**3GPP TSG-SA5 Meeting #138-e *S5-214337***

**e-meeting, 23 - 31 August 2021** Revision of S5-20xxxx

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **32.291** | **CR** | **0334** | **rev** | **-** | **Current version:** | **16.8.1** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Support of stateless CHFs |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | SA5 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2021-0813 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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:*** | In the previous CT4 meeting it was agreed that redirect responses shall contain a response body with a media type of "application/json", and to accordingly update corresponding 5G SBI TSs.Furthermore, in TS 29.571 a new data type was specified: "RedirectResponse" to be used as the JSON object to be included in redirect responses (see C4-212531). |
|  |  |
| ***Summary of change:*** | Support "RedirectResponse" data type. |
|  |  |
| ***Consequences if not approved:*** | redirectiont to alternative CHF not possible |
|  |  |
| ***Clauses affected:*** | 5.2.2.2, 5.2.2.3, 5.2.2.4, 5.2.2.5,6.1.3.2.3.1, 6.1.3.3.4.2.2, 6.1.3.3.4.3.2, 6.1.5.2.3.1,6.1.6.1,6.1.8,A.2. |
|  |  |
|  | **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:*** |  |

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| **First change** |

#### 5.2.2.2 Nchf\_ConvergedCharging\_Create Operation

The Nchf\_ConvergedCharging\_Create service operation provides means for NF (CTF) to request quotas for service delivery or initial report of service usage.

The following procedures using the Nchf\_ConvergedCharging\_Create service operation are supported:

- No existing charging data resource.



Figure 5.2.2.2-1: Nchf\_ ConvergedCharging\_Create Service Operation

1. NF (CTF) sends a Nchf\_ConvergedCharging\_Create request to the CHF to create resource for charging. Requested quota and notification URI for Nchf\_ConvergedCharging\_Notify service operation are included in the request body.

2a. At successful operation, "201 Created" response is returned. In the "201 Created" response, the CHF includes a Location header field and the allocated quota in the body. The Location header field shall contain the URI of the created resource. The NF (CTF) shall use the URI received in the Location header in subsequent requests to the CHF for the same PDU session.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.1.3.2.3.1-3 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.7.3-1. If the received HTTP POST request needs to be redirected, a HTTP 3xx response shall be sent.

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| **Next change** |

#### 5.2.2.3 Nchf\_ConvergedCharging\_Update Operation

The Nchf\_ConvergedCharging\_Update service operation provides means for NF (CTF) to update the charging data.

The following procedures using the Nchf\_ConvergedCharging\_Update service operation are supported:

- the granted service units for one rating group are spent

- expiry of granted service units' validity time

- charging events occur, which might affect the rating of the current service

- receiving re-authorization notification from CHF



Figure 5.2.2.3-1: Nchf\_ConvergedCharging\_Update Service Operation

1. NF (CTF) sends a Nchf\_ConvergedCharging\_Update request to the CHF. The {ChargingDataRef } in the URI identifies the "Charging Data" to be updated. The requested service unit and previous used service unit is included in the request body.

2a. At successful operation, "200 OK" response is returned. The CHF includes the granted service unit in the "200 OK" response.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.1.3.3.4.2.2-2 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.7.3-1. If the received HTTP POST request needs to be redirected, a HTTP 3xx response shall be sent.

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| **Next change** |

#### 5.2.2.4 Nchf\_ConvergedCharging\_Release Operation

The Nchf\_ConvergedCharging\_Release service operation provides means for NF (CTF) to terminate charging Session.

The following procedures using the Nchf\_ConvergedCharging\_Release service operation are supported:

- Expiry of unit count inactivity timer in NF Consumer.

- Abort notification is received from CHF.

- Service termination in NF Consumer.



Figure 5.2.2.4-1: Nchf\_ConvergedCharging\_Release Service Operation

1. NF(CTF) sends a Nchf\_ConvergedCharging\_Release request to the CHF. The {ChargingDataRef } in the URI identifies the "Charging Data" to be updated and then released. The final used service unit is included in the request body.

2a. At successful operation, "204 No Content" response is returned.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.1.3.3.4.3.2-2 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.7.3-1. If the received HTTP POST request needs to be redirected, a HTTP 3xx response shall be sent.

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| **Next change** |

#### 5.2.2.5 Nchf\_ConvergedCharging\_Notify Operation

The Nchf\_ConvergedCharging\_Notify service operation provides means for CHF to notify the NF(CTF) to update or terminate charging of the PDU Session.

The following procedures using the Nchf\_ConvergedCharging\_Notify service operation are supported:

- CHF determines re-authorization.

- CHF determines abort of charging.



Figure 5.2.2.5-1: Nchf\_ConvergedCharging\_Notify Service Operation

1. The CHF sends a Nchf\_ConvergedCharging\_Notify request to the NF (CTF). The {notifyUri} identifies the notification URI which is sent in the Nchf\_ConvergedCharging\_Create request. The notification type is included in the request body.

2a. At successful operation, "204 No Content" response is returned.

2b. On failure , one of the HTTP status code listed in Table 6.1.5.2.3.1-2 shall be returned. For a 4xx/5xx response, the message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.7.3-1. If the received HTTP POST request needs to be redirected, a HTTP 3xx response shall be sent.

After successful operation, when the NF Service Consumer receives a Charging Notify Request while not waiting for any Charging Data Response from the CHF, CTF can send a new Charging Data Request.

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| **Next Change** |

###### 6.1.3.2.3.1 POST

This method shall support the URI query parameters specified in table 6.1.3.2.3.1-1.

Table 6.1.3.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.2.3.1-2 and the response data structures and response codes specified in table 6.1.3.2.3.1-3.

Table 6.1.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ChargingDataRequest | M | 1 | Parameters to create a new Charging Data resource.  |

Table 6.1.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ChargingDataResponse | M | 1 | 201 Created | The creation of a Charging Data resource is confirmed and a representation of that resource is returned.The Charging Data resource which is created and returned successfully. The representation of created resource is identified via Location header field in the 201 response. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during Individual Charging Data creation. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance.  |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during Individual Charging Data creation. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance. |
| ChargingDataResponse | M | 1 | 400 Bad Request | (NOTE 2) |
| ChargingDataResponse | M | 1 | 403Forbidden  | (NOTE 2) |
| ChargingDataResponse | M | 1 | 404Not Found  | (NOTE 2) |
| n/a |  |  | 405Method Not Allowed  | (NOTE 2) |
| n/a |  |  | 408Request Timeout | (NOTE 2) |
| n/a |  |  | 410 Gone | (NOTE 2) |
| NOTE 1: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [299] for the POST method also apply.NOTE 2: Failure cases are described in subclause 6.1.7. |

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| **Next change** |

6.1.3.3.4.2.2 Operation Definition

This operation shall support the request data structures specified in table 6.1.3.3.4.2.2-1 and the response data structures and response codes specified in table 6.1.3.3.4.2.2-2.

Table 6.1.3.3.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ChargingDataRequest | M | 1 | Parameters to modify an existing Charging Data resource matching the ChargingDataRef according to the representation in the ChargingData.The request URI is the representation in the Location header field in the 201 response of resource creation.  |

Table 6.1.3.3.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| ChargingDataResponse | M | 1 | 200 OK | The modification of a Charging Data resource is confirmed and a representation of that resource is returned.The Charging Data resource which is modified and returned successfully. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during Individual Charging Data creation. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during Individual Charging Data update. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance. |
| ChargingDataResponse | M | 1 | 400 Bad Request | (NOTE 2) |
| ChargingDataResponse | M | 1 | 403Forbidden  | (NOTE 2) |
| ChargingDataResponse | M | 1 | 404Not Found  | (NOTE 2) |
| n/a |  |  | 405Method Not Allowed  | (NOTE 2) |
| n/a |  |  | 408Request Timeout | (NOTE 2) |
| n/a |  |  | 410 Gone | (NOTE 2) |
| NOTE 1: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [299] for the POST method also apply.NOTE 2: Failure cases are described in subclause 6.1.7. |

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| **Next change** |

6.1.3.3.4.3.2 Operation Definition

This operation shall support the request data structures specified in table 6.1.3.3.4.3.2-1 and the response data structures and response codes specified in table 6.1.3.3.4.3.2-2.

Table 6.1.3.3.4.3.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ChargingDataRequest | M | 1 | Parameters to modify and then release the Charging Data resource matching the ChargingDataRef according to the representation in the ChargingData.The request URI is the representation in the Location header field in the 201 response of resource creation.  |

Table 6.1.3.3.4.3.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | Successful case: The Charging Data resource matching the ChargingDataRef is modified and then released. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during Individual Charging Data release. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during Individual Charging Data release. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance. |
| ChargingDataResponse | M | 1 | 404 Not Found | (NOTE 2) |
| n/a |  |  | 410 Gone | (NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.NOTE 2: Failure cases are described in subclause 6.1.7. |

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| **Next Change** |

###### 6.1.5.2.3.1 POST

This method shall support the request data structures specified in table 6.1.5.2.3.1-1 and the response data structures and response codes specified in table 6.1.5.2.3.1-2.

Table 6.1.5.2.3.1-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ChargingNotifyRequest | M | 1 | Provides Information about active Charging events. ChargingNotifyRequest data type is defined in subclause 6.1.6. |

Table 6.1.5.2.3.1-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | The receipt of the Notification is acknowledged. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during Charging event notification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance.  |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during Charging event notification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative NF (service) instance. |
| ChargingNotifyResponse | M | 1 | 400 Bad Request | (NOTE 2) |
| NOTE 1: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [299] for the POST method also apply.NOTE 2: Failure cases are described in subclause 6.1.7. |

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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.  |  |
| 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 |  |
| RedirectResponse | 3GPP TS 29.571 [371] | Redirection related information |  |
| 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** |

### 6.1.8 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 | ES3XX | Extended Support of HTTP 307/308 redirection. |

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| **Next Change** |

## A.2 Nchf\_ConvergedCharging API

openapi: 3.0.0

info:

 title: Nchf\_ConvergedCharging

 version: 3.0.3

 description: |

 ConvergedCharging Service © 2021, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

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externalDocs:

 description: >

 3GPP TS 32.291 V16.8.1: Telecommunication management; Charging management;

 5G system, charging service; Stage 3.

 url: 'http://www.3gpp.org/ftp/Specs/archive/32\_series/32.291/'

servers:

 - url: '{apiRoot}/nchf-convergedcharging/v3'

 variables:

 apiRoot:

 default: https://example.com

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

security:

 - {}

 - oAuth2ClientCredentials:

 - nchf-convergedcharging

paths:

 /chargingdata:

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: Created

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '400':

 description: Bad request

 content:

 application/problem+json:

 schema:

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

 '403':

 description: Forbidden

 content:

 application/problem+json:

 schema:

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

 '404':

 description: Not Found

 content:

 application/problem+json:

 schema:

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '410':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/410'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 callbacks:

 chargingNotification:

 '{$request.body#/notifyUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: 'No Content, Notification was succesfull'

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '400':

 description: Bad request

 content:

 application/problem+json:

 schema:

 $ref: >-

 TS29571\_CommonData.yaml#/components/schemas/ProblemDetails

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 '/chargingdata/{ChargingDataRef}/update':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 parameters:

 - name: ChargingDataRef

 in: path

 description: a unique identifier for a charging data resource in a PLMN

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK. Updated Charging Data resource is returned

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '400':

 description: Bad request

 content:

 application/problem+json:

 schema:

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

 '403':

 description: Forbidden

 content:

 application/problem+json:

 schema:

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

 '404':

 description: Not Found

 content:

 application/problem+json:

 schema:

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '410':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/410'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 '/chargingdata/{ChargingDataRef}/release':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 parameters:

 - name: ChargingDataRef

 in: path

 description: a unique identifier for a charging data resource in a PLMN

 required: true

 schema:

 type: string

 responses:

 '204':

 description: No Content.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '404':

 description: Not Found

 content:

 application/problem+json:

 schema:

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

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '410':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/410'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 nchf-convergedcharging: Access to the Nchf\_ConvergedCharging API

 schemas:

 ChargingDataRequest:

 type: object

 properties:

 subscriberIdentifier:

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

 tenantIdentifier:

 type: string

 chargingId:

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

 mnSConsumerIdentifier:

 type: string

 nfConsumerIdentification:

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

 invocationTimeStamp:

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

 invocationSequenceNumber:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 retransmissionIndicator:

 type: boolean

 oneTimeEvent:

 type: boolean

 oneTimeEventType:

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

 notifyUri:

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

 supportedFeatures:

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

 serviceSpecificationInfo:

 type: string

 multipleUnitUsage:

 type: array

 items:

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

 minItems: 0

 triggers:

 type: array

 items:

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

 minItems: 0

 pDUSessionChargingInformation:

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

 roamingQBCInformation:

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

 sMSChargingInformation:

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

 nEFChargingInformation:

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

 registrationChargingInformation:

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

 n2ConnectionChargingInformation:

 $ref: '#/components/schemas/N2ConnectionChargingInformation'

 locationReportingChargingInformation:

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

 nSPAChargingInformation:

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

 nSMChargingInformation:

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

 required:

 - nfConsumerIdentification

 - invocationTimeStamp

 - invocationSequenceNumber

 ChargingDataResponse:

 type: object

 properties:

 invocationTimeStamp:

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

 invocationSequenceNumber:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 invocationResult:

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

 sessionFailover:

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

 supportedFeatures:

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

 multipleUnitInformation:

 type: array

 items:

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

 minItems: 0

 triggers:

 type: array

 items:

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

 minItems: 0

 pDUSessionChargingInformation:

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

 roamingQBCInformation:

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

 locationReportingChargingInformation:

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

 required:

 - invocationTimeStamp

 - invocationSequenceNumber

 ChargingNotifyRequest:

 type: object

 properties:

 notificationType:

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

 reauthorizationDetails:

 type: array

 items:

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

 minItems: 0

 required:

 - notificationType

 ChargingNotifyResponse:

 type: object

 properties:

 invocationResult:

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

 NFIdentification:

 type: object

 properties:

 nFName:

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

 nFIPv4Address:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 nFIPv6Address:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 nFPLMNID:

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

 nodeFunctionality:

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

 nFFqdn:

 type: string

 required:

 - nodeFunctionality

 MultipleUnitUsage:

 type: object

 properties:

 ratingGroup:

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

 requestedUnit:

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

 usedUnitContainer:

 type: array

 items:

