**3GPP TSG- Meeting #C3-241306**

**Athens, Greece, February – C3-235077**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  |  | **CR** | **1100** | **rev** | **1** | **Current version:** |  |  |
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| *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** |

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| ***Title:***  | Solving the issue of the missing functionalities in clause 4.3.1 and additional corrections |
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| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell, Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | NBI18 |  | ***Date:*** | 2024-02-19 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** |  |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | The following issues have been identified in previous meetings:* Clause 4.3.1 does not contain an exhaustive list of the functionalities supported by the NEF, which is incorrect and constitutes a misalignment with the other clauses of the TS.

The stage 2 NEF functional requirement technical specifications is not completed included in clause 1 scope.The not used TS 23.032 reference needs to be removed in clause 2.In addition:* The ProblemDetails data type is missing in Table 5.19.5.1-1 and Table 5.20.5.1-1.
* The AcceptanceCriteriaResultIndication data type is not used and should hence be removed.
* The supported features cannot be negotiated as part of a modification request using HTTP PATCH. The "suppFeat" attribute within the MbsPpDataPatch data type should hence be removed.
* There are various drafting rules related issues in clauses 4.4.2 and 4.4.8 with regards to the ordering and sequencing of bullets/sub-bullets.
* Various additional formulation issues to be fixed.
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| ***Summary of change:*** | This CR proposes to:* Instead of having an exhaustive list of all the functionalities supported by the NEF and risk to have new ones missing in the future (e.g., if forgotten at the time they are introduced), it is proposed to refer to stage 2 NEF functional requirement in technical specifications in clause 1with implementation in clause 4.4 for the exhaustive list of functionalities and keep only the other generic NEF functionalities that are common to all the APIs in this clause.
* Address the other identified issues above.
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| ***Consequences if not approved:*** | * Missing NEF functionalities issue remains in the specification.
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| ***Clauses affected:*** | 1, 2, 4.3.1, 4.4.2, 4.4.8, 5.19.5.1, 5.20.5.1, 5.20.5.2.8, 5.35.5.1, A.18 |
|  |  |
|  | **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 introduces backwards compatible corrections to the OpenAPI descriptions of the MBSSession APIs defined in this specification. |
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| ***This CR's revision history:*** | Rev 1 (to CT3#133):* Reason for change updated to detail the additional corrections applied.
* Various additional corrections applied as part of this CR.
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\* \* \* \* Start of changes \* \* \* \*

# 1 Scope

The present specification describes the protocol for the NEF Northbound interface between the NEF and the AF. The NEF Northbound interface and the related stage 2 functional requirements are defined in 3GPP TS 23.501 [3], 3GPP TS 23.502 [2], 3GPP TS 23.316 [28], 3GPP TS 23.288 [29], 3GPP TS 23.273 [36], 3GPP TS 23.548 [42], 3GPP TS 23.247 [53], 3GPP TS 23.503 [70], 3GPP TS 33.501 [6], 3GPP TS 33.535 [37], 3GPP TS 33.558 [56], 3GPP TS 26.531 [59], 3GPP TS 26.532 [60] and 3GPP TS 26.502 [65].

\* \* \* \* Next changes \* \* \* \*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

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

[2] 3GPP TS 23.502: "Procedures for the 5G system".

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

[4] 3GPP TS 29.122: "T8 reference point for northbound Application Programming Interfaces (APIs)".

[5] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[6] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[7] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[8] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[9] 3GPP TS 29.521: "5G System; Binding Support Management Service; Stage 3".

[10] Void.

[11] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2".

[12] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3".

[13] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[14] 3GPP TS 33.122: "Security Aspects of Common API Framework for 3GPP Northbound APIs".

[15] Void.

[16] Void

[17] 3GPP TS 29.503: "5G System; Unified Data Management Services; Stage 3".

[18] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[19] 3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[20] 3GPP TS 29.504: "5G System; Unified Data Repository Services; Stage 3".

[21] 3GPP TR 21.900: "Technical Specification Group working methods".

[22] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[23] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Control Data, Application Data and Structured Data for Exposure; Stage 3".

[24] 3GPP TS 29.541: "5G System; Network Exposure (NE) function services for Non-IP Data Delivery (NIDD) and Short Message Services (SMS); Stage 3".

[25] 3GPP TS 29.542: "5G System, Session management services for Non-IP Data Delivery (NIDD); Stage 3".

[26] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[27] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[28] 3GPP TS 23.316: "Wireless and wireline convergence access support for the 5G system (5GS)".

[29] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[30] Void[31] Void

[32] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[33] 3GPP TS 24.588: "Vehicle-to-Everything (V2X) services in 5G System (5GS); User Equipment (UE) policies; Stage 3".

[34] 3GPP TS 29.572: "5G System; Location Management Services; Stage 3".

[35] 3GPP TS 29.515: "5G System; Gateway Mobile Location Services; Stage 3".

[36] 3GPP TS 23.273: "5G System Location Services (LCS)".

[37] 3GPP TS 33.535: "Authentication and Key Management for Applications (AKMA) based on 3GPP credentials in the 5G System (5GS)".

[38] 3GPP TS 29.535: "5G System; AKMA Anchor Services; Stage 3".

[39] 3GPP TS 33.220: "Generic Authentication Architecture (GAA); Generic Bootstrapping Architecture (GBA)".

[40] IETF RFC 7542: "The Network Access Identifier".

[41] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[42] 3GPP TS 23.548: "5G System Enhancements for Edge Computing; Stage 2".

[43] 3GPP TS 29.534: "5G System; Access and Mobility Policy Authorization Service; Stage 3".

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

[45] IEEE Std 1588-2019: "IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control".

[46] IEEE Std 802.1AS-2020: "IEEE Standard for Local and metropolitan area networks--Timing and Synchronization for Time-Sensitive Applications".

[47] 3GPP TS 29.536: "5G System; Network Slice Admission Control Services; Stage 3".

[48] 3GPP TS 24.526: "User Equipment (UE) policies for 5G System (5GS); Stage 3".

[49] 3GPP TS 24.555: "Proximity based services (ProSe) in 5G system (5GS); User Equipment (UE) policies; Stage 3".

[50] 3GPP TS 29.565: "5G System; Time Sensitive Communication and Time Synchronization Function Services; Stage 3".

[51] IEEE 802.1Q: "Virtual Bridged Local Area Networks".

[52] 3GPP TS 29.532: "5G System; 5G Multicast-Broadcast Session Management Services; Stage 3".

[53] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

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

[55] 3GPP TS 23.003: "Numbering, addressing and identification".

[56] 3GPP TS 33.558: "Security aspects of enhancement of support for enabling edge applications; Stage 2".

[57] 3GPP TS 29.510: "Network Function Repository Services; Stage 3".

[58] 3GPP TS 29.517: "5G System; Application Function (AF) event exposure service".

[59] 3GPP TS 26.531: "Data Collection and Reporting; General Description and Architecture".

[60] 3GPP TS 26.532: "Data Collection and Reporting; Protocols and Formats".

[61] 3GPP TS 29.564: "5G System; User Plane Function Services; Stage 3".

[62] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[63] 3GPP TS 29.537: "Multicast/Broadcast Policy Control Services; Stage 3".

