**3GPP TSG-SA4 Meeting #124 *S4-230777***

**Berlin, Germany, 22-26 May 2023** revision of S4aI230098

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.532** | **CR** | **0003** | **rev** | **3** | **Current version:** | **17.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | [EVEX] Data Reporting Configuration Inclusion of Data Sampling Rules and Data Reporting Rules | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated, BBC | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EVEX | | | | |  | ***Date:*** | | | 2023-05-08 |
|  |  | | | |  | |  | | |  |
| ***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 can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The CR in S4-230650 (against TS 26.531) which specifies additional provisioning information that may be provided by the ASP to data collection clients via the Data Collection AF, with regards to data sampling rules and data reporting rules, was agreed at SA4#123-e. A corresponding CR to TS 26.532 is necessary to complete such provisioning information changes to EVEX technical specifications. This CR is submitted for such purpose. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * New clause 5.4.0 listing reused data types. * New clause 5.4.2.1 defining the DataSamplingRule type. * New clause 5.4.2.1 defining the DataReportingRule type. * Clauses 6.3.2.2 and 6.3.2.2A: Addition of two properties to both the DataReportingConfiguration and DataReportingConfigurationPatch resources: *dataSamplingRules* and *dataReportingRules*, along with clarification on similarity but uniqueness between the properties of the DataReportingRule type in clause 6.3 and the ReportingCondition type in clause 7.3 * Correction to a cited cross-reference in an entry of table 7.3.2.2-1. * OpenAPI definitions for new and modified data types in annex B. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect and incomplete specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5,4.0 (new), 5.4.2, 6.3.2.2, 6.3.2.2A, 6.3.3, 7.3.2, B | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

FIRST CHANGE  
(NEW CLAUSE)

### 5.4.0 General

Table 5.4.0‑1 specifies data types re-used from other specifications by the common API data types defined in clause 5.4, including a reference to their respective specifications.

Table 5.4.0‑1: Externally defined data types used by common data types

|  |  |  |
| --- | --- | --- |
| Data type | Comments | Reference |
| Float | A floating-point number. | TS 29.571 [12] |
| Uri | A Uniform Resource Identifier. |  |
| Percentage | A proportion represented as a floating-point number between 0.0 and 100.0. | TS 26.512 [13] |
| LocationArea5G | A list of areas where the UE is located. | TS 29.122 [14] |

NEXT CHANGE

### 5.4.2 Structured data types

#### 5.4.2.1 DataSamplingRule type

Table 5.4.2.1‑1 Definition of DataSamplingRule type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| samplingPeriod | Float | 0..1 | C: RW  U: RW | How often (expressed in seconds) the UE data parameter(s) are to be measured and logged by the data collection client. |
| locationFilter | array(LocationArea5G) | 0..1 | C: RW  U: RW | Indication of the UE location(s) at which UE data parameter(s) are to be collected by the data collection client. |
| NOTE: A logical conjunction (i.e., Boolean AND) is meant when more than one property is present in the same information element – i.e., data is to be collected at the indicated sampling frequency when the UE is present at any of the indicated locations. | | | | |

#### 5.4.2.2 DataReportingRule type

Table 5.4.2.2‑1 Definition of DataReportingRule type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| reporting‌Probability | Percentage | 0..1 | C: RW  U: RW | The probability of reporting by the data collection client of the UE data parameter(s) it has logged.  If omitted, the default value of this parameter shall be 100 percent.  On each occasion the reporting condition (see clause 7.3.2.2) is met, the data collection client shall use a random number generator to produce an integer value between 0 and 100, and a report is sent to the Data Collection AF if the random value is less than or equal to this parameter. |
| reporting‌Format | Uri | 1..1 | C: RW  U: RW | The format of reports to be sent by the data collection client to the Data Collection AF (e.g., encoding rules, ordering of parameters, delineation marking between parameters, etc.).  In the absence of a data reporting rule, a default reporting format for the data domain in question shall be assumed. |
| data‌Packaging‌Strategy | string | 0..1 | C: RW  U: RW | Strategy for packaging UE data into reports sent to the Data Collection AF (e.g., maximum number of data records per report, maximum report size).  If absent, the data collection client should employ the default data packaging strategy specified by the indicated reporting format or, in the absence of such specification, any reasonable data packaging strategy. |
| NOTE: A logical conjunction (i.e., Boolean AND) is meant when more than one property is present in the same information element – i.e., data is to be reported with the indicated probability, according to the indicated reporting format and data packaging strategy. | | | | |

NEXT CHANGE

#### 6.3.2.2 DataReportingConfiguration resource type

Table 6.3.2.2-1: Definition of DataReportingConfiguration resource type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| dataReportingConfigurationId | ResourceId | 1..1 | C: R  U: – | A unique identifier for this Data Reporting Configuration. |
| dataCollectionClientType | DataCollection‌Client‌Type | 1..1 | C: RW  U: – | The type of data collection client to which this Data Reporting Configuration pertains (see clause 5.4.3.1). |
| authorizationURL | Url | 0..1 | C: RW  U: RW | A URL that may be used to authorize the consumer entity prior to a data reporting subscription. |
| dataSamplingRules | array(Data  SamplingRule) | 0..1 | C: RW  U: RW | A set of definitions, each pertaining to the domain-specific parameters associated with the Event ID of the parent Data Reporting Provisioning Session, representing instructions on how UE data is to be sampled by the data collection client.  If omitted or empty, each parameter shall be sampled at its default frequency in all locations. |
| dataReportingRules | array(Data  ReportingRule) | 0..1 | C: RW  U: RW | A set of definitions, each pertaining to the domain-specific parameters associated with the Event ID of the parent Data Reporting Provisioning Session and logged by the data collection client, representing instructions on how collected UE data is to be reported by the data collection client to the Data Collection AF.  If omitted or empty, UE data shall be reported whenever the relevant reporting condition (see clause 7.3.2.2) is met, using a default reporting format and data packaging strategy for the data domain associated with the Event ID of the parent Data Reporting Provisioning Session. |
| dataAccessProfiles | array(Data‌Access‌Profile) | 1..1 | C: RW  U: RW | One or more Data Access Profile definitions, each describing a set of data processing instructions, applied by the Data Collection AF when exposing events. |

NEXT CHANGE

#### 6.3.2.2A DataReportingConfigurationPatch resource type

Table 6.3.2.2A-1: Definition of DataReportingConfigurationPatch resource type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| authorizationURL | Url | 0..1 | C: RW  U: RW | A URL that may be used to authorize the consumer entity prior to a data reporting subscription. |
| dataSamplingRules | array(Data  SamplingRule) | 0..1 | C: RW  U: RW | A set of definitions, each pertaining to the domain-specific parameters associated with the Event ID of the parent Data Reporting Provisioning Session, representing instructions on how UE data is to be sampled by the data collection client.  If omitted or empty, each parameter shall be sampled at its default frequency in all locations. |
| dataReportingRules | array(Data  ReportingRule) | 0..1 | C: RW  U: RW | A set of definitions, each pertaining to the domain-specific parameters associated with the Event ID of the parent Data Reporting Provisioning Session and logged by the data collection client, representing instructions on how collected UE data is to be reported by the data collection client to the Data Collection AF.  If omitted or empty, UE data shall be reported whenever the relevant reporting condition (see clause 7.3.2.2) is met, using a default reporting format and data packaging strategy for the data domain associated with the Event ID of the parent Data Reporting Provisioning Session. |
| dataAccessProfiles | Array(Data‌Access‌Profile) | 0..1 | C: RW  U: RW | One or more Data Access Profile definitions, each describing a set of data processing instructions, applied by the Data Collection AF when exposing events. |

NEXT CHANGE

### 7.3.2 Structured data types

#### 7.3.2.1 DataReportingSession resource type

Table 7.3.2.1-1: Definition of DataReportingSession resource type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| sessionId | string | 0..1 | C: — R: RO | Unique identifier for this Data Reporting Session assigned by the Data Collection AF. |
| validUntil | DateTime | 0..1 | C: — R: RO | The time when the information in this Data Reporting Session expires.  The data collection client, if still active, should request an up-to-date Data Reporting Session before this time. |
| externalApplicationId | ApplicationID | 1 | C: RW R: RO | The external application identifier, nominated by the data collection client, to which this Data Reporting Session pertains. |
| supportedDomains | array(DataDomain) | 1 | C: RW R: RO | Set of domains for which the data collection client declares that it is able to report UE data. (See clause 7.3.3.1).  An empty array indicates that no UE data can currently be reported. |
| samplingRules | map(DataDomain ->  array(Data‌Sampling‌Rule)) | 0..1 | C: — R: RO | A map specifying for each reporting domain listed a set of rules for sampling UE data (see clause 6.3.3.3).  The indices of the map shall be a subset of the reporting domains declared by the data collection client in supportedDomains.  If the array for a particular index in the map is empty, UE data collection shall be disabled for the indicated domain. |
| reportingConditions | map(DataDomain ->  array(Reporting‌Condition)) | 1..1 | C: — R: RO | A map specifying for each reporting domain listed the set of conditions (see clause 7.3.2.2) under which the data collection client reports UE data.  The indices of the map shall be a subset of the reporting domains declared by the data collection client in supportedDomains.  If the array for a particular index in the map is empty, UE data reporting shall be disabled for the indicated domain. |
| reportingRules | map(DataDomain ->  array(Data‌Reporting‌Rule) | 0..1 | C: — R: RO | A map specifying for each reporting domain listed a set of rules for reporting collected UE data (see clause 6.3.3.4).  The indices of the map shall be a subset of the reporting domains declared by the data collection client in supportedDomains.  If the array for a particular index in the map is empty, UE data reporting shall be disabled for the indicated domain. |

#### 7.3.2.2 ReportingCondition type

Table 7.3.2.2-1: Definition of ReportingCondition type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | P | Cardinality | Description |
| type | ReportingConditionType | M | 1 | Type of reporting condition (see clause 7.3.3.2). |
| period | DurationSec | C | 0..1 | The time period between UE data reports.  Only present when type is INTERVAL. |
| parameter | string | C | 0..1 | Identifies the parameter that triggers a UE data report when it crosses the value threshold.  Only present when type is THRESHOLD. |
| threshold | Double, Float, Int32, Int64, Uint16, Uint32, Uint64, or Uinteger | C | 0..1 | The value that parameter must cross to trigger a UE data report.  Only present when type is THRESHOLD. |
| reