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| **3GPP TSG-SA5 Meeting #143-e *S5-223440rev2*****e-meeting, 9 - 17 May 2022**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **32.291** | **CR** | **0404** | **rev** | **1** | **Current version:** | **17.2.0** |  |
|  |
| *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:***  | Introduce Data Type for 5G ProSe |
|  |  |
| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | SA5 |
|  |  |
| ***Work item code:*** | 5G\_ProSe |  | ***Date:*** | 2022-4-29 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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 corresponding Data type of 5G ProSe needs to be introduced |
|  |  |
| ***Summary of change:*** | Introduce specific Data Type for 5G ProSe. |
|  |  |
| ***Consequences if not approved:*** | No converged charging of 5G ProSe. |
|  |  |
| ***Clauses affected:*** | 2, 6.1.6, 6.1.6.2.x (new), 6.1.6.3.4, 6.1.6.3.a-e (new), 6.1.8 |
|  |  |
|  | **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:*** |  |

|  |
| --- |
| **1st modified section** |

# 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] – [13] Void.

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

[15] – [28] Void.

[29] 3GPP TS 32.274: “Telecommunication management; Charging management;Short Message Service (SMS) charging”.

[30] 3GPP TS 32.255: “Telecommunication management; Charging management; 5G Data connectivity domain charging; stage 2”.

[31] 3GPP TS 32.256: “Telecommunication management; Charging management; 5G connection and mobility domain charging; stage 2”.

[32] 3GPP TS 32.260: “Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging”.

[33] 3GPP TS 32.275: “Telecommunication management; Charging management; MultiMedia Telephony (MMTel) charging”.

[34] 3GPP TS 32.281: “ Telecommunication management; Charging management; Announcement

[35] 3GPP TS 32.277: “Telecommunication management; Charging management; Proximity-based Services (ProSe) charging”.

[36] – [49] Void.

[50] – [57] Void.

[58] 3GPP TS 32.290: “Telecommunication management; Charging management; 5G system; Services, operations and procedures of charging using Service Based Interface (SBI).

[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 TR 21.900: “Technical Specification Group working methods”.

[102] 3GPP TS 24.605: “Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification”.

[103] – [199] Void

[200] – [252] Void

[253] 3GPP TS 28.532: “Management and orchestration; Management services”.

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

[255] 3GPP TS 32.300: “Telecommunication management; Configuration Management (CM); Name convention for Managed Objects”.

[256] 3GPP TS 28.554: “Management and orchestration;5G end to end Key Performance Indicators (KPI)”.

[257] 3GPP TS 28.623: “Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions”.

[258] 3GPP TS 24.229: “IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3”.

[259] 3GPP TS 29.078: “Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification”.”.

[260] 3GPP TS 29.228: “IP Multimedia (IM) Subsystem Cx and Dx interface; signalling flows and message contents”.

[261] 3GPP TS 29.002 : « Mobile Application Part (MAP) specification ».

[262] – [298] Void

[299] 3GPP TS 29.500: “5G System; Technical Realization of Service Based Architecture; Stage 3”.

[300] 3GPP TS 29.501: “5G System; Principles and Guidelines for Services Definition; Stage 3”.

[301] 3GPP TS 29.594: “5G System; Spending Limit Control Service; Stage 3”.

[302] 3GPP TS 29.512: “5G System; Session Management Policy Control Service; Stage 3”.

[303] 3GPP TS 24.501: “Non-Access-Stratum (NAS) Protocol for 5G System (5GS); Stage 3”.

[304] 3GPP TS 38.413: “NG-RAN; NG Application Protocol (NGAP)”.

[305] 3GPP TS 29.510: “Network Function Repository Services; Stage 3”.

[306] 3GPP TS 29.520: “5G System; Network Data Analytics Services;Stage 3”.

[307] 3GPP TS 38.331: “NR; Radio Resource Control (RRC); Protocol specification”.

[308] 3GPP TS 24.334: “ Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects; Stage 3”.

[309] – [370] Void

[371] 3GPP TS 29.571: “5G System; Common Data Types for Service Based Interfaces; Stage 3”.

[372] – [389] Void

[390] 3GPP TS 33.501: “Security architecture and procedures for 5G System”.

[391] – [399] Void

[400] Void.

