation OPTIONAL,

serviceSpecificationInformation [18] OCTET STRING OPTIONAL,

registrationChargingInformation [19] RegistrationChargingInformation OPTIONAL,

n2ConnectionChargingInformation [20] N2ConnectionChargingInformation OPTIONAL,

locationReportingChargingInformation [21] LocationReportingChargingInformation OPTIONAL,

incompleteCDRIndication [22] IncompleteCDRIndication OPTIONAL

}

--

-- PDU Session Charging Information

--

PDUSessionChargingInformation ::= SET

{

pDUSessionChargingID [0] ChargingID,

userIdentifier [1] InvolvedParty OPTIONAL,

userEquipmentInfo [2] SubscriberEquipmentNumber OPTIONAL,

userLocationInformation [3] UserLocationInformation OPTIONAL,

userRoamerInOut [4] RoamerInOut OPTIONAL,

presenceReportingAreaInfo [5] PresenceReportingAreaInfo OPTIONAL,

pDUSessionId [6] PDUSessionId,

networkSliceInstanceID [7] NetworkSliceInstanceID OPTIONAL,

pDUType [8] PDUSessionType OPTIONAL,

sSCMode [9] SSCMode OPTIONAL,

sUPIPLMNIdentifier [10] PLMN-Id OPTIONAL,

servingNetworkFunctionID [11] SEQUENCE OF ServingNetworkFunctionID OPTIONAL,

rATType [12] RATType OPTIONAL,

dataNetworkNameIdentifier [13] DataNetworkNameIdentifier OPTIONAL,

pDUAddress [14] PDUAddress OPTIONAL,

authorizedQoSInformation [15] AuthorizedQoSInformation OPTIONAL,

uETimeZone [16] MSTimeZone OPTIONAL,

pDUSessionstartTime [17] TimeStamp OPTIONAL,

pDUSessionstopTime [18] TimeStamp OPTIONAL,

diagnostics [19] Diagnostics OPTIONAL,

chargingCharacteristics [20] ChargingCharacteristics OPTIONAL,

chChSelectionMode [21] ChChSelectionMode OPTIONAL,

threeGPPPSDataOffStatus [22] ThreeGPPPSDataOffStatus OPTIONAL,

rANSecondaryRATUsageReport [23] SEQUENCE OF NGRANSecondaryRATUsageReport OPTIONAL,

subscribedQoSInformation [24] SubscribedQoSInformation OPTIONAL,

authorizedSessionAMBR [25] SessionAMBR OPTIONAL,

subscribedSessionAMBR [26] SessionAMBR OPTIONAL,

servingCNPLMNID [27] PLMN-Id OPTIONAL,

sUPIunauthenticatedFlag [28] NULL OPTIONAL,

homeProvidedChargingID [29] ChargingID OPTIONAL,

dnnSelectionMode [30] DNNSelectionMode OPTIONAL

}

--

-- Roaming QBC Information

--

RoamingQBCInformation ::= SET

{

multipleQFIcontainer [0] SEQUENCE OF MultipleQFIContainer OPTIONAL,

uPFID [1] NetworkFunctionName OPTIONAL,

roamingChargingProfile [2] RoamingChargingProfile OPTIONAL

}

--

-- SMS Charging Information

--

SMSChargingInformation ::= SET

{

sMSNodeAddress [0] AddressString,

originatorInfo [1] OriginatorInfo OPTIONAL,

recipientInfos [2] SEQUENCE OF RecipientInfo OPTIONAL,

userEquipmentInfo [3] SubscriberEquipmentNumber OPTIONAL,

userLocationInformation [4] UserLocationInformation OPTIONAL,

uETimeZone [5] MSTimeZone OPTIONAL,

rATType [6] RATType OPTIONAL,

sMSCAddress [7] AddressString OPTIONAL,

eventtimestamp [8] TimeStamp,

-- 9 to 19 is for future use

sMDataCodingScheme [20] INTEGER OPTIONAL,

sMMessageType [21] SMMessageType OPTIONAL,

sMReplyPathRequested [22] SMReplyPathRequested OPTIONAL,

sMUserDataHeader [23] OCTET STRING OPTIONAL,

sMSStatus [24] SMSStatus OPTIONAL,

sMDischargeTime [25] TimeStamp OPTIONAL,

sMTotalNumber [26] INTEGER OPTIONAL,

sMServiceType [27] SMServiceType OPTIONAL,

sMSequenceNumber [28] INTEGER OPTIONAL,

sMSResult [29] SMSResult OPTIONAL,

submissionTime [30] TimeStamp OPTIONAL,

sMPriority [31] PriorityType OPTIONAL,

messageReference [32] MessageReference,

messageSize [33] INTEGER OPTIONAL,

messageClass [34] MessageClass OPTIONAL,

sMdeliveryReportRequested [35] SMdeliveryReportRequested OPTIONAL

}

--

-- Exposure Function API Information

--

ExposureFunctionAPIInformation ::= SET

{

groupIdentifier [0] AddressString,

aPIDirection [1] APIDirection OPTIONAL,

aPITargetNetworkFunction [2] NetworkFunctionInformation OPTIONAL,

aPIResultCode [3] APIResultCode OPTIONAL,

aPIName [4] IA5String,

aPIReference [5] IA5String OPTIONAL,

aPIContent [6] OCTET STRING OPTIONAL

}

--

-- Registration Charging Information

--

RegistrationChargingInformation ::= SET

{

registrationMessagetype [0] RegistrationMessageType,

userIdentifier [1] InvolvedParty OPTIONAL,

userEquipmentInfo [2] SubscriberEquipmentNumber OPTIONAL,

sUPIunauthenticatedFlag [3] NULL OPTIONAL,

userRoamerInOut [4] RoamerInOut OPTIONAL,

userLocationInformation [5] OCTET STRING OPTIONAL,

userLocationInfoTime [6] TimeStamp OPTIONAL,

uETimeZone [7] MSTimeZone OPTIONAL,

rATType [8] RATType OPTIONAL,

mICOModeIndication [9] MICOModeIndication OPTIONAL,

smsIndication [10] SmsIndication OPTIONAL,

taiList [11] SEQUENCE OF TAI OPTIONAL,

serviceAreaRestriction [12] ServiceAreaRestriction OPTIONAL,

requestedNSSAI [13] SEQUENCE OF NetworkSliceInstanceID OPTIONAL,

allowedNSSAI [14] SEQUENCE OF NetworkSliceInstanceID OPTIONAL,

rejectedNSSAI [15] SEQUENCE OF NetworkSliceInstanceID OPTIONAL

}

--

-- N2 connection charging Information

--

N2ConnectionChargingInformation ::= SET

{

n2ConnectionMessageType [0] N2ConnectionMessageType,

userIdentifier [1] InvolvedParty OPTIONAL,

userEquipmentInfo [2] SubscriberEquipmentNumber OPTIONAL,

sUPIunauthenticatedFlag [3] NULL OPTIONAL,

userRoamerInOut [4] RoamerInOut OPTIONAL,

userLocationInformation [5] OCTET STRING OPTIONAL,

userLocationInfoTime [6] TimeStamp OPTIONAL,

uETimeZone [7] MSTimeZone OPTIONAL,

rATType [8] RATType OPTIONAL,

ranUeNgapId [9] RanUeNgapId OPTIONAL,

ranNodeId [10] GlobalRanNodeId OPTIONAL,

restrictedRatList [11] SEQUENCE OF RATType OPTIONAL,

forbiddenAreaList [12] SEQUENCE OF Area OPTIONAL,

serviceAreaRestriction [13] ServiceAreaRestriction OPTIONAL,

restrictedCnList [14] SEQUENCE OF CoreNetworkType OPTIONAL,

allowedNSSAI [15] SEQUENCE OF NetworkSliceInstanceID OPTIONAL,

rrcEstablishmentCause [16] RrcEstablishmentCause OPTIONAL

}

--

-- Location reporting charging Information

--

LocationReportingChargingInformation ::= SET

{

locationReportingMessagetype [0] LocationReportingMessageType,

userIdentifier [1] InvolvedParty OPTIONAL,

userEquipmentInfo [2] SubscriberEquipmentNumber OPTIONAL,

sUPIunauthenticatedFlag [3] NULL OPTIONAL,

userRoamerInOut [4] RoamerInOut OPTIONAL,

userLocationInformation [5] OCTET STRING OPTIONAL,

userLocationInfoTime [6] TimeStamp OPTIONAL,

uETimeZone [7] MSTimeZone OPTIONAL,

presenceReportingAreaInfo [8] PresenceReportingAreaInfo OPTIONAL,

rATType [9] RATType OPTIONAL

}

--

-- PDU Container Information

--

PDUContainerInformation ::= SEQUENCE

{

chargingRuleBaseName [0] ChargingRuleBaseName OPTIONAL,

afChargingIdentifier [1] ChargingID OPTIONAL,

timeOfFirstUsage [2] TimeStamp OPTIONAL,

timeOfLastUsage [3] TimeStamp OPTIONAL,

qoSInformation [4] FiveGQoSInformation OPTIONAL,

userLocationInformation [5] UserLocationInformation OPTIONAL,

presenceReportingAreaInfo [6] PresenceReportingAreaInfo OPTIONAL,

rATType [7] RATType OPTIONAL,

sponsorIdentity [8] OCTET STRING OPTIONAL,

applicationServiceProviderIdentity [9] OCTET STRING OPTIONAL,

servingNetworkFunctionID [10] SEQUENCE OF ServingNetworkFunctionID OPTIONAL,

uETimeZone [11] MSTimeZone OPTIONAL,

threeGPPPSDataOffStatus [12] ThreeGPPPSDataOffStatus OPTIONAL,

qoSCharacteristics [13] QoSCharacteristics OPTIONAL

}

--

-- QFI Container Information

--

MultipleQFIContainer ::= SEQUENCE

{

qosFlowId [0] QoSFlowId OPTIONAL,

triggers [1] SEQUENCE OF Trigger,

triggerTimeStamp [2] TimeStamp OPTIONAL,

dataTotalVolume [3] DataVolumeOctets OPTIONAL,

dataVolumeUplink [4] DataVolumeOctets OPTIONAL,

dataVolumeDownlink [5] DataVolumeOctets OPTIONAL,

localSequenceNumber [6] LocalSequenceNumber OPTIONAL,

timeOfFirstUsage [8] TimeStamp OPTIONAL,

timeOfLastUsage [9] TimeStamp OPTIONAL,

qoSInformation [10] FiveGQoSInformation OPTIONAL,

userLocationInformation [11] UserLocationInformation OPTIONAL,

uETimeZone [12] MSTimeZone OPTIONAL,

presenceReportingAreaInfo [13] PresenceReportingAreaInfo OPTIONAL,

rATType [14] RATType OPTIONAL,

reportTime [15] TimeStamp,

servingNetworkFunctionID [16] SEQUENCE OF ServingNetworkFunctionID OPTIONAL,

threeGPPPSDataOffStatus [17] ThreeGPPPSDataOffStatus OPTIONAL,

threeGPPChargingID [18] ChargingID OPTIONAL,

diagnostics [19] Diagnostics OPTIONAL,

extensionDiagnostics [20] EnhancedDiagnostics OPTIONAL

}

--

-- CHF CHARGING TYPES

--

--

-- A

--

AllocationRetentionPriority ::= SEQUENCE

{

priorityLevel [1] INTEGER,

preemptionCapability [2] PreemptionCapability,

preemptionVulnerability [3] PreemptionVulnerability

}

AMFID ::= OCTET STRING (SIZE(3))

-- See subclause 2.10.1 of 3GPP TS 23.003 [7] for encoding.

AmfUeNgapId ::= INTEGER

Area ::= SEQUENCE

{

tacs [0] SEQUENCE OF TAC OPTIONAL,

areaCode [1] OCTET STRING OPTIONAL

}

AuthorizedQoSInformation ::= SEQUENCE

--

-- See TS 32.291 [58] for more information

--

{

fiveQi [1] INTEGER,

aRP [2] AllocationRetentionPriority,

priorityLevel [3] INTEGER OPTIONAL,

averWindow [4] INTEGER OPTIONAL,

maxDataBurstVol [5] INTEGER OPTIONAL

}

--

-- B

--

Bitrate ::= OCTET STRING

--

-- See 3GPP TS 29.571 [249] Bitrate data type.

--

--

-- C

--

ChargingSessionIdentifier ::= OCTET STRING

-- See 3GPP TS 32.290 [57] for details.

CoreNetworkType ::= ENUMERATED

{

fiveGC (0),

ePC (1)

}

--

-- D

--

APIResultCode ::= INTEGER

--

-- See specific API for more information

--

DataNetworkNameIdentifier ::= IA5String (SIZE(1..63))

--

-- Network Identifier part of DNN in dot representation.

-- For example, if the complete DNN is 'apn1a.apn1b.apn1c.mnc022.mcc111.gprs'

-- The Identifier is 'apn1a.apn1b.apn1c' and is presented in this form in the CDR.

--

DNNSelectionMode ::= ENUMERATED

--

-- See Information Elements TS 29.502 [250] for more information

--

{

uEorNetworkProvidedSubscriptionVerified (0),

uEProvidedSubscriptionNotVerified (1),

networkProvidedSubscriptionNotVerified (2)

}

--

-- F

--

FiveGMMCapability ::= OCTET STRING

--

-- See 3GPP TS 29.571 [249] for details

--

FiveGQoSInformation ::= SEQUENCE

--

-- See TS 32.291 [58] for more information

--

{

fiveQi [1] INTEGER,

aRP [2] AllocationRetentionPriority,

qoSNotificationControl [3] BOOLEAN OPTIONAL,

reflectiveQos [4] BOOLEAN OPTIONAL,

maxbitrateUL [5] Bitrate OPTIONAL,

maxbitrateDL [6] Bitrate OPTIONAL,

guaranteedbitrateUL [7] Bitrate OPTIONAL,

guaranteedbitrateDL [8] Bitrate OPTIONAL,

priorityLevel [9] INTEGER OPTIONAL,

averWindow [10] INTEGER OPTIONAL,

maxDataBurstVol [11] INTEGER OPTIONAL,

maxPacketLossRateDL [12] INTEGER OPTIONAL,

maxPacketLossRateUL [13] INTEGER OPTIONAL

}

--

-- G

--

GlobalRanNodeId ::= SEQUENCE

{

pLMNId [0] PLMN-Id OPTIONAL,

n3IwfId [1] N3IwFId OPTIONAL,

gNbId [2] GNbId OPTIONAL,

ngeNbId [3] NgeNbId OPTIONAL

}

GNbId ::= SEQUENCE

{

bitLength [0] INTEGER,

gNbValue [1] IA5String (SIZE(10))

}

--

-- I

--

IncompleteCDRIndication ::= SEQUENCE

-- The values are TRUE if the corresponding message was lost, FALSE if it is not lost

-- and not included if the status is unknown

{

initialLost [0] BOOLEAN OPTIONAL, -- Initial was lost

updateLost [1] BOOLEAN OPTIONAL, -- An Update was lost,

terminationLost [2] BOOLEAN OPTIONAL -- Termination was lost

}

--

-- L

--

LocationReportingMessageType ::= INTEGER

--

-- M

--

MICOModeIndication ::= ENUMERATED

{

mICOMode (0),

noMICOMode (1)

}

MultipleUnitUsage ::= SEQUENCE

{

ratingGroup [0] RatingGroupId,

usedUnitContainers [1] SEQUENCE OF UsedUnitContainer OPTIONAL,

uPFID [2] NetworkFunctionName OPTIONAL,

usedMultihomingAddress [3] PDUAddress OPTIONAL

-- This field holds IPv6 address/prefix used for IPv6 multi-homed PDU session.

}

--

-- N

--

N2ConnectionMessageType ::= INTEGER

N3IwFId ::= IA5String (SIZE(1..16))

--

-- See 3GPP TS 29.571 [249] for details.

--

NetworkFunctionInformation ::= SEQUENCE

{

networkFunctionality [0] NetworkFunctionality,

networkFunctionName [1] NetworkFunctionName OPTIONAL,

networkFunctionIPv4Address [2] IPAddress OPTIONAL,

networkFunctionPLMNIdentifier [3] PLMN-Id OPTIONAL,

networkFunctionIPv6Address [4] IPAddress OPTIONAL,

networkFunctionFQDN [5] NodeAddress OPTIONAL

}

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

-- Shall be a Universally Unique Identifier (UUID) version 4, as described in IETF RFC 4122 [410]

NetworkFunctionality ::= ENUMERATED

{

cHF (0), -- this value is not used

sMF (1),

aMF (2),

sMSF (3),

sGW (4)

-- SGW is only applicable for interworking with EPC scenario when UE is connected to P-GW+SMF via EPC

}

NetworkSliceInstanceID ::= SEQUENCE

-- See S-NSSAI subclause 28.4.2 of TS 23.003 [200] for encoding.

{

sST [0] SliceServiceType,

sD [1] SliceDifferentiator OPTIONAL

}

NgeNbId ::= IA5String (SIZE(1..21))

--

-- See 3GPP TS 29.571 [249] for details.