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

 minItems: 0

 uPFID:

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

 multihomedPDUAddress:

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

 required:

 - ratingGroup

 InvocationResult:

 type: object

 properties:

 error:

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

 failureHandling:

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

 Trigger:

 type: object

 properties:

 triggerType:

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

 triggerCategory:

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

 timeLimit:

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

 volumeLimit:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 volumeLimit64:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 eventLimit:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 maxNumberOfccc:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 tariffTimeChange:

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

 required:

 - triggerType

 - triggerCategory

 MultipleUnitInformation:

 type: object

 properties:

 resultCode:

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

 ratingGroup:

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

 grantedUnit:

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

 triggers:

 type: array

 items:

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

 minItems: 0

 validityTime:

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

 quotaHoldingTime:

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

 finalUnitIndication:

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

 timeQuotaThreshold:

 type: integer

 volumeQuotaThreshold:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 unitQuotaThreshold:

 type: integer

 uPFID:

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

 required:

 - ratingGroup

 RequestedUnit:

 type: object

 properties:

 time:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 totalVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 uplinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 downlinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 serviceSpecificUnits:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 UsedUnitContainer:

 type: object

 properties:

 serviceId:

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

 quotaManagementIndicator:

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

 triggers:

 type: array

 items:

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

 minItems: 0

 triggerTimestamp:

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

 time:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 totalVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 uplinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 downlinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 serviceSpecificUnits:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 eventTimeStamps:

 type: array

 items:

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

 minItems: 0

 localSequenceNumber:

 type: integer

 pDUContainerInformation:

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

 nSPAContainerInformation:

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

 required:

 - localSequenceNumber

 GrantedUnit:

 type: object

 properties:

 tariffTimeChange:

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

 time:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 totalVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 uplinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 downlinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 serviceSpecificUnits:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 FinalUnitIndication:

 type: object

 properties:

 finalUnitAction:

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

 restrictionFilterRule:

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

 filterId:

 type: string

 redirectServer:

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

 required:

 - finalUnitAction

 RedirectServer:

 type: object

 properties:

 redirectAddressType:

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

 redirectServerAddress:

 type: string

 required:

 - redirectAddressType

 - redirectServerAddress

 ReauthorizationDetails:

 type: object

 properties:

 serviceId:

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

 ratingGroup:

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

 quotaManagementIndicator:

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

 PDUSessionChargingInformation:

 type: object

 properties:

 chargingId:

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

 homeProvidedChargingId:

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

 userInformation:

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

 userLocationinfo:

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

 mAPDUNon3GPPUserLocationInfo:

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

 presenceReportingAreaInformation:

 type: object

 additionalProperties:

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

 minProperties: 0

 uetimeZone:

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

 pduSessionInformation:

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

 unitCountInactivityTimer:

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

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

 UserInformation:

 type: object

 properties:

 servedGPSI:

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

 servedPEI:

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

 unauthenticatedFlag:

 type: boolean

 roamerInOut:

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

 PDUSessionInformation:

 type: object

 properties:

 networkSlicingInfo:

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

 pduSessionID:

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

 pduType:

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

 sscMode:

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

 hPlmnId:

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

 servingNetworkFunctionID:

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

 ratType:

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

 mAPDUNon3GPPRATType:

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

 dnnId:

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

 dnnSelectionMode:

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

 chargingCharacteristics:

 type: string

 pattern: '^[0-9a-fA-F]{1,4}$'

 chargingCharacteristicsSelectionMode:

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

 startTime:

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

 stopTime:

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

 3gppPSDataOffStatus:

 $ref: '#/components/schemas/3GPPPSDataOffStatus'

 sessionStopIndicator:

 type: boolean

 pduAddress:

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

 diagnostics:

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

 authorizedQoSInformation:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/AuthorizedDefaultQos'

 subscribedQoSInformation:

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

 authorizedSessionAMBR:

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

 subscribedSessionAMBR:

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

 servingCNPlmnId:

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

 mAPDUSessionInformation:

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

 enhancedDiagnostics:

 $ref: '#/components/schemas/EnhancedDiagnostics5G'

 required:

 - pduSessionID

 - dnnId

 PDUContainerInformation:

 type: object

 properties:

 timeofFirstUsage:

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

 timeofLastUsage:

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

 qoSInformation:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/QosData'

 qoSCharacteristics:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/QosCharacteristics'

 afChargingIdentifier:

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

 afChargingIdString:

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

 userLocationInformation:

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

 uetimeZone:

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

 rATType:

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

 servingNodeID:

 type: array

 items:

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

 minItems: 0

 presenceReportingAreaInformation:

 type: object

 additionalProperties:

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

 minProperties: 0

 3gppPSDataOffStatus:

 $ref: '#/components/schemas/3GPPPSDataOffStatus'

 sponsorIdentity:

 type: string

 applicationserviceProviderIdentity:

 type: string

 chargingRuleBaseName:

 type: string

 mAPDUSteeringFunctionality:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/SteeringFunctionality'

 mAPDUSteeringMode:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/SteeringMode'

 NSPAContainerInformation:

 type: object

 properties:

 latency:

 type: integer

 throughput:

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

 maximumPacketLossRate:

 type: string

 serviceExperienceStatisticsData:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/ServiceExperienceInfo'

 theNumberOfPDUSessions:

 type: integer

 theNumberOfRegisteredSubscribers:

 type: integer

 loadLevel:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NsiLoadLevelInfo'

 NSPAChargingInformation:

 type: object

 properties:

 singleNSSAI:

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

 required:

 - singleNSSAI

 NetworkSlicingInfo:

 type: object

 properties:

 sNSSAI:

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

 required:

 - sNSSAI

 PDUAddress:

 type: object

 properties:

 pduIPv4Address:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 pduIPv6AddresswithPrefix:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 pduAddressprefixlength:

 type: integer

 iPv4dynamicAddressFlag:

 type: boolean

 iPv6dynamicPrefixFlag:

 type: boolean

 addIpv6AddrPrefixes:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

 ServingNetworkFunctionID:

 type: object

 properties:

 servingNetworkFunctionInformation:

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

 aMFId:

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

 required:

 - servingNetworkFunctionInformation

 RoamingQBCInformation:

 type: object

 properties:

 multipleQFIcontainer:

 type: array

 items:

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

 minItems: 0

 uPFID:

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

 roamingChargingProfile:

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

 MultipleQFIcontainer:

 type: object

 properties:

 triggers:

 type: array

 items:

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

 minItems: 0

 triggerTimestamp:

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

 time:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 totalVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 uplinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 downlinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 localSequenceNumber:

 type: integer

 qFIContainerInformation:

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

 required:

 - localSequenceNumber

 QFIContainerInformation:

 type: object

 properties:

 qFI:

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

 reportTime:

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

 timeofFirstUsage:

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

 timeofLastUsage:

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

 qoSInformation:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/QosData'

 qoSCharacteristics:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/QosCharacteristics'

 userLocationInformation:

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

 uetimeZone:

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

 presenceReportingAreaInformation:

 type: object

 additionalProperties:

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

 minProperties: 0

 rATType:

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

 servingNetworkFunctionID:

 type: array

 items:

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

 minItems: 0

 3gppPSDataOffStatus:

 $ref: '#/components/schemas/3GPPPSDataOffStatus'

 3gppChargingId:

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

 diagnostics:

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

 enhancedDiagnostics:

 type: array

 items:

 type: string

 required:

 - reportTime

 RoamingChargingProfile:

 type: object

 properties:

 triggers:

 type: array

 items:

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

 minItems: 0

 partialRecordMethod:

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

 SMSChargingInformation:

 type: object

 properties:

 originatorInfo:

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

 recipientInfo:

 type: array

 items:

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

 minItems: 0

 userEquipmentInfo:

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

 roamerInOut:

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

 userLocationinfo:

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

 uetimeZone:

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

 rATType:

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

 sMSCAddress:

 type: string

 sMDataCodingScheme:

 type: integer

 sMMessageType:

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

 sMReplyPathRequested:

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

 sMUserDataHeader:

 type: string

 sMStatus:

 type: string

 pattern: '^[0-7]?[0-9a-fA-F]$'

 sMDischargeTime:

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

 numberofMessagesSent:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 sMServiceType:

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

 sMSequenceNumber:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 sMSresult:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 submissionTime:

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

 sMPriority:

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

 messageReference:

 type: string

 messageSize:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 messageClass:

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

 deliveryReportRequested:

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

 OriginatorInfo:

 type: object

 properties:

 originatorSUPI:

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

 originatorGPSI:

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

 originatorOtherAddress:

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

 originatorReceivedAddress:

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

 originatorSCCPAddress:

 type: string

 sMOriginatorInterface:

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

 sMOriginatorProtocolId:

 type: string

 RecipientInfo:

 type: object

 properties:

 recipientSUPI:

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

 recipientGPSI:

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

 recipientOtherAddress:

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

 recipientReceivedAddress:

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

 recipientSCCPAddress:

 type: string

 sMDestinationInterface:

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

 sMrecipientProtocolId:

 type: string

 SMAddressInfo:

 type: object

 properties:

 sMaddressType:

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

 sMaddressData:

 type: string

 sMaddressDomain:

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

 RecipientAddress:

 type: object

 properties:

 recipientAddressInfo:

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

 sMaddresseeType:

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

 MessageClass:

 type: object

 properties:

 classIdentifier:

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

 tokenText:

 type: string

 SMAddressDomain:

 type: object

 properties:

 domainName:

 type: string

 3GPPIMSIMCCMNC:

 type: string

 SMInterface:

 type: object

 properties:

 interfaceId:

 type: string

 interfaceText:

 type: string

 interfacePort:

 type: string

 interfaceType:

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

 RANSecondaryRATUsageReport:

 type: object

 properties:

 rANSecondaryRATType:

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

 qosFlowsUsageReports:

 type: array

 items:

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

 Diagnostics:

 type: integer

 IPFilterRule:

 type: string

 QosFlowsUsageReport:

 type: object

 properties:

 qFI:

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

 startTimestamp:

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

 endTimestamp:

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

 uplinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 downlinkVolume:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'

 NEFChargingInformation:

 type: object

 properties:

 externalIndividualIdentifier:

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

 externalGroupIdentifier:

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

 groupIdentifier:

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

 aPIDirection:

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

 aPITargetNetworkFunction:

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

 aPIResultCode:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 aPIName:

 type: string

 aPIReference:

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

 aPIContent:

 type: string

 required:

 - aPIName

 RegistrationChargingInformation:

 type: object

 properties:

 registrationMessagetype:

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

 userInformation:

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

 userLocationinfo:

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

 pSCellInformation:

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

 uetimeZone:

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

 rATType:

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

 5GMMCapability:

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

 mICOModeIndication:

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

 smsIndication:

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

 taiList:

 type: array

 items:

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

 minItems: 0

 serviceAreaRestriction:

 type: array

 items:

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

 minItems: 0

 requestedNSSAI:

 type: array

 items:

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

 minItems: 0

 allowedNSSAI:

 type: array

 items:

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

 minItems: 0

 rejectedNSSAI:

 type: array

 items:

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

 minItems: 0

 nSSAIMapList:

 type: array

 items:

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

 minItems: 0

 amfUeNgapId:

 type: integer

 ranUeNgapId:

 type: integer

 ranNodeId:

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

 required:

 - registrationMessagetype

 PSCellInformation:

 type: object

 properties:

 nrcgi:

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

 ecgi:

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

 NSSAIMap:

 type: object

 properties:

 servingSnssai:

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

 homeSnssai:

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

 required:

 - servingSnssai

 - homeSnssai

 N2ConnectionChargingInformation:

 type: object

 properties:

 n2ConnectionMessageType:

 $ref: '#/components/schemas/N2ConnectionMessageType'

 userInformation:

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

 userLocationinfo:

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

 pSCellInformation:

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

 uetimeZone:

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

 rATType:

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

 amfUeNgapId:

 type: integer

 ranUeNgapId:

 type: integer

 ranNodeId:

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

 restrictedRatList:

 type: array

 items:

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

 minItems: 0

 forbiddenAreaList:

 type: array

 items:

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

 minItems: 0

 serviceAreaRestriction:

 type: array

 items:

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

 minItems: 0

 restrictedCnList:

 type: array

 items:

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

 minItems: 0

 allowedNSSAI:

 type: array

 items:

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

 minItems: 0

 rrcEstCause:

 type: string

 pattern: '^[0-9a-fA-F]+$'

 required:

 - n2ConnectionMessageType

 LocationReportingChargingInformation:

 type: object

 properties:

 locationReportingMessageType:

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

 userInformation:

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

 userLocationinfo:

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

 pSCellInformation:

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

 uetimeZone:

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

 rATType:

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

 presenceReportingAreaInformation:

 type: object

 additionalProperties:

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

 minProperties: 0

 required:

 - locationReportingMessageType

 N2ConnectionMessageType:

 type: integer

 LocationReportingMessageType:

 type: integer

 NSMChargingInformation:

 type: object

 properties:

 managementOperation:

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

 idNetworkSliceInstance:

 type: string

 listOfserviceProfileChargingInformation:

 type: array

 items:

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

 minItems: 0

 managementOperationStatus:

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

# To be introduced once the reference to 'generic.yaml is resolved

# managementOperationalState:

# $ref: 'genericNrm.yaml#/components/schemas/OperationalState'

# managementAdministrativeState:

# $ref: 'genericNrm.yaml#/components/schemas/AdministrativeState'

 required:

 - managementOperation

 ServiceProfileChargingInformation:

 type: object

 properties:

 serviceProfileIdentifier:

 type: string

 sNSSAIList:

 type: array

 items:

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

 minItems: 0

# To be introduced once the reference to 'nrNrm.yaml is resolved

# sST:

# $ref: 'nrNrm.yaml#/components/schemas/Sst'

 latency:

 type: integer

 availability:

 type: number

# To be introduced once the reference to sliceNrm.yaml is resolved

# resourceSharingLevel:

# $ref: 'sliceNrm.yaml#/components/schemas/SharingLevel'

 jitter:

 type: integer

 reliability:

 type: string

 maxNumberofUEs:

 type: integer

 coverageArea:

 type: string

# To be introduced once the reference to sliceNrm.yaml is resolved

# uEMobilityLevel:

# $ref: 'sliceNrm.yaml#/components/schemas/MobilityLevel'

# delayToleranceIndicator:

# $ref: 'sliceNrm.yaml#/components/schemas/Support'

 dLThptPerSlice:

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

 dLThptPerUE:

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

 uLThptPerSlice:

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

 uLThptPerUE:

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

 maxNumberofPDUsessions:

 type: integer

 kPIMonitoringList:

 type: string

 supportedAccessTechnology:

 type: integer

# To be introduced once the reference to sliceNrm.yaml is resolved

# v2XCommunicationModeIndicator:

# $ref: 'sliceNrm.yaml#/components/schemas/Support'

 addServiceProfileInfo:

 type: string

 Throughput:

 type: object

 properties:

 guaranteedThpt:

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

 maximumThpt:

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

 MAPDUSessionInformation:

 type: object

 properties:

 mAPDUSessionIndicator:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/MaPduIndication'

 aTSSSCapability:

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

 EnhancedDiagnostics5G:

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

 RanNasCauseList:

 type: array

 items:

 $ref: 'TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/RanNasRelCause'

 NotificationType:

 anyOf:

 - type: string

 enum:

 - REAUTHORIZATION

 - ABORT\_CHARGING

 - type: string

 NodeFunctionality:

 anyOf:

 - type: string

 enum:

 - AMF

 - SMF

 - SMS

 - PGW\_C\_SMF

 - NEFF # Included for backwards compatibility, shall not be used

 - SGW

 - I\_SMF

 - ePDG

 - CEF

 - NEF

 - MnS\_Producer

 - type: string

 ChargingCharacteristicsSelectionMode:

 anyOf:

 - type: string

 enum:

 - HOME\_DEFAULT

 - ROAMING\_DEFAULT

 - VISITING\_DEFAULT

 - type: string

 TriggerType:

 anyOf:

 - type: string

 enum:

 - QUOTA\_THRESHOLD

 - QHT

 - FINAL

 - QUOTA\_EXHAUSTED

 - VALIDITY\_TIME

 - OTHER\_QUOTA\_TYPE

 - FORCED\_REAUTHORISATION

 - UNUSED\_QUOTA\_TIMER # Included for backwards compatibility, shall not be used

 - UNIT\_COUNT\_INACTIVITY\_TIMER

 - ABNORMAL\_RELEASE

 - QOS\_CHANGE

 - VOLUME\_LIMIT

 - TIME\_LIMIT

 - EVENT\_LIMIT

 - PLMN\_CHANGE

 - USER\_LOCATION\_CHANGE

 - RAT\_CHANGE

 - SESSION\_AMBR\_CHANGE

 - UE\_TIMEZONE\_CHANGE

 - TARIFF\_TIME\_CHANGE

 - MAX\_NUMBER\_OF\_CHANGES\_IN\_CHARGING\_CONDITIONS

 - MANAGEMENT\_INTERVENTION

 - CHANGE\_OF\_UE\_PRESENCE\_IN\_PRESENCE\_REPORTING\_AREA

 - CHANGE\_OF\_3GPP\_PS\_DATA\_OFF\_STATUS

 - SERVING\_NODE\_CHANGE

 - REMOVAL\_OF\_UPF

 - ADDITION\_OF\_UPF

 - INSERTION\_OF\_ISMF

 - REMOVAL\_OF\_ISMF

 - CHANGE\_OF\_ISMF

 - START\_OF\_SERVICE\_DATA\_FLOW

 - ECGI\_CHANGE

 - TAI\_CHANGE

 - HANDOVER\_CANCEL

 - HANDOVER\_START

 - HANDOVER\_COMPLETE

 - GFBR\_GUARANTEED\_STATUS\_CHANGE

 - ADDITION\_OF\_ACCESS

 - REMOVAL\_OF\_ACCESS

 - START\_OF\_SDF\_ADDITIONAL\_ACCESS

 - type: string

 FinalUnitAction:

 anyOf:

 - type: string

 enum:

 - TERMINATE

 - REDIRECT

 - RESTRICT\_ACCESS

 - type: string

 RedirectAddressType:

 anyOf:

 - type: string

 enum:

 - IPV4

 - IPV6

 - URL

 - type: string

 TriggerCategory:

 anyOf:

 - type: string

 enum:

 - IMMEDIATE\_REPORT

 - DEFERRED\_REPORT

 - type: string

 QuotaManagementIndicator:

 anyOf:

 - type: string

 enum:

 - ONLINE\_CHARGING

 - OFFLINE\_CHARGING

 - QUOTA\_MANAGEMENT\_SUSPENDED

 - type: string

 FailureHandling:

 anyOf:

 - type: string

 enum:

 - TERMINATE

 - CONTINUE

 - RETRY\_AND\_TERMINATE

 - type: string

 SessionFailover:

 anyOf:

 - type: string

 enum:

 - FAILOVER\_NOT\_SUPPORTED

 - FAILOVER\_SUPPORTED

 - type: string

 3GPPPSDataOffStatus:

 anyOf:

 - type: string

 enum:

 - ACTIVE

 - INACTIVE

 - type: string

 ResultCode:

 anyOf:

 - type: string

 enum:

 - SUCCESS

 - END\_USER\_SERVICE\_DENIED

 - QUOTA\_MANAGEMENT\_NOT\_APPLICABLE

 - QUOTA\_LIMIT\_REACHED

 - END\_USER\_SERVICE\_REJECTED

 - USER\_UNKNOWN

 - RATING\_FAILED

 - QUOTA\_MANAGEMENT

 - type: string

 PartialRecordMethod:

 anyOf:

 - type: string

 enum:

 - DEFAULT

 - INDIVIDUAL

 - type: string

 RoamerInOut:

 anyOf:

 - type: string

 enum:

 - IN\_BOUND

 - OUT\_BOUND

 - type: string

 SMMessageType:

 anyOf:

 - type: string

 enum:

 - SUBMISSION

 - DELIVERY\_REPORT

 - SM\_SERVICE\_REQUEST

 - DELIVERY

 - type: string

 SMPriority:

 anyOf:

 - type: string

 enum:

 - LOW

 - NORMAL

 - HIGH

 - type: string

 DeliveryReportRequested:

 anyOf:

 - type: string

 enum:

 - YES

 - NO

 - type: string

 InterfaceType:

 anyOf:

 - type: string

 enum:

 - UNKNOWN

 - MOBILE\_ORIGINATING

 - MOBILE\_TERMINATING

 - APPLICATION\_ORIGINATING

 - APPLICATION\_TERMINATING

 - type: string

 ClassIdentifier:

 anyOf:

 - type: string

 enum:

 - PERSONAL

 - ADVERTISEMENT

 - INFORMATIONAL

 - AUTO

 - type: string

 SMAddressType:

 anyOf:

 - type: string

 enum:

 - EMAIL\_ADDRESS

 - MSISDN

 - IPV4\_ADDRESS

 - IPV6\_ADDRESS

 - NUMERIC\_SHORTCODE

 - ALPHANUMERIC\_SHORTCODE

 - OTHER

 - IMSI

 - type: string

 SMAddresseeType:

 anyOf:

 - type: string

 enum:

 - TO

 - CC

 - BCC

 - type: string

 SMServiceType:

 anyOf:

 - type: string

 enum:

 - VAS4SMS\_SHORT\_MESSAGE\_CONTENT\_PROCESSING

 - VAS4SMS\_SHORT\_MESSAGE\_FORWARDING

 - VAS4SMS\_SHORT\_MESSAGE\_FORWARDING\_MULTIPLE\_SUBSCRIPTIONS

 - VAS4SMS\_SHORT\_MESSAGE\_FILTERING

 - VAS4SMS\_SHORT\_MESSAGE\_RECEIPT

 - VAS4SMS\_SHORT\_MESSAGE\_NETWORK\_STORAGE

 - VAS4SMS\_SHORT\_MESSAGE\_TO\_MULTIPLE\_DESTINATIONS

 - VAS4SMS\_SHORT\_MESSAGE\_VIRTUAL\_PRIVATE\_NETWORK(VPN)

 - VAS4SMS\_SHORT\_MESSAGE\_AUTO\_REPLY

 - VAS4SMS\_SHORT\_MESSAGE\_PERSONAL\_SIGNATURE

 - VAS4SMS\_SHORT\_MESSAGE\_DEFERRED\_DELIVERY

 - type: string

 ReplyPathRequested:

 anyOf:

 - type: string

 enum:

 - NO\_REPLY\_PATH\_SET

 - REPLY\_PATH\_SET

 - type: string

 oneTimeEventType:

 anyOf:

 - type: string

 enum:

 - IEC

 - PEC

 - type: string

 dnnSelectionMode:

 anyOf:

 - type: string

 enum:

 - VERIFIED

 - UE\_DNN\_NOT\_VERIFIED

 - NW\_DNN\_NOT\_VERIFIED

 - type: string

 APIDirection:

 anyOf:

 - type: string

 enum:

 - INVOCATION

 - NOTIFICATION

 - type: string

 RegistrationMessageType:

 anyOf:

 - type: string

 enum:

 - INITIAL

 - MOBILITY

 - PERIODIC

 - EMERGENCY

 - DEREGISTRATION

 - type: string

 MICOModeIndication:

 anyOf:

 - type: string

 enum:

 - MICO\_MODE

 - NO\_MICO\_MODE

 - type: string

 SmsIndication:

 anyOf:

 - type: string

 enum:

 - SMS\_SUPPORTED

 - SMS\_NOT\_SUPPORTED

 - type: string

 ManagementOperation:

 anyOf:

 - type: string

 enum:

 - CreateMOI

 - ModifyMOIAttributes

 - DeleteMOI

 - type: string

 ManagementOperationStatus:

 anyOf:

 - type: string

 enum:

 - OPERATION\_SUCCEEDED

 - OPERATION\_FAILED

 - type: string

|  |
| --- |
| **End of change** |