[401] IETF RFC 7540: “Hypertext Transfer Protocol Version 2 (HTTP/2) “.

[402] IETF RFC 8259: “The JavaScript Object Notation (JSON) Data Interchange Format “.

[403] IETF RFC 6749: “The Oauth 2.0 Authorization Framework”.

[404] IETF RFC 3986: “Uniform Resource Identifiers (URI): Generic Syntax”.

[405] IETF RFC 7315: “Private Extensions to the Session Initiation Protocol (SIP) for the 3rd Generation Partnership Projects (3GPP)”.

[406] IETF RFC 3261: “SIP: Session Initiation Protocol”.

[407] IETF RFC 8866: “SDP: Session Description Protocol".

[408] IETF RFC 5646: "Tags for Identifying Languages".

[409] - [499] Void.

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

[501] - [599] Void.

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| **Next change** |

#### 6.1.6.1 General

This subclause specifies the application data model supported by the API.

The Nchf\_ConvergedCharging Service API allows the NF consumer to consume the converged charging service from the CHF as defined in 3GPP TS 32.290 [58].

Table 6.1.6.1-1 specifies the data types defined for the ConvergedCharging service based interface protocol.

Table 6.1.6.1-1: Nchf\_ ConvergedCharging specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| ChargingDataRequest | 6.1.6.2.1.16.1.6.2.2.1 | Describes the attributes of Charging Data Request to CHF for initial, update and termination of the charging session. |  |
| ChargingDataResponse | 6.1.6.2.1.26.1.6.2.2.2 | Describes the attributes of Charging Data Response from CHF on charging session initial, update and termination. |  |
| ChargingNotifyRequest | 6.1.6.2.1.3 | Describes Notifications about events that occurred in request message. |  |
| ChargingNotifyResponse | 6.1.6.2.1.16 | Describes the response of notification. |  |

Table 6.1.6.1-2 specifies data types re-used by the Nchf\_ConvergedCharging service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nchf\_ConvergedCharging service based interface.

Table 6.1.6.1-2: Nchf\_ConvergedCharging re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Supi | 3GPP TS 29.571 [371] | The identification of the user (i.e. IMSI, NAI, GLI, GCI).(NOTE 1) |  |
| Uint32 | 3GPP TS 29.571 [371] | Unsigned 32-bit integers |  |
| Uint64 | 3GPP TS 29.571 [371] | Unsigned 64-bit integers |  |
| PduSessionId | 3GPP TS 29.571 [371] | The identification of the PDU session. |  |
| PduSessionType | 3GPP TS 29.571 [371] | the type of a PDU session |  |
| Uri | 3GPP TS 29.571 [371] | String providing an URI |  |
| AccessType | 3GPP TS 29.571 [371] | The identification of the type of access network. |  |
| DateTime | 3GPP TS 29.571 [371] | The time. |  |
| ChargingId | 3GPP TS 29.571 [371] | Charging identifier allowing correlation of charging information |  |
| RatType | 3GPP TS 29.571 [371] | The identification of the RAT type. |  |
| RatingGroup | 3GPP TS 29.571 [371] | The identification of the rating group |  |
| Ipv4Addr | 3GPP TS 29.571 [371] | Ipv4 address, Ipv6 address, or Ipv6Prefix |  |
| Ipv4Addr | 3GPP TS 29.571 [371] | Ipv4 address.  |  |
| Ipv6Prefix | 3GPP TS 29.571 [371] | The Ipv6 prefix allocated for the user. |  |
| Ipv6Addr | 3GPP TS 29.571 [371] | Ipv6 Address. |  |
| Pei | 3GPP TS 29.571 [371] | The Identification of a Permanent Equipment. |  |
| TimeZone | 3GPP TS 29.571 [371] | Time zone information |  |
| NfInstanceId | 3GPP TS 29.571 [371] | String uniquely identifying a NF instance. |  |
| Gpsi | 3GPP TS 29.571 [371] | String identifying a Gpsi |  |
| DefaultQosInformation | 3GPP TS 29.571 [371] | Identifies the information of the default QoS. |  |
| SubscribedDefaultQos | 3GPP TS 29.571 [371] | subscribed default QoS. |  |
| AuthorizedDefaultQos | 3GPP TS 29.512 [302] | Authorized default QoS. |  |
| Ambr | 3GPP TS 29.571 [371] | Aggregate Maximum Bit rate  |  |
| QosData | 3GPP TS 29.512 [302] | Contains QoS parameters |  |
| UserLocation | 3GPP TS 29.571 [371] | User location information |  |
| PlmnId | 3GPP TS 29.571 [371] | PLMN id |  |
| Guami | 3GPP TS 29.571 [371] | Globally Unique AMF Identifier |  |
| DurationSec | 3GPP TS 29.571 [371] | Identifies a period of time in units of seconds. |  |
| Snssai | 3GPP TS 29.571 [371] | SNSSAI |  |
| ProblemDetails | 3GPP TS 29.571 [371] | additional details of the error |  |
| ServiceId | 3GPP TS 29.571 [371] | Identifier of service |  |
| SscMode | 3GPP TS 29.571 [371] | SSC Mode type |  |
| PresenceInfo | 3GPP TS 29.571 [371] | PRA information including PRAId, PRA element list and PRA status |  |
| Qfi | 3GPP TS 29.571 [371] | QoS flow identifier designated as "Qfi". |  |
| AmfId | 3GPP TS 29.571 [371] | AMF identifier |  |
| Dnn | 3GPP TS 29.571 [371] | Data Network Name |  |
| GroupId | 3GPP TS 29.571 [371] | Network internal Identifier for a group of IMSIs |  |
| ExternalGroupId | 3GPP TS 29.571 [371] | External Group Identifier for one or more subscriptions associated to a group of IMSIs  |  |
| Bytes | 3GPP TS 29.571 [371] | String with format "byte" |  |
| Tai | 3GPP TS 29.571 [371] | Tracking Area Identifier |  |
| Area | 3GPP TS 29.571 [371] | List of TACs or Operator specific codes |  |
| CoreNetworkType | 3GPP TS 29.571 [371] | 5GC or EPC |  |
| ServiceAreaRestriction | 3GPP TS 29.571 [371] | Service Area restriction |  |
| GlobalRanNodeId | 3GPP TS 29.571 [371] | Global RAN Node Id |  |
| QosCharacteristics | 3GPP TS 29.512 [302] | Map of QoS characteristics for non standard 5QIs and non-preconfigured 5QIs. |  |
| SupportedFeatures | 3GPP TS 29.571 [371] | See 3GPP TS 29.500 [4] clause 6.6 |  |
| NsiLoadLevelInfo | 3GPP TS 29.520 [306] | Represents the load level information for an S-NSSAI and the associated network slice instance |  |
| ServiceExperienceInfo | 3GPP TS 29.520 [306] | ServiceExperience |  |
| ApplicationChargingId | 3GPP TS 29.571 [371] | Application provided charging identifier allowing correlation of charging information. | AF\_Charging\_Identifier |
| SharingLevel | 3GPP TS 28.541 [254] | Ressources sharing level |  |
| MobilityLevel | 3GPP TS 28.541 [254] | UE mobility Level |  |
| SsT | 3GPP TS 28.541 [254] | Slice Service type (SST) |  |
| Support | 3GPP TS 28.541 [254] | Supported, Not Supported indicator |  |
| Float | 3GPP TS 29.571 [371] | Number with format "float"  |  |
| MaPduIndication | 3GPP TS 29.512 [302] | MA PDU session indication | ATSSS |
| AtsssCapability | 3GPP TS 29.571 [371] | ATSSS capabilities  | ATSSS |
| SteeringFunctionality | 3GPP TS 29.571 [371] | Steering functionalities for MA PDU session | ATSSS |
| SteeringMode | 3GPP TS 29.512 [302] | Steering mode for MA PDU session | ATSSS |
| OperationalState | 3GPP TS 28.623 [257] | Operational state |  |
| AdministrativeState | 3GPP TS 28.623 [257] | Administrative state |  |
| RanNasRelCause | 3GPP TS 29.512 [302] | Indicates the RAN or NAS release cause code information. | EnhancedDiagnostics |
| Ecgi | 3GPP TS 29.571 [371] | E-UTRA Cell Id |  |
| Ncgi | 3GPP TS 29.571 [371] | NR Cell Id |  |
| NOTE 1: A SUPI containing GLI or GCI is used to support 5G-RG and FN-RG in scenarios of wireline network. |

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| **Next change** |

###### 6.1.6.2.1.a Type Imsi

Table 6.1.6.2.1.a -1: Definition of type Imsi

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| Imsi | string | OC | 0..1 | IMSI of the UE with pattern '^(imsi-[0-9]{5,15})$' |  |

|  |
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| **Next change** |

##### 6.1.6.2.x 5G ProSe Specified Data Type

###### 6.1.6.2.x.1 Type ChargingDataRequest

This clause is additional attributes of the type ChargingDataRequest defined in clause 6.x.2.2 for 5G ProSe charging described in 3GPP TS 32.277[35].

Table 6.1.6.2.x.1-1: 5G ProSe Specified attribute of type ChargingDataRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| proseCharging Information | ProSeChargingInformation  | OM  | 0..1 | This field holds the 5G ProSe specific information. |  |

###### 6.1.6.2.x.2 Type ChargingDataResponse

This clause is additional attributes of the type ChargingDataResponse defined in clause 6.x.2.2 for 5G ProSe charging described in 3GPP TS 32.277[35].

Table 6.1.6.2.x.2-1: 5G ProSe Specified attribute of type ChargingDataResponse

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |

###### 6.1.6.2.x.3 Type UsedUnitContainer

Table 6.1.6.2.2.5-1: 5G ProSe Specified portion of type UsedUnitContainer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pC5Container Information | PC5Container Information | OC | 0..1 | This field holds the PC5 container information |  |

###### 6.1.6.2.x.4 Type PC5ContainerInformation

This clause is additional portion of the type PC5ContainerInformation defined in clause 6.x.2.2 for 5G ProSe charging described in 3GPP TS 32.277[35].

Table 6.1.6.2.x.4-1: 5G ProSe Specified portion of type PC5ContainerInformation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| coverageInfoList | array (CoverageInfo) | OC | 0..N | This IE provides information on the coverage information.  |  |
| radioParameter SetInfoList | array (RadioParameter SetInfo) | OC | 0..N | This IE provides information on a radio parameter set configured in the UE for direct communication use |  |
| transmitterInfoList | array (TransmitterInfo) | OC | 0..N | This IE provides information on a transmitter detected for direct communication |  |
| timeOfFirstTransmission | DateTime | OC | 0..1 | This IE holds the time in UTC format for the first packet transmitted  |  |
| timeOfFirstReception | DateTime | OC | 0..1 | This IE holds the time in UTC format for the first packet received. |  |

###### 6.1.6.2.x.5 Type CoverageInfo

Table 6.1.6.2.x.5-1: 5G ProSe Specified portion of type CoverageInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| coverageStatus | boolean | OC | 0..1 | Whether the UE is served by NG-RAN or not |  |
| changeTime | DateTime | OC | 0..1 | The time when the coverage status changed to its current state. |  |
| locationInfo | array(LocationInfo) | OC | 0..N | It provides UE location Information. When in NG-RAN coverage, additionally includes a list of location changes |  |

###### 6.1.6.2.x.6 Type RadioParameterSetInfo

This clause is additional portion of the type RadioParameterSetInfo defined in clause 6.x.2.2 for 5G ProSe charging described in 3GPP TS 32.277[35].

Table 6.1.6.2.x.6-1: 5G ProSe Specified portion of type RadioParameterSetInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| radioParameterSetValues | array(OctetString) | OC | 0..N | It provides the radio parameter set configured in the UE for direct communication. The format of the value is according to the SL-Preconfiguration data type. |  |
| changeTimestamp | DateTime | OC | 0..1 | The time when associated time stamp of when Radio Parameters became active. |  |

###### 6.1.6.2.x.7 Type TransmitterInfo

This clause is additional portion of the type TransmitterInfo defined in clause 6.x.2.2 for 5G ProSe charging described in 3GPP TS 32.277[35].

Table 6.1.6.2.x.7-1: 5G ProSe Specified portion of type TransmitterInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| proseSourceIPAddress | string | OC | 0..1 | Source IP address of ProSe UE |  |
|  |  |  |  |  |  |

proseSourceL2IdstringOC0..1 Source L2 Id of ProSe

###### 6.1.6.2.x.8 Type ProseChargingInformation

Table 6.1.6.2.x.8-1: Definition of type ProseChargingInformation

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| announcingPlmnID | PlmnId | OC | 0..1 | PLMN identity of the serving PLMN which signalled the carrier frequency. |  |
| announcingUeHplmnIdentifier | PlmnId | OM  | 0..1 | PLMN identity of HPLMN for announcing UE.  |  |
| announcingUeVplmnIdentifier | PlmnId | OC | 0..1 | PLMN identity of VPLMN for announcing UE |  |
| monitoringUeHplmnIdentifier | PlmnId | OC | 0..1 | PLMN identity of HPLMN for monitoring UE. |  |
| monitoringUeVplmnIdentifier | PlmnId | OC | 0..1 | PLMN identity of VPLMN for monitoring UE. |  |
| discovererUeHplmnIdentifier | PlmnId | OM  | 0..1 | PLMN identity of Discoverer UE HPLMN. |  |
| discovererUeVplmnIdentifier | PlmnId | OC | 0..1 | PLMN identity of Discoverer UE VPLMN. |  |
| discovereeUeHplmnIdentifier | PlmnId | OC | 0..1 | PLMN identity of Discoveree UE HPLMN. |  |
| discovereeUeVplmnIdentifier | PlmnId | OC | 0..1 | PLMN identity of Discoveree UE VPLMN. |  |
| monitoredPlmnIdentifier | PlmnId | OC | 0..1 | Monitored PLMN ID in Match\_Report request |  |
| proseApplicationID | string | OC | 0..1 | The identities used for ProSe Direct Discovery, identifying application related information for the ProSe-enabled UE |  |
| applicationID | string | OC | 0..1 | The identifier of a specific 3rd party application. |  |
| applicationSpecificDataList | array(OctetString) | OC | 0..N | This IE contains a data block provided by the application in the UE as specified in clause 11.3.3 of 3GPP TS 24.334 [308] |  |
| proseFunctionality | ProseFunctionality | OC | 0..1 | This IE holds the ProSe functionality UE is requesting |  |
| proseEventType | ProseEventType | OC | 0..1 | This IE holds the event which triggers the charging message delivery |  |
| directDiscoveryModel | DirectDiscoveryModel | OC | 0..1 | This IE holds the model of the Direct Discovery used by the UE. |  |
| validityPeriod | integer | OC | 0..1 | Time interval during which user is authorized for using ProSe Direct Discovery |  |
| roleOfUE | RoleOfUE | OC | 0..1 | Role of the UE using ProSe |  |
| proseRequestTimestamp | DateTime | OC | 0..1 | The time when ProSe Request is received from UE. |  |
| pC3ProtocolCause | integer | OC | 0..1 | This IE holds the particular reason why a DISCOVERY\_REQUEST or Match\_Report messages from the UE have been rejected by the 5G DDNMF in PC3 interface. |  |
| monitoringUEIdentifier | Imsi | OM  | 0..1 | Identifier of the party who initiate monitor/match report |  |
| requestedPLMNIdentifier | PlmnId | OC | 0..1 | The PLMN identifier of the user who is targeted in proximity request. |  |
| timeWindow | integer | OC | 0..1 | The time interval in minutes during which a proximity request is valid. |  |
| rangeClass | RangeClass | OC | 0..1 | A range class for the first proximity request. |  |
| proximityAlertIndication | Boolean | OC | 0..1 | Indication of whether proximity alert has been sent before proximity request cancellation. |  |
| proximityAlertTimestamp | DateTime | OC | 0..1 | The time stamp when proximity alert is sent, to indicate two UEs are in proximity. |  |
| proximityCancellationTimestamp | DateTime | OC | 0..1 | The time stamp when proximity request cancellation is requested. |  |
| relayIPAddress |  IpAddr | OC | 0..1 | The IP address UE used as ProSe UE-to-Network Relay UE address |  |
| proseUEToNetworkRelayUEID  | string | OC | 0..1 | A link layer identifier that uniquely represents the ProSe UE-to-Network Relay UE |  |
| proseDestinationLayer2ID | string | OC | 0..1 | The identifier of a link-layer that identifies a device or a group of devices that are recipients of ProSe communication frames. |  |
| pFIContainerInformation | array(pFIContainerInformation) | OC | 0..N | This field holds the PFI data container information |  |
| transmissionDataContainer | array(PC5DataContainer) | OC | 0..N | The container associated to a trigger conditions |  |
| receptionDataContainer | array(PC5DataContainer) | OC | 0..N | This field holds the container associated to a trigger conditions |  |

###### 6.1.6.2.x.9 Type PFIContainerInformation

This clause is additional portion of the type PFIContainerInformation defined in clause 6.x.2.2 for 5G ProSe charging described in 3GPP TS 32.277[35].

Table 6.1.6.2.x.9-1: 5G ProSe Specified portion of type PFIContainerInformation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pFI | Qfi | OM | 0..1 | PC5 QoS flow Identifier (PFI) |  |
| reportTime | DateTime | OM | 1 | the UTC time indicating time stamp when the QFI data container was closed |  |
| timeofFirstUsage | DateTime | OC | 0..1 | the UTC time indicating time stamp for the first IP packet to be transmitted and mapped to the PFI container |  |
| timeofLastUsage | DateTime | OC | 0..1 | the UTC time indicating time stamp for the last IP packet to be transmitted and mapped to the PFI container. |  |
| qoSInformation | QoSData | OC | 0..1 | the PC5 QoS applied to PFI container. In case gbrUl or gbrDl are present for GBR QoS flow, the GBR targets are "GUARANTEED", otherwise, are " NOT\_GUARANTEED". |  |
| qoSCharacteristics | QosCharacteristics | OC | 0..1 | Map of PC5 QoS characteristics for non standard PQIs and non-preconfigured PQIs. |  |
| userLocationInformation | UserLocation | OC | 0..1 | provides information on the location |  |
| uetimeZone | TimeZone | OC | 0..1 | UE Time Zone the UE is currently located |  |
| presenceReportingAreaInformation | map(PresenceInfo) | OC | 0..N | the Presence Reporting Area status of UE during the PFI container interval. |  |

###### 6.1.6.2.x.10 Type PC5DataContainer

Table 6.1.6.2.x.10-1: 5G ProSe Specified portion of type PC5DataContainer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| localSequenceNumber | string | OC | 0..1 | The sequence number of the Direct Communication data container |  |
| changeTime | DateTime | OC | 0..1 | The time when the container is closed and reported due to ProSe charging condition change. |  |
| coverageStatus | boolean | OC | 0..1 | Whether UE is served by NG-RAN or not |  |
| userLocationInformation | UserLocation | OC | 0..1 | The location of the UE |  |
| dataVolume | Uint64 | OC | 0..1 | This field holds the amount of volume transmitted or received |  |
| changeCondition | string | OC | 0..1 | ProSe specific reason for closing the container |  |
| usageInfoReportSN | string | OC | 0..1 | The sequence number of usage information report, which is used to generate the container. |  |
| radioResourcesId | RadioResourcesIndicator | OC | 0..1 | This IE identifies whether the operator-provided radio resources or the configured radio resources were used for ProSe direct communication. |  |
| radioFrequency | string | OC | 0..1 | This IE identifies the radio frequency used for ProSe direct communication as specified in clause 9.3 of 3GPP TS 38.331 [307] |  |
| pC5RadioTechnology | string | OM  | 0..1 | The PC5 radio technology used by UE |  |

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| **Next change** |

##### 6.1.6.3.4 Enumeration: NodeFunctionality

Table 6.1.6.3.4-1: Enumeration NodeFunctionality

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| SMF | This field identifies that NF is a SMF. |  |
| AMF | This field identifies that NF is a AMF. |  |
| SMSF | This field identifies that NF service consumer is a SMSF. |  |
| PGW\_C\_SMF | This field identifies that NF is a SMF+PGW-C. |  |
| NEF | This field identifies that NF is a NEF. |  |
| SGW | This field identifies that node is an SGW, only applicable for interworking with EPC. |  |
| I\_SMF | This field identifies that node is an I-SMF, only applicable for PDU session served by SMF + I-SMF. | ETSUN |
| ePDG | This field identifies that node is an ePDG, only applicable for interworking with EPC/ePDG. | 5GIEPC\_CH |
| CEF | This field identifies that NF is a CEF. |  |
| MnS\_Producer | This field identifies that NF is a MnS Producer |  |
| SGSN | This field identifies that node is an SGSN, only applicable when SMF+PGW-C serves GERAN/UTRAN access. | TEI17\_NIESGU |
| 5G DDNMF | This field identifies that NF is a 5G DDNMF | 5G ProSe |

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| **Next change** |

##### 6.1.6.3.a Enumeration: ProseFunctionality

Table 6.1.6.3.a -1: Enumeration ProseFunctionality

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| DIRECT\_DISCOVERY | Indicates the UE is requesting for ProSe direct discovery. |  |
| DIRECT\_COMMUNICATION | Indicates the UE is requesting for ProSe direct communication. |  |

##### 6.1.6.3.b Enumeration: ProseEventType

Table 6.1.6.3.b -1: Enumeration ProseEventType

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| ANNOUNCING | Indicates the ProSe ProSe charging announcing event. |  |
| MONITORING | Indicates the ProSe ProSe charging monitoring event. |  |
| MATCH\_REPORT | Indicates the ProSe ProSe charging match report event. |  |

##### 6.1.6.3.c Enumeration: DirectDiscoveryModel

Table 6.1.6.3.c -1: Enumeration DirectDiscoveryModel

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| MODEL\_A | Indicates model A of the Direct Discovery used by the UE |  |
| MODEL\_B | Indicates model B of the Direct Discovery used by the UE. |  |

##### 6.1.6.3.d Enumeration: RoleOfUE

Table 6.1.6.3.d -1: Enumeration RoleOfUE

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| ANNOUNCING\_UE | Indicates role of the UE using ProSe for announcing. |  |
| MONITORING\_UE | Indicates role of the UE using ProSe for monitoring. |  |
| REQUESTOR\_UE | Indicates role of the UE using ProSe for sending requst. |  |
| REQUESTED\_UE | Indicates role of the UE using ProSe for receive requst. |  |

##### 6.1.6.3.e Enumeration: RangeClass

Table 6.1.6.3.e -1: Enumeration RangeClass

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| RESERVED | This value is reserved |  |
| 50\_METER | Indicates a range class for a specific proximity request in 50m |  |
| 100\_METER | Indicates a range class for a specific proximity request in 100m |  |
| 200\_METER | Indicates a range class for a specific proximity request in 200m |  |
| 500\_METER | Indicates a range class for a specific proximity request in 500m |  |
| 1000\_METER | Indicates a range class for a specific proximity request in 1000m |  |
| UNUSED | Indicates a range class is not used. |  |

##### 6.1.6.3.f Enumeration: RadioResourcesIndicator

Table 6.1.6.3.f -1: Enumeration RadioResourcesIndicator

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| OPERATOR\_PROVIDED | Indicates the operator-provided radio resources for direct communication. |  |
| CONFIGURED | Indicates the configured radio resources for direct communication. |  |

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| **Next change** |

### 6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the Nchf\_ConvergedCharging API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6 of 3GPP TS 29.500 [299].

Table 6.1.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | CHFCQM | CHF-controlled quota management i.e. support for temporary offline |
| 2 | AF\_Charging\_Identifier | Indicates the support of long character strings as charging identifiers. |
| 3 | 5GIEPC\_CH | 5GS interworking with EPC |
| 4 | ATSSS | This feature indicates support of Access Traffic Steering, Switching, Splitting (ATSSS). |
| 5 | ETSUN | This feature indicates support of Enhancing Topology of SMF and UPF in 5G Networks (ETSUN). |
| 6 | EnhancedDiagnostics | Support the enhanced diagnostics |
| 7 | AMF\_subs\_PRA | PRA(s) subscription by CHF in AMF |
| 8 | FilterRuleList | Support of multiple filter rules in the final unit indication |
| 9 | TEI17\_NIESGU | This feature indicates support of GERAN/UTRAN access |
| 10 | IMS | This feature indicates support of IMS. |
| 11 | QoSMonitoring | This feature indicates support of QoS Monitoring |
| 12 | Announcement | This feature indicates support of announcements. |
| 13 | 5GLAN | This feature indicates support of 5G LAN-type services. |
| 13 | URLLC | This feature indicates support of URLLC. |
| 14 | NotifyInfoResponse | This feature indicates support of response with information for a notification. |
| 15 | ES4xx | Extended Support of HTTP 400, 403, 404 allowing use of either ChargingDataResponse or ProblemDetails in the response. |
| 15 | 5G\_PROSE\_CH | This feature indicates support of 5G ProSe. |

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| **End of changes** |