[64] 3GPP TS 29.214: "Policy and Charging Control over Rx reference point".

[65] 3GPP TS 26.502: "5G multicast–broadcast services; User Service architecture".

[66] 3GPP TS 29.580: "Multicast/Broadcast Service Function Services; Stage 3".

[67] 3GPP TS 26.512: "5G Media Streaming (5GMS); Protocols".

[68] 3GPP TS 29.543: "5G System; Data Transfer Policy Control Services; Stage 3".

[69] 3GPP TS 24.578: "Aircraft-to-Everything (A2X) services in 5G System (5GS); UE policies".

[70] 3GPP TS 23.503: "Policy and Charging Control Framework for the 5G System; Stage 2".

[71] 3GPP TS 26.517: "5G Multicast-Broadcast User Services; Protocols and Formats".

[72] 3GPP TS 24.514: "Ranging based services and sidelink positioning in 5G system(5GS); Stage 3".

[73] 3GPP TS 29.591: "5G System; Network Exposure Function Southbound Services; Stage 3".

[74] 3GPP TS 26.522: "5G Real-time Media Transport Protocol Configurations".

\* \* \* \* Next changes \* \* \* \*

### 4.3.1 NEF

The Network Exposure Function (NEF) is a functional element that supports the related stage 2 functional requirements as defined in the technical specifications listed in clause 1 that are implemented via the procedures specified in clause 4.4. A specific NEF instance may support one or more of these functionalities, and consequently, an individual NEF may support one, several or all of the APIs specified for capability exposure.

In addition, the NEF shall also:

- securely expose network capabilities and events provided by 3GPP NFs to AF;

- provide means for the AF to securely provide information to 3GPP network and may authenticate, authorize and assist in throttling the AF;

- be able to translate the information received from the AF to the one sent to internal 3GPP NFs, and vice versa; and

- support to expose information (collected from other 3GPP NFs) to the AF.

NOTE: The NEF can access the UDR located in the same PLMN as the NEF.

\* \* \* \* Next changes \* \* \* \*

### 4.4.2 Procedures for Monitoring

The procedures and provisions for event monitoring defined in clause 4.4.2 of 3GPP TS 29.122 [4] shall be applicable in 5GS with the following differences:

- description of the SCS/AS applies to the AF;

- description of the SCEF applies to the NEF;

- description of the HSS applies to the UDM, and the NEF shall interact with the UDM by using Nudm\_EventExposure service as defined in 3GPP TS 29.503 [17];

- description of the MME/SGSN applies to the AMF, the NEF shall resolve a location area to the involved AMF(s) either by local configuration or via the NRF and the NEF shall interact with the AMF by using the Namf\_EventExposure service as defined in 3GPP TS 29.518 [18];

- description about the PCRF are not applicable;

- description about the change of IMSI-IMEI(SV) association monitoring event apply to the change of SUPI-PEI association monitoring event;

- when the "monitoringType" sets to "LOCATION\_REPORTING" within the MonitoringEventSubscription data type as defined in clause 5.3.2.1.2 of 3GPP TS 29.122 [4] during the monitoring event subscription, only "CGI\_ECGI", "TA\_RA", "GEO\_AREA" and "CIVIC\_ADDR" within the Accuracy data type, as defined in clause 5.3.2.4.7 of 3GPP TS 29.122 [4], are applicable for 5G event monitoring using the MonitoringEvent API;

- after validation of the AF request, the NEF may determine a monitoring expiry time, based on operator policy and take into account the monitoring expire time if included in the request; and the NEF may provide an expiry time (determined by the NEF, UDM or AMF) to the AF even the AF does not provided before;

- if the "Loss\_of\_connectivity\_notification" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, values 0-5 are not applicable for the lossOfConnectReason attribute within MonitoringEventReport data type, the lossOfConnectReason attribute shall be set to 6 if the UE is deregistered, 7 if the maximum detection timer expires, 8 if the UE is purged or 9 if the UE’s Unavailability Period Duration is available and the "Loss\_of\_connectivity\_notification\_5G" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported;

- the AF may include a periodic reporting time indicated by the "repPeriod" attribute within MonitoringEventSubscription data type, which is only applicable for the "Location\_notification", "Number\_of\_UEs\_in\_an\_area\_notification\_5G" and "NSAC" features in the NEF;

- if the "locationType" attribute sets to "LAST\_KNOWN\_LOCATION", the "maximumNumberOfReports" attribute shall set to 1 as a One-time Monitoring Request;

- description about the PDN connectivity status event apply to the PDU session status event, the description of the MME/SGSN applies to the SMF during the reporting of monitoring event procedure, the NEF receives the event notification via Nsmf\_EventExposure service as defined in 3GPP TS 29.508 [26];

- if the "Session\_Management\_Enhancement" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, the "dnn"and/or "snssai" may be provided in MonitoringEventSubscription data type for monitoring type provided "PDN\_CONNECTIVITY\_STATUS" or " DOWNLINK\_DATA\_DELIVERY\_STATUS";

- when sending the UDM/AMF/SMF event report to the AF, the NEF may store the event data in the report in the UDR as part of the data for exposure as specified in 3GPP TS 29.519 [23] by using Nudr\_DataRepository service as specified in 3GPP TS 29.504 [20];

- if the "Downlink\_data\_delivery\_status\_5G" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, in order to support the downlink data delivery status notification;

1) the AF shall send an HTTP POST message to the NEF to the resource "Monitoring Event Subscriptions" as defined in clause 5.3.3.2 of 3GPP TS 29.122 [4] for creating a subscription or send an HTTP PUT message to the NEF to the resource "Individual Monitoring Event Subscription" defined in clause 5.3.3.3 of 3GPP TS 29.122 [4] for updating the subscription as follows:

A) within the MonitoringEventSubscription data structure the AF may additionally include packet filter descriptor(s) within the "dddTraDescriptors" attribute and the list of monitoring downlink data delivery status event(s) within the "dddStati" attribute; and

B) the NEF shall subscribe the events to the appropriate UDM(s) within the network by invoking the Nudm\_EventExposure\_Subscribe service operation as defined in clause 5.5.2.2 of 3GPP TS 29.503 [17];

2) if the "Partial\_group\_modification" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, in order to support partial cancellation or addition of certain UE(s) within the active group event subscription, the NEF shall map the "excludedExternalIds" and/or "excludedMsisdns" attributes to the "excludeGpsiList" attribute for the partial group cancellation, or shall map the "addedExternalIds" and/or "addedMsisdns" attributes to the "includeGpsiList" attribute within the Nudm\_EventExposure service; and

3) when the NEF receives the event notification as defined in clause 4.4.2 of 3GPP TS 29.508 [26], the NEF shall send an HTTP POST message to the AF as defined in clause 4.4.2.3 of 3GPP TS 29.122 [4] with the difference that within each MonitoringEventReport data structure, the NEF shall include:

A) the downlink data delivery status within the "dddStatus" attribute;

B) the downlink data descriptor impacted by the downlink data delivery status change within the "dddTraDescriptor" attribute;

C) the estimated buffering time within the "maxWaitTime" attribute if the downlink data delivery status is set to "BUFFERED"; and

D) if the "Availability\_after\_DDN\_failure\_notification\_enhancement" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, the AF shall send an HTTP POST message to the NEF to the resource "Monitoring Event Subscriptions" as defined in clause 5.3.3.2 of 3GPP TS 29.122 [4] for creating an subscription or send an HTTP PUT message to the NEF to the resource "Individual Monitoring Event Subscription" as defined in clause 5.3.3.3 of 3GPP TS 29.122 [4] for updating the subscription with the difference that within the MonitoringEventSubscription data structure, the AF shall include packet filter descriptions within the "dddTraDescriptors" attribute;

- if the "eLCS" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, the AF may send an HTTP POST message to the NEF to the resource "Monitoring Event Subscriptions" as defined in clause 5.3.3.2 of 3GPP TS 29.122 [4] for creating an subscription or send an HTTP PUT message to the NEF to the resource "Individual Monitoring Event Subscription" defined in clause 5.3.3.3 of 3GPP TS 29.122 [4] for updating the subscription as follows:

1) within the MonitoringEventSubscription data structure, the AF may additionally include location QoS requirement within the "locQoS" attribute, the service identifier within the "svcId" attribute, Location deferred requested event type within the "ldrType" attribute, the validity start time and the validity end time within the "locTimeWindow" attribute, the maximum age of location estimate within the "maxAgeOfLocEst" attribute, the requesting target UE velocity within the "velocityRequested" attribute, the linear distance within the "linearDistance" attribute, the reporting target UE location estimate indication within the "reportingLocEstInd" attribute, the sampling interval within the "samplingInterval" attribute, the maximum reporting expire interval within the "maxRptExpireIntvl" attribute, the supported GAD shapes within the "supportedGADShapes" attribute, the Code word within the "codeword" attribute, and other attributes as defined in clause 5.3.2.3.2 of 3GPP TS 29.122 [4] for location information subscription; The MonitoringEventSubscription data structure may also include the "locationArea5G" attribute containing only the "geographicAreas" attribute and the "accuracy" attribute set to the value "GEO\_AREA". The "accuracy" attribute and "locQoS" attribute are mutually exclusive. If the "MULTIQOS" feature is also supported, Multiple QoS Class is supported in the "lcsQosClass" attribute within the "locQoS" attribute for deferred MT-LR. If the "eLCS\_en" feature is also supported, the AF may include the "upLocRepIndAf" attribute to indicate whether or not location reporting over user plane is required, and may also include the "upLocRepAddrAf" attribute to convery the AF's addressing information for location reporting over user plane;

2) if the NEF identifies the location request precision higher than cell level location accuracy is required based on the "locQoS" attribute received, the NEF shall interact with the appropriate GMLC within the network by invoking the Ngmlc\_Location\_ProvideLocation service operation as defined in clause 6.1 of 3GPP TS 29.515 [35];

3) if the location request precision is lower than or equal to cell level, based on implementation, the NEF may interact with the GMLC by invoking the Ngmlc\_Location\_ProvideLocation service operation as defined in clause 6.1 of 3GPP TS 29.515 [35]; or retrieve the UE location privacy information from the UDM by using Nudm\_SDM service as described in clause 5.2 of 3GPP TS 29.503 [17] and if the privacy setting is verified, the NEF shall interact with the UDM for the serving AMF address by invoking the Nudm\_UECM service as described in clause 5.3 of 3GPP TS 29.503 [17]. After receiving the serving AMF address from the UDM, the NEF shall interact with the AMF by invoking the Namf\_EventExposure\_Subscribe service operation as defined in clause 5.3 of 3GPP TS 29.518 [18]; or may interact with UDM by using Nudm\_EventExposure service as defined in clause 5.5 of 3GPP TS 29.503 [17] and the NEF receives the location event notification from the AMF via Namf\_EventExposure service as defined in in clause 5.5 of 3GPP TS 29.518 [18]; and

4) based on the received AF information and local authorization policy, the NEF shall derive the LCS client type with a suitable enumeration value for the AF location request, to be provided as the "externalClientType" attribute when invoking the Ngmlc\_Location\_ProvideLocation service operation as defined in clause 6.1 of 3GPP TS 29.515 [35];

5) upon receipt of successful location response from the GMLC or the AMF or the UDM, the NEF shall create or update the "Individual Monitoring Event Subscription" resource and then send an HTTP POST or PUT response to the AF as defined in clause 4.4.2.2 of 3GPP TS 29.122 [4]. Upon receipt of the location Report from the GMLC or the AMF, the NEF shall determine the monitoring event subscription associated with the corresponding Monitoring Event Report as defined in clause 4.4.2.3 of 3GPP TS 29.122 [4]; and

6) in order to delete a previous active configured monitoring event subscription at the NEF, the AF shall send an HTTP DELETE message to the NEF to the resource "Individual Monitoring Event Subscription" which is received in the response to the request that has created the monitoring events subscription resource. The NEF shall interact with the GMLC or the AMF or the UDM to remove the request, upon receipt of the successful response from the GMLC or the AMF or the UDM, the NEF shall delete the active resource "Individual Monitoring Event Subscription" addressed by the URI and send an HTTP response to the AF with a "204 No Content" status code, or a "200 OK" status code including the monitoring event report if received.

- based on local regulations' requirements and operator policies, user consent management specified in Annex V of 3GPP TS 33.501 [6] may be required for EDGE applications to access the Nnef\_EventExposure API for UE's location retrieval. When it is the case and the NEF is used by the Edge Enabler Layer entities to access 3GPP 5GC services, the NEF acts as the consent enforcement entity, as specified in clause 5.1.3 of 3GPP TS 33.558 [56];

- when user consent management shall be carried out for EDGE applications, then:

1) if the AF (e.g. Edge Enabler Server) does not support the "UserConsentRevocation" feature or does not indicate its support for this feature in the HTTP POST request to create a new "Individual Monitoring Event Subscription" resource with the "monitoringType" attribute set to "LOCATION\_REPORTING", the NEF shall reject the request and respond to the AF with an HTTP "403 Forbidden" status code with the response body including a ProblemDetails data structure containing the "CONSENT\_REVOCATION\_NOT\_SUPPORTED" application error within the "cause" attribute;

2) if the AF indicates its support for the "UserConsentRevocation" feature in the HTTP POST request to create a new "Individual Monitoring Event Subscription" resource with the "monitoringType" attribute set to "LOCATION\_REPORTING", the NEF shall check user consent for the targeted UE(s) by retrieving the user consent subscription data via the Nudm\_SDM service API of the UDM as specified in clause 5.2.2.2.24 of 3GPP TS 29.503 [17], subscribe to user consent revocation notifications only for those UE(s) for which user consent is granted also using the Nudm\_SDM service API of the UDM and accept the request for the creation of the event monitoring subscription only for the UE(s) for which user consent is granted;

3) if user consent is not granted for all the targeted UE(s), the NEF shall reject the request and respond to the AF with an HTTP "403 Forbidden" status code with the response body including a ProblemDetails data structure including the "USER\_CONSENT\_NOT\_GRANTED" application error within the "cause" attribute;

4) the AF shall provide within the HTTP POST request to create a new event monitoring subscription the URI via which it desires to receive user consent revocation notifications within the "revocationNotifUri" attribute. The AF may update this URI in subsequent HTTP PUT/PATCH requests to update/modify the corresponding "Individual Monitoring Event Subscription" resource;

5) when becoming aware of user consent revocation for one or several UE(s), the NEF shall:

A) stop processing the data related to the concerned UE(s);

B) send a user consent revocation notification to the AF by sending an HTTP POST request with the request body including the ConsentRevocNotif data structure that shall contain the user consent revocation information (e.g. UE(s) for which user consent was revoked, etc.); and

C) remove the concerned UE(s) from the corresponding "Individual Monitoring Event Subscription" resource and from the related subscriptions at the GMLC, if any; and

D) unsubscribe from user consent revocation notifications for the concerned UE(s) at the UDM;

6) at the reception of the user consent revocation notification from the NEF, the AF shall take the necessary actions to stop processing the data related to the UE(s) for which user consent was revoked; and

7) if user consent is revoked for all the UE(s), the AF shall delete the corresponding "Individual Monitoring Event Subscription" resource as specified above in this clause;

- if the "NSAC" feature defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, in order to support network slice status reporting:

1) the AF shall send an HTTP POST request to the NEF to the "Monitoring Event Subscriptions" resource to create a subscription, as defined in clause 5.3.3.2.3.4 of 3GPP TS 29.122 [4], or send an HTTP PUT message to the NEF to the "Individual Monitoring Event Subscription" resource to update an existing subscription defined in clause 5.3.3.3.3.2 of 3GPP TS 29.122 [4] as follows:

A) within the MonitoringEventSubscription data structure:

a) either the concerned network slice identified by the "snssai" attribute, in the case of a trusted AF, or the AF service identifier within the "afServiceId" attribute, in the case of an untrusted AF, shall be provided;

b) the value of the "monitoringType" attribute shall be set to either "NUM\_OF\_REGD\_UES" or "NUM\_OF\_ESTD\_PDU\_SESSIONS";

c) the "maximumNumberOfReports" attribute set to a value of 1 shall be provided, if one-time reporting of the current network slice status information is requested;

d) if one-time reporting is not requested, either a targeted reporting threshold within the "tgtNsThreshold" attribute (if threshold-based reporting is requested) or a reporting periodicity within the "repPeriod" attribute (if periodic reporting is requested) shall be provided;

e) if periodic reporting or one-time reporting is requested, the "nsRepFormat" attribute shall be provided to indicate the requested reporting format (i.e. numerical or percentage); and

f) the "immediateRep" attribute shall be set to "true", if immediate reporting of the current network slice status information is requested or one-time reporting of the current network slice status information is requested;

2) the NEF shall then further interact with the concerned NSACF(s) to create or update the associated subscription(s) to notifications by invoking the Nnsacf\_SliceEventExposure\_Subscribe service operation as specified in 3GPP TS 29.536 [47];

3) if an AF service identifier was provided by the AF (case of an untrusted AF), the NEF shall translate it into the corresponding S-NSSAI prior to sending the request(s) to the NSACF(s).

NOTE 1: There can be a single or multiple NSACF(s) deployed in a network as specified in clause 5.15.11 of 3GPP TS 23.501 [3]. Whether the NEF needs to interact with one or multiple NSACF(s) to establish and manage network slice status reporting depends on the deployed NSAC architecture option (cf. clause 4.15.3.2.10 of 3GPP TS 23.502 [2] and clause 5.15.11 of 3GPP TS 23.501 [3]).

NOTE 2: If multiple NSACFs need to be contacted by the NEF to establish and manage network slice status reporting for the requested S-NSSAI, the NEF can set the event reporting type to periodic in its request to these NSACFs, irrespective of the requested reporting type by the AF (i.e. threshold based reporting or periodic reporting).

4) After receiving a successful response from the NSACF(s), the NEF shall:

A) for the HTTP POST request, respond to the AF as defined in clause 5.3.3.2.3.4 of 3GPP TS 29.122 [4] with either;

a) a "201 Created" status code and the response body containing the created "Individual Monitoring Event Subscription" resource within the MonitoringEventSubscription data structure. The NEF shall include the current network slice status information received from the NSACF within the "monitoringEventReport" attribute, if available and the "immediateRep" attribute was provided and set to "true" in the request; or

b) a "200 OK" status code and the response body containing the current network slice status information received from the NSACF within the "MonitoringEventReport" data structure, if it is a one-time reporting request with the "immediateRep" attribute set to "true";

B) for the HTTP PUT request, respond to the AF with a "200 OK" status code as defined in clause 5.3.3.3.3.2 of 3GPP TS 29.122 [4] and the response body including the MonitoringEventSubscription data structure containing a representation of the updated "Individual Monitoring Event Subscription" resource. The NEF shall include the current network slice status information received from the NSACF within the "monitoringEventReport" attribute, if available and the "immediateRep" attribute was provided and set to "true" in the request;

NOTE 3: When the "maximumNumberOfReports" attribute is provided and set to a value of 1 and the "immediateRep" attribute is provided and set to "true", the "Individual Monitoring Event Subscription" is immediately terminated after returning the current network slice status information in the HTTP POST response body.

NOTE 4: After sending a subscription creation request for network slice status reporting with a particular reporting format (e.g. percentage) for periodic reporting, an AF cannot send a subsequent subscription creation request for the same network slice with a different reporting format (e.g. numerical) for periodic reporting.

5) when the NEF receives event report(s) from the NSACF(s) as defined in 3GPP TS 29.536 [47], the NEF shall notify the AF via an HTTP POST message defined in clause 5.3.3A.2.3 of 3GPP TS 29.122 [4] as follows:

A) within the MonitoringEventReport data type of the MonitoringNotification data type:

a) the value of the "monitoringType" attribute shall be set to "NUM\_OF\_REGD\_UES" or "NUM\_OF\_ESTD\_PDU\_SESSIONS" (i.e. the same value received during the HTTP POST or PUT request that created or modified the subscription);

b) the AF service identifier to which the notification is related, within the "afServiceId" attribute, if it was provided by the AF in the related subscription request; and

c) the current network slice status information as the "nSStatusInfo" attribute shall be provided, wherein:

i) if the event reporting is threshold based (i.e. the "tgtNsThreshold" was provided within the MonitoringEventSubscription data type), the "nSStatusInfo" attribute shall contain a confirmation for reaching the targeted threshold value, i.e. by sending the current number of registered UEs, or if "eNSAC" feature is also supported, the current number of UEs with at least one PDU session/PDN connection, or the current number of established PDU Sessions, for the network slice identified by the "snssai" attribute provided during the subscription creation/update; and

ii) if the event reporting is periodical (i.e. the "repPeriod" was provided within the MonitoringEventSubscription data type), the "nSStatusInfo" attribute shall provide the current network slice status information, i.e. the current number of registered UEs, or if "eNSAC" feature is also supported, the current number of UEs with at least one PDU session/PDN connection, or the current number of established PDU Sessions for the network slice identified by the "snssai" attribute provided during the subscription creation/update;

NOTE 5: The handling of threshold-based notifications is described in clause 4.15.3.2.10 of 3GPP TS 23.502 [2].