--

NGRANSecondaryRATType ::= OCTET STRING

--

-- "NR" or "EUTRA"

--

NGRANSecondaryRATUsageReport ::= SEQUENCE

{

nGRANSecondaryRATType [0] NGRANSecondaryRATType OPTIONAL,

qosFlowsUsageReports [1] SEQUENCE OF QosFlowsUsageReport OPTIONAL

}

--

-- P

--

PartialRecordMethod ::= ENUMERATED

{

default (0),

individual (1)

}

PDUAddress ::= SEQUENCE

{

pDUIPv4Address [0] IPAddress OPTIONAL,

pDUIPv6AddresswithPrefix [1] IPAddress OPTIONAL,

iPV4dynamicAddressFlag [2] DynamicAddressFlag OPTIONAL,

iPV6dynamicPrefixFlag [3] DynamicAddressFlag OPTIONAL

}

PDUSessionId ::= INTEGER (0..255)

--

-- See 3GPP TS 29.571 [249] for details

--

PDUSessionType ::= ENUMERATED

{

iPv4v6 (0),

iPv4 (1),

iPv6 (2),

unstructured (3),

ethernet (4)

}

-- See 3GPP TS 29.571 [249] for details.

PreemptionCapability ::= ENUMERATED

{

nOT-PREEMPT (0),

mAY-PREEMPT (1)

}

PreemptionVulnerability ::= ENUMERATED

{

nOT-PREEMPTABLE (0),

pREEMPTABLE (1)

}

--

-- Q

--

QoSFlowId ::= INTEGER

QosFlowsUsageReport ::= SEQUENCE

{

qosFlowId [0] QoSFlowId OPTIONAL,

startTime [1] TimeStamp,

endTime [2] TimeStamp,

dataVolumeDownlink [3] DataVolumeOctets,

dataVolumeUplink [4] DataVolumeOctets

}

--

-- R

--

RanUeNgapId ::= INTEGER

RatingIndicator ::= BOOLEAN

-- Included if the units have been rated.

RegistrationMessageType ::= ENUMERATED

{

initial (0),

mobility (1),

periodic (2),

emergency (3),

deregistration (4)

}

RestrictionType ::= ENUMERATED

{

allowedAreas (0),

notAllowedAreas (1)

}

RoamingChargingProfile ::= SEQUENCE

{

roamingTriggers [0] SEQUENCE OF RoamingTrigger OPTIONAL,

partialRecordMethod [1] PartialRecordMethod OPTIONAL

}

RoamerInOut ::= ENUMERATED

{

roamerInBound (0),

roamerOutBound (1)

}

RoamingTrigger ::= SEQUENCE

{

trigger [0] SMFTrigger OPTIONAL,

triggerCategory [1] TriggerCategory OPTIONAL,

timeLimit [2] CallDuration OPTIONAL,

volumeLimit [3] DataVolumeOctets OPTIONAL,

maxNbChargingConditions [4] INTEGER OPTIONAL

}

RrcEstablishmentCause ::= OCTET STRING

--

-- S

--

ServiceAreaRestriction ::= SEQUENCE

{

restrictionType [0] RestrictionType OPTIONAL,

areas [1] SEQUENCE OF Area OPTIONAL,

maxNumOfTAs [2] INTEGER OPTIONAL,

maxNumOfTAsForNotAllowedAreas [3] INTEGER OPTIONAL

}

-- See 3GPP TS 29.571 [249] for details.

ServingNetworkFunctionID ::= SEQUENCE

{

servingNetworkFunctionInformation [0] NetworkFunctionInformation,

aMFIdentifier [1] AMFID OPTIONAL

}

SessionAMBR ::= SEQUENCE

{

ambrUL [1] Bitrate,

ambrDL [2] Bitrate

}

SliceServiceType ::= INTEGER (0..255)

--

-- See subclause 28.4.2 TS 23.003 [200]

--

SliceDifferentiator ::= OCTET STRING (SIZE(3))

--

-- See subclause 28.4.2 TS 23.003 [200]

--

SMdeliveryReportRequested ::= ENUMERATED

{

yes (0),

no (1)

}

SMFTrigger ::= INTEGER

{

startOfPDUSession (1),

atartOfServiceDataFlowNoSession (2),

-- Change of Charging conditions

qoSChange (100),

userLocationChange (101),

servingNodeChange (102),

presenceReportingAreaChange (103),

threeGPPPSDataOffStatusChange (104),

tariffTimeChange (105),

uETimeZoneChange (106),

pLMNChange (107),

rATTypeChange (108),

sessionAMBRChange (109),

additionOfUPF (110),

removalOfUPF (111),

insertionOfISMF (112),

removalOfISMF (113),

changeOfISMF (114),

-- Limit per PDU session

pDUSessionExpiryDataTimeLimit (200),

pDUSessionExpiryDataVolumeLimit (201),

pDUSessionExpiryDataEventLimit (202),

pDUSessionExpiryChargingConditionChanges (203),

-- Limit per Rating group

ratingGroupDataTimeLimit (300),

ratingGroupDataVolumeLimit (301),

ratingGroupDataEventLimit (302),

-- Quota management

timeThresholdReached (400),

volumeThresholdReached (401),

unitThresholdReached (402),

timeQuotaExhausted (403),

volumeQuotaExhausted (404),

unitQuotaExhausted (405),

expiryOfQuotaValidityTime (406),

reAuthorizationRequest (407),

startOfServiceDataFlowNoValidQuota (408),

otherQuotaType (409),

-- Others

terminationOfServiceDataFlow (500),

managementIntervention (501),

unitCountInactivityTime (502),

endOfPDUSession (503),

cHFResponseWithSessionTermination (504),

cHFAbortRequest (505),

abnormalRelease (506),

-- Limit per QoS Flow

qoSFlowExpiryDataTimeLimit (600),

qoSFlowExpiryDataVolumeLimit (601),

-- interworking with EPC

eCGIChange (700),

tAIChange (701),

handoverCancel (702),

handoverStart (703),

handoverComplete (704)

}

-- See TS 32.255 [15] for details.

SMReplyPathRequested ::= ENUMERATED

{

noReplyPathSet (0),

replyPathSet (1)

}

SMServiceType ::= INTEGER

{

-- 0 to 10 VAS4SMS Short Message, see TS TS 22.142 [x] for details

contentProcessing (0),

forwarding (1),

forwardingMultipleSubscriptions (2),

filtering (3),

receipt (4),

networkStorage (5),

toMultipleDestinations (6),

virtualPrivateNetwork (7),

autoreply (8),

personalSignature (9),

deferredDelivery (10)

-- 11 to 99 Reserved for 3GPP defined SM services

-- 100 to 199 Vendor specific SM services

}

SmsIndication ::= ENUMERATED

{

sMSSupported (0),

sMSNotSupported (1)

}

SSCMode ::= INTEGER

{

sSCMode1 (1),

sSCMode2 (2),

sSCMode3 (3)

}

-- See 3GPP TS 29.501 [248] for details.

SubscribedQoSInformation ::= SEQUENCE

--

-- See TS 32.291 [58] for more information

--

{

fiveQi [1] INTEGER OPTIONAL,

aRP [2] AllocationRetentionPriority OPTIONAL,

priorityLevel [3] INTEGER OPTIONAL

}

--

-- T

--

TAC ::= OCTET STRING (SIZE(3))

TAI ::= SEQUENCE

{

pLMNId [0] PLMN-Id,

tac [1] TAC

}

Trigger ::= CHOICE

{

sMFTrigger [0] SMFTrigger

}

TriggerCategory ::= ENUMERATED

{

immediateReport (0),

deferredReport (1)

}

--

-- U

--

UsedUnitContainer ::= SEQUENCE

{

serviceIdentifier [0] ServiceIdentifier OPTIONAL,

time [1] CallDuration OPTIONAL,

triggers [2] SEQUENCE OF Trigger,

triggerTimeStamp [3] TimeStamp OPTIONAL,

dataTotalVolume [4] DataVolumeOctets OPTIONAL,

dataVolumeUplink [5] DataVolumeOctets OPTIONAL,

dataVolumeDownlink [6] DataVolumeOctets OPTIONAL,

serviceSpecificUnits [7] INTEGER OPTIONAL,

eventTimeStamp [8] TimeStamp OPTIONAL,

localSequenceNumber [9] LocalSequenceNumber OPTIONAL,

ratingIndicator [10] RatingIndicator OPTIONAL,

pDUContainerInformation [11] PDUContainerInformation OPTIONAL,

quotaManagementIndicator [12] BOOLEAN OPTIONAL

}

UserLocationInformation ::= OCTET STRING

--

-- This data is converted from JSON format of the User Location as described in TS 29.571 [249].

--

QoSCharacteristics ::= OCTET STRING

--

-- This data is converted from JSON format of the QoSCharacteristics as described in TS 29.512

-- [251].

--

.#END

|  |
| --- |
| **End of Change** |