NOTE 6: If the NEF interacts with multiple NSACFs for the requested S-NSSAI, the NEF performs the aggregation of the received network slice status reports from all these NSACFs and determines based on that whether a notification towards the subscribing AF needs to be sent or not (i.e. the reporting conditions to trigger a notification towards the AF are fulfilled or not).

and

6) in order to unsubscribe from network slice status reporting, the AF shall send an HTTP DELETE message to the NEF to the resource "Individual Monitoring Event Subscription" as defined in clause 5.3.3.3.3.5 of 3GPP TS 29.122 [4] to delete an existing network slice reporting subscription. Then the NEF shall interact with the NSACF to delete the associated subscription to notifications by invoking the Nnsacf\_SliceEventExposure\_Unsubscribe service operation as specified in 3GPP TS 29.536 [47];

- if the "enNB1\_5G" feature as defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, the AF may require immediate reporting of the subscribed event(s) current available information with the "immediateRep" attribute set to "true", then if the NEF receives the current subscribed available event(s), shall include the "monitoringEventReport" attribute and/or "addnMonEventReports" attribute, if the "enNB" feature is supported, within the MonitoringEventSubscription data type in the subscription response;

- if the "UEId\_retrieval" feature defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, in order to support AF specific UE ID retrieval:

1) the AF may request AF specific UE ID retrieval for an individual UE, by providing the UE's IP address in the "ueIpAddr" attribute or the UE's MAC address in the "ueMacAddr" attribute within the MonitoringEventSubscription data type;

2) the AF may also provide the DNN, within the "dnn" attribute, and/or the S-NSSAI, within the "snssai" attribute, in the MonitoringEventSubscription data type;

3) upon reception of the corresponding subscription request message from the AF, the NEF shall check whether the AF is authorized to perform this operation or not:

- if the AF's request for AF specific UE ID retrieval is not authorized, the NEF shall respond to the AF with a "403 Forbidden" status code with the response body including the ProblemDetails data structure containing the "cause" attribute set to the "REQUEST\_NOT\_AUTHORIZED" application error indicating AF authorisation failure; and

- if the AF request is for AF specific UE ID retrieval authorized by the NEF, then if the DNN and/or S-NSSAI information is not available in the request, the NEF shall determine the corresponding DNN and/or S-NSSAI information based on the received requesting AF Identifier, and if provided, the MTC Provider Information;

4) the NEF shall then interact with the BSF using the UE address and IP domain (if the UE IPv4 address is provided), DNN and/or S-NSSAI to retrieve the session binding information of the UE by invoking the Nbsf\_Management\_Discovery service operation as described in 3GPP TS 29.521 [9];

5) if the NEF receives an error response from the BSF, the NEF shall respond to the AF with a proper error status code. If the NEF received from the BSF an error response including a "ProblemDetails" data structure with the "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error. If no SUPI matching the provided UE information is returned by the BSF, the NEF shall respond to the AF with a "404 Not Found" status code with the response body including a ProblemDetails data structure containing the "cause" attribute set to the "UE\_NOT\_FOUND" application error to indicate that the requested UE address is not found;

6) upon success and a SUPI is returned by the BSF, the NEF shall then interact with the UDM to retrieve the AF specific UE Identifier using the received SUPI and at least one of the Application Port ID, MTC Provider Information or AF Identifier information by invoking Nudm\_SDM\_Get service as described in clause 5.2.2.2 of 3GPP TS 29.503 [17];

7) upon success, the UDM responds to the NEF with an AF specific UE Identifier represented as an External Identifier for the UE which is uniquely associated with the MTC provider Information and/or AF Identifier. The NEF shall then respond to the AF with the received information, i.e. the AF specific UE Identifier represented as an External Identifier that was received from the UDM;

8) if the NEF receives an error response from the UDM, the NEF shall respond to the AF with a proper error status code. If the NEF received from the UDM an error response including a "ProblemDetails" data structure with the "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error. If the UDM indicates that the requested UE Identifier is not available in the subscription data, the NEF shall respond to the AF with a "404 Not Found" error status code with the response body including a ProblemDetails data structure containing the "cause" attribute set to the "UE\_ID\_NOT\_AVAILABLE" application error to indicate that the AF specific UE ID is not available;

NOTE 7: The case where the UE's IP address provided by the AF to the NEF corresponds to an IP address that has been NATed (Network and Port Address Translation) is not supported in this release of the specification.

- if the "GMEC" feature defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, in order to support group status change reporting (e.g. the group member list is updated to add new group member(s) or remove existing group member(s)):

- the AF shall send an HTTP POST request to the NEF targeting the "Monitoring Event Subscriptions" resource defined in clause 5.3.3.2.3.4 of 3GPP TS 29.122 [4] to request the creation of a subscription as follows:

- within the MonitoringEventSubscription data structure:

- the external group identifier shall be provided within the "externalGroupId" to identify the targeted group (e.g. 5G VN group); and

- the value of the "monitoringType" attribute shall be set to "GROUP\_MEMBER\_LIST\_CHANGE" to indicate that the AF requests to be notified of the Group Members List changes event reporting;

- the AF may also update/modify an existing subscription to add group status change reporting event(s) to the list of monitored event(s) or update/modify its properties by sending and an HTTP PUT/PATCH request to the NEF targeting the corresponding "Individual Monitoring Event Subscription" resource, as defined in clause 5.3.3.3.3.2/5.3.3.3.3.3 of 3GPP TS 29.122 [4], including the above mentioned attributes when relevant;

- the NEF shall then further interact with the UDM to create or update the associated subscription(s) to notifications by invoking the relevant service operations of the Nudm\_EventExposure API as specified in 3GPP TS 29.503 [17];

- upon reception of a successful response from the UDM, the NEF shall respond to the AF as defined in clause 5.3.3.2.3.4, 5.3.3.3.3.2 or 5.3.3.3.3.3 of 3GPP TS 29.122 [4];

- when the NEF receives Group Members List changes event report(s) from the UDM as defined in 3GPP TS 29.503 [17], the NEF shall notify the AF by sending an HTTP POST request message as defined in clause 5.3.3A.2.3 of 3GPP TS 29.122 [4] as follows:

- within an array element of the "monitoringEventReports" attribute (encoded via the MonitoringEventReport data structure) of the MonitoringNotification data type:

- the "monitoringType" attribute shall be set to "GROUP\_MEMBER\_LIST\_CHANGE" (i.e. the same value received during the HTTP POST or PUT/PATCH request that created or updated/modified the subscription); and

- the information on the change(s) to the group member list shall be provided within the "groupMembListChanges" attribute;

and

- in order to unsubscribe from group status events reporting:

- if the AF subscribed to other monitoring event(s) in addition to group status change reporting event(s), the AF shall update/modify the corresponding subscription to remove the group status change reporting event(s) from the list of monitoring event(s);

- if the AF subscribed only to group status change reporting event(s) or the AF desires to unsubscribe from all the monitoring event(s) that it has subscribed to via this monitoring event subscription, then:

- the AF shall send an HTTP DELETE request message to the NEF targeting the corresponding "Individual Monitoring Event Subscription" resource, as defined in clause 5.3.3.3.3.5 of 3GPP TS 29.122 [4], to request the deletion of the related existing subscription;

- for the group status change reporting event(s), the NEF shall then interact with the UDM to request the deletion of the associated subscription(s) by invoking the relevant service operation of the Nudm\_EventExposure API as specified in 3GPP TS 29.503 [17]; and

- upon reception of a successful response from the UDM, the NEF shall delete the targeted subscription and respond to the AF as defined in clause 5.3.3.3.3.5 of 3GPP TS 29.122 [4];

and

- if the "AppDetection\_5G" feature defined in clause 5.3.4 of 3GPP TS 29.122 [4] is supported, in order to support AF request for Application traffic detection (Start/Stop) monitoring event notification, the AF shall send an HTTP POST request to the NEF targeting the "Monitoring Event Subscriptions" resource (defined in clause 5.3.3.2.3.4 of 3GPP TS 29.122 [4]) to request the creation of a subscription or send an HTTP PUT message to the NEF to the resource "Individual Monitoring Event Subscription" as defined in clause 5.3.3.3 of 3GPP TS 29.122 [4] for updating the subscription as follows:

1) targeting any UE application traffic associated with the S-NSSAI indicated by the "snssai" attribute and the DNN indicated by the "dnn" attribute for the application(s) identified by the "appIds" attribute in the MonitoringEventSubscription data type setting the monitoring type as "APPLICATION\_START" and "APPLICATION\_STOP";

2) upon reception of the corresponding subscription request message from the AF, the NEF shall check whether the AF is authorized to perform this operation or not:

- if the AF's request for Application detection is not authorized, the NEF shall respond to the AF with a "403 Forbidden" status code with the response body including the ProblemDetails data structure containing the "cause" attribute set to the "REQUEST\_NOT\_AUTHORIZED" application error indicating AF authorisation failure;

3) upon successful AF authorization, the NEF shall subscribe for the Application traffic detection (start/stop) event with the individual PCF(s) (locally configured at the NEF for the authorized DNN/S-NSSAI) using the Npcf\_EventExposure\_Subscribe service as described in clause 4.2.2.2 of 3GPP TS 29.523 [22]; and

4) when the NEF receives an event notification from the PCF via Npcf\_EventExposure service as described in clause 4.2.4 of 3GPP TS 29.523 [22] indicating that the subscribed event has been detected, then the NEF shall provide a notification by sending an HTTP POST message to the AF.

\* \* \* \* Next changes \* \* \* \*

### 4.4.8 Procedures for changing the chargeable party at session set up or during the session

The procedures for changing the chargeable party at session set up or during the session in 5GS shall reuse the procedures and provisions defined in clause 4.4.4 of 3GPP TS 29.122 [4] with the following differences:

- description of the SCS/AS applies to the AF;

- description of the SCEF applies to the NEF;

- description of the PCRF applies to the PCF;

- in the HTTP POST request, the AF may include the AF session subscribed "dnn" attribute and/or "snssai" attribute;

- if the EthChgParty\_5G feature defined in clause 5.5.4 of 3GPP TS 29.122 [4] is supported and the request is for an Ethernet UE:

- in the HTTP POST request:

- the AF shall include the UE MAC address within the "macAddr" attribute instead of the UE IP address: and

- instead of the IP Flow description:

- if the AppId feature defined in clause 5.5.4 of 3GPP TS 29.122 [4] is not supported, the AF shall include the Ethernet Flow description within the "ethFlowInfo" attribute;

- otherwise, the AF shall include either the External Application Identifier, within the "exterAppId" attribute, or the Ethernet Flow description, within the "ethFlowInfo" attribute;

and

- in the HTTP PATCH request, the AF may update the Ethernet Flow description, within the "ethFlowInfo" attribute, or the External Application Identifier, within the "exterAppId" attribute;

- the NEF may interact with the BSF by using the Nbsf\_Management\_Discovery service (as defined in 3GPP TS 29.521 [9]) to retrieve the PCF addressing information;

- the NEF shall interact with the PCF by using the Npcf\_PolicyAuthorization service as defined in 3GPP TS 29.514 [7]; and

- if the ToSTC\_5G feature defined in clause 5.5.4 of 3GPP TS 29.122 [4] is supported:

- in the HTTP POST request, the AF may include the "tosTC" attribute within the "flowInfo" attribute; and

- in the HTTP PATCH request, the AF may include the "tosTC" attribute within the "flowInfo" attribute.

\* \* \* \* Next changes \* \* \* \*

#### 5.19.5.1 General

This clause specifies the application data model supported by the MBSTMGI API. Table 5.19.5.1-1 specifies the data types defined for the MBSTMGI API.

Table 5.19.5.1-1: MBSTMGI specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| ExpiryNotif | 5.19.5.2.5 | Represents TMGI(s) timer expiry notification information. |  |
| ExternalMbsServiceArea | 3GPP TS 29.571 [8] | Represents an external MBS service area. |  |
| MbsServiceArea | 3GPP TS 29.571 [8] | Represents an MBS service area. |  |
| ProblemDetailsTmgiAlloc | 5.19.5.4.1 | Represents an extension to the ProblemDetails data structure with additional error information related to TMGI Allocation. |  |
| ReducedMbsServArea | 5.19.5.2.6 | Represents the reduced MBS Service Area information. |  |
| TmgiAllocRequest | 5.19.5.2.2 | Represents the full set of parameters to initiate a TMGI(s) allocation request or the refresh of the expiry time of already allocated TMGI(s). |  |
| TmgiAllocResponse | 5.19.5.2.3 | Represents TMGI(s) allocation information or the refreshed expiry time for already allocated TMGI(s). |  |
| TmgiDeallocRequest | 5.19.5.2.4 | Represents information to request the deallocation of TMGI(s). |  |

Table 5.19.5.1-2 specifies data types re-used by the MBSTMGI API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the MBSTMGI API.

Table 5.19.5.1-2: MBSTMGI API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| ProblemDetails | 3GPP TS 29.122 [4] | Represents error related information. |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and is used to negotiate the applicability of the optional features. |  |
| Tmgi | 3GPP TS 29.571 [8] | Contains a TMGI. |  |
| TmgiAllocate | 3GPP TS 29.532 [52] | Contains parameters to initiate a TMGI(s) allocation request or the refresh of the expiry time of already allocated TMGI(s). |  |
| TmgiAllocated | 3GPP TS 29.532 [52] | Contains the TMGI(s) allocation information or the refreshed expiry time for already allocated TMGI(s). |  |
| Uri | 3GPP TS 29.122 [4] | Contains a TMGI. |  |
| WebsockNotifConfig | 3GPP TS 29.122 [4] | Contains the configuration parameters to set up notification delivery over Websocket protocol. |  |

\* \* \* \* Next changes \* \* \* \*

#### 5.20.5.1 General

This clause specifies the application data model supported by the MBSSession API. Table 5.20.5.1-1 specifies the data types defined for the MBSSession API.

Table 5.20.5.1-1: MBSSession specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| MbsPpData | 5.20.5.2.6 | Represents MBS Parameters Provisioning data. |  |
| MbsPpDataPatch | 5.20.5.2.8 | Represents the requested modification to existing MBS Parameters Provisioning data. |  |
| MbsSessAuthData | 5.20.5.2.7 | Represents the MBS Session Authorization data. |  |
| MbsSessAssistInfo | 5.20.5.2.9 | Represents the MBS Session Assistance information. | 5MBS2 |
| MbsSessionCreateReq | 5.20.5.2.2 | Represents the parameters to request MBS Session creation. |  |
| MbsSessionCreateResp | 5.20.5.2.3 | Represents the parameters to be returned in an MBS Session creation response. |  |
| MbsSessionSubsc | 5.20.5.2.4 | Represents an MBS Session Subscription. |  |
| MbsSessionStatusNotif | 5.20.5.2.5 | Represents an MBS Session Status notification. |  |
| MbsSessionUpdateResp | 5.20.5.2.10 | Represents MBS Session update related information. | ReducedMbsServArea |

Table 5.20.5.1-2 specifies data types re-used by the MBSSession API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the MBSSession API.

Table 5.20.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| 5MbsAuthorizationInfo | 3GPP TS 29.503 [17] | Contains the MBS Session authorization information. |  |
| DateTime | 3GPP TS 29.122 [4] | Represents a date and a time |  |
| ExternalGroupId | 3GPP TS 29.122 [4] | Represents the External Group Identifier for a user group. |  |
| ExternalMbsServiceArea | 3GPP TS 29.571 [8] | Represents an external MBS service area. |  |
| Gpsi | 3GPP TS 29.571 [8] | Represents a GPSI. |  |
| MbsServiceArea | 3GPP TS 29.571 [8] | Represents an MBS service area. |  |
| MbsAssistanceInfo | 3GPP TS 29.503 [17] | Represents the MBS Session Assistance information. | 5MBS2 |
| MbsSession | 3GPP TS 29.571 [8] | Represents MBS session information. |  |
| MbsSessionId | 3GPP TS 29.571 [8] | Represents the identifier of an MBS Session. |  |
| MbsSessionEventReportList | 3GPP TS 29.571 [8] | Represents the list of MBS Session Event Report(a). |  |
| MbsSessionSubscription | 3GPP TS 29.571 [8] | Represents an MBS Session Subscription |  |
| PatchItem | 3GPP TS 29.571 [8] | Represents the requested modifications to a resource via the PATCH method. |  |
| ProblemDetails | 3GPP TS 29.122 [4] | Represents error related information. |  |
| ProblemDetailsTmgiAlloc | 5.19.5.4.1 | Represents an extension to the ProblemDetails data structure with additional information. |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |
| Tmgi | 3GPP TS 29.571 [8] | Represents a TMGI. |  |
| TunnelAddress | 3GPP TS 29.571 [8] | Represents a Tunnel Address (UDP/IP). |  |
| Uri | 3GPP TS 29.122 [4] | Represents a URI. |  |

\* \* \* \* Next changes \* \* \* \*

##### 5.20.5.2.8 Type: MbsPpDataPatch

Table 5.20.5.2.8-1: Definition of type MbsPpDataPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mbsSessAuthData | MbsSessAuthData | O | 0..1 | Contains the updated MBS Session Authorization data that the AF requests to provision. |  |
| mbsSessAssistInfo | MbsSessAssistInfo | O | 0..1 | Contains the updated MBS Session Assistance information that the AF requests to provision. | 5MBS2 |
|  |  |  |  |  |  |

\* \* \* \* Next changes \* \* \* \*

#### 5.35.5.1 General

This clause specifies the application data model supported by the UeAddress API. Table 5.35.5.1-1 specifies the data types defined for the UeAddress API.

Table 5.35.5.1-1: UeAddress service specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| UeAddressReq | 5.35.5.2.2 | Represents the parameters to requestUE Address retrieval. |  |
| UeAddressInfo | 5.35.5.2.3 | Represents UE Address information. |  |

Table 5.35.5.1-2 specifies data types re-used by the UeAddress API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the UeAddress API.

Table 5.35.5.1-2: Re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| Gpsi | 3GPP TS 29.571 [8] | Identifies a GPSI of the UE. |
| IpAddr | 3GPP TS 29.571 [8] | Identifes an IP address. |
|  |  |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Used to negotiate the applicability of the optional features. |

\* \* \* \* Next changes \* \* \* \*

# A.18 MBSSession API

openapi: 3.0.0

info:

 title: 3gpp-mbs-session

 version: 1.2.0-alpha.2

 description: |

 API for MBS Session Management.

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externalDocs:

 description: >

 3GPP TS 29.522 V18.4.0; 5G System; Network Exposure Function Northbound APIs.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

servers:

 - url: '{apiRoot}/3gpp-mbs-session/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501

security:

 - {}

 - oAuth2ClientCredentials: []

paths:

 /mbs-sessions:

 post:

 summary: Request the creation of a new MBS Session.

 tags:

 - MBS Sessions collection

 operationId: CreateMBSSession

 requestBody:

 description: Representation of the new MBS session to be created at the NEF.

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionCreateReq'

 responses:

 '201':

 description: >

 Created. Successful creation of a new Individual MBS session resource.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionCreateRsp'

 headers:

 Location:

 description: >

 Contains the URI of the newly created resource, according to the structure

 {apiRoot}/3gpp-mbs-session/v1/mbs-sessions/{mbsSessionRef}

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 description: >

 The request is rejected by the NEF and more details (along with ProblemDetails) may be

 returned.

 content:

 application/problem+json:

 schema:

 $ref: 'TS29522\_MBSTMGI.yaml#/components/schemas/ProblemDetailsTmgiAlloc'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /mbs-sessions/{mbsSessionRef}:

 parameters:

 - name: mbsSessionRef

 in: path

 description: Identifier of the Individual MBS Session resource.

 required: true

 schema:

 type: string

 patch:

 summary: Request the modification of an existing Individual MBS Session resource.

 operationId: ModifyIndMBSSession

 tags:

 - Individual MBS Session

 requestBody:

 required: true

 content:

 application/json-patch+json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PatchItem'

 minItems: 1

 responses:

 '200':

 description: >

 OK. The Individual MBS Session was successfully updated and MBS Session update related

 information shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionUpdateResp'

 '204':

 description: >

 No Content. The concerned Individual MBS Session resource was successfully modified.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Request the Deletion of an existing Individual MBS Session resource.

 operationId: DeleteIndMBSSession

 tags:

 - Individual MBS Session

 responses:

 '204':

 description: >

 No Content. Successful deletion of the concerned Individual MBS Session resource.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /mbs-sessions/subscriptions:

 get:

 summary: Retrieve all the active MBS Sessions subscriptions.

 operationId: ReadMBSSessionsSubscs

 tags:

 - MBS Session Subscriptions

 responses:

 '200':

 description: >

 OK. All the active MBS Session Subscriptions resources managed by the NEF are returned.

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: '#/components/schemas/MbsSessionSubsc'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 post:

 summary: Request the creation of a new Individual MBS Session subscription resource.

 operationId: CreateMBSSessionsSubsc

 tags:

 - MBS Session Subscriptions

 requestBody:

 description: Request the creation of a new MBS Session subscription resource.

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionSubsc'

 responses:

 '201':

 description: >

 Created. Successful creation of a new Individual MBS Session subscription.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionSubsc'

 headers:

 Location:

 description: Contains the URI of the newly created resource, according to the

 structure

 {apiRoot}/3gpp-mbs-session/v1/mbs-sessions/subscriptions/{subscriptionId}

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 callbacks:

 MBSSessionStatusNotification:

 '{request.body#/notificationUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionStatusNotif'

 responses:

 '204':

 description: No Content. Successful reception of the notification.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /mbs-sessions/subscriptions/{subscriptionId}:

 parameters:

 - name: subscriptionId

 in: path

 description: Identifier of the Individual MBS Session Subscription resource.

 required: true

 schema:

 type: string

 get:

 summary: Retrieve an existing Individual MBS Session Subscription resource.

 operationId: ReadIndMBSSessionsSubsc

 tags:

 - Individual MBS Session subscription

 responses:

 '200':

 description: >

 OK. Successful retrieval of the targeted Individual MBS Session subscription resource.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsSessionSubsc'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Request the deletion of an existing Individual MBS Session subscription resource.

 operationId: DeleteIndMBSSessionsSubsc

 tags:

 - Individual MBS Session Subscription

 responses:

 '204':

 description: >

 No Content. Successful deletion of the existing Individual MBS Session subscription

 resource.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /mbs-pp:

 get:

 summary: Request to retrieve all the active MBS Parameters Provisioning resources at the NEF.

 operationId: GetMBSParamsProvisionings

 tags:

 - MBS Parameters Provisionings

 responses:

 '200':

 description: >

 OK. All the active MBS Parameters Provisioning resources managed by the NEF are

 returned.

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: '#/components/schemas/MbsPpData'

 minItems: 1

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 post:

 summary: Request the creation of a new MBS Parameters Provisioning.

 tags:

 - MBS Parameters Provisioning

 operationId: CreateMBSParamsProvisioning

 requestBody:

 description: Representation of the new MBS Parameters Provisioning to be created at the NEF.

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPpData'

 responses:

 '201':

 description: >

 Created. Successful creation of a new Individual MBS Parameters Provisioning resource.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPpData'

 headers:

 Location:

 description: >

 Contains the URI of the newly created resource, according to the structure

 {apiRoot}/3gpp-mbs-session/v1/mbs-pp/{mbsPpId}

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /mbs-pp/{mbsPpId}:

 parameters:

 - name: mbsPpId

 in: path

 description: >

 Represents the identifier of the Individual MBS Parameters Provisioning resource.

 required: true

 schema:

 type: string

 get:

 summary: Request to retrieve an existing Individual MBS Parameters Provisioning resource.

 operationId: GetIndMBSParamsProvisioning

 tags:

 - Individual MBS Parameters Provisioning

 responses:

 '200':

 description: >

 OK. Successful retrieval of the requested Individual MBS Parameters Provisioning.

 resource.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPpData'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 put:

 summary: Request the update of an existing Individual MBS Parameters Provisioning resource.

 tags:

 - Individual MBS Parameters Provisioning

 operationId: UpdateIndMBSParamsProvisioning

 requestBody:

 description: >

 Represents the updated Individual MBS Parameters Provisioning resource representation.

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPpData'

 responses:

 '200':

 description: >

 OK. The Individual MBS Parameters Provisioning resource is successfully updated and a

 representation of the updated resource is returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPpData'

 '204':

 description: >

 No Content. The Individual MBS Parameters Provisioning resource is successfully updated.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 summary: Request the modification of an existing Individual MBS Parameters Provisioning resource.

 tags:

 - Individual MBS Parameters Provisioning

 operationId: ModifyIndMBSParamsProvisioning

 requestBody:

 description: >

 Contains the parameters to request the modification of the Individual Parameters

 Provisioning resource.

 required: true

 content:

 application/merge-patch+json:

 schema:

 $ref: '#/components/schemas/MbsPpDataPatch'

 responses:

 '200':

 description: >

 OK. The Individual MBS Parameters Provisioning resource is successfully modified and a

 representation of the updated resource is returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPpData'

 '204':

 description: >

 No Content. The Individual MBS Parameters Provisioning resource is successfully

 modified.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Request the deletion of an existing Individual MBS Parameters Provisioning resource.

 tags:

 - Individual MBS Parameters Provisioning

 operationId: DeleteIndMBSParamsProvisioning

 responses:

 '204':

 description: >

 No Content. The Individual MBS Parameters Provisioning resource is successfully

 deleted.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

#

# STRUCTURED DATA TYPES

#

 MbsSessionCreateReq:

 description: Represents the parameters to request MBS Session creation.

 type: object

 properties:

 afId:

 type: string

 mbsSession:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsSession'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - afId

 - mbsSession

 MbsSessionCreateRsp:

 description: Represents the parameters to be returned in an MBS Session creation response..

 type: object

 properties:

 mbsSession:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsSession'

 eventList:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsSessionEventReportList'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - mbsSession

 MbsSessionSubsc:

 description: Represents an MBS Session Subscription.

 type: object

 properties:

 afId:

 type: string

 subscription:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsSessionSubscription'

 subscriptionId:

 type: string

 required:

 - afId

 - subscription

 MbsSessionStatusNotif:

 description: Represents an MBS Session Status notification.

 type: object

 properties:

 eventList:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsSessionEventReportList'

 required:

 - eventList

 MbsPpData:

 description: Represents MBS Parameters Provisioning data.

 type: object

 properties:

 afId:

 type: string

 mbsSessAuthData:

 $ref: '#/components/schemas/MbsSessAuthData'

 mbsSessAssistInfo:

 $ref: '#/components/schemas/MbsSessAssistInfo'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - afId

 MbsSessAuthData:

 description: Represents the MBS Session Authorization data.

 type: object

 properties:

 extGroupId:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/ExternalGroupId'

 gpsisList:

 type: object

 additionalProperties:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 minProperties: 1

 description: >

 Represents the list of the GPSI(s) of the member UE(s) constituting the multicast MBS

 group. Any

 value of type can be used as a key of the map.

 mbsSessionIdList:

 $ref: 'TS29503\_Nudm\_PP.yaml#/components/schemas/5MbsAuthorizationInfo'

 required:

 - extGroupId

 - mbsSessionIdList

 MbsPpDataPatch:

 description: >

 Represents the requested modification to existing MBS Parameters Provisioning data.

 type: object

 properties:

 mbsSessAuthData:

 $ref: '#/components/schemas/MbsSessAuthData'

 mbsSessAssistInfo:

 $ref: '#/components/schemas/MbsSessAssistInfo'

 MbsSessAssistInfo:

 description: >

 Represents the MBS Session Assistance information.

 type: object

 properties:

 mbsSessAssistData:

 type: array

 items:

 $ref: 'TS29503\_Nudm\_PP.yaml#/components/schemas/MbsAssistanceInfo'

 minItems: 1

 required:

 - mbsSessAssistData

 MbsSessionUpdateResp:

 description: >

 Represents the parameters to be returned in an MBS Session update response during

 partial success.

 type: object

 properties:

 reducedMbsServArea:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsServiceArea'

 reducedExtMbsServArea:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExternalMbsServiceArea'

 not:

 required: [reducedMbsServArea, reducedExtMbsServArea]

#

# SIMPLE DATA TYPES

#

#

# ENUMERATIONS

#

\* \* \* \* End of changes \* \* \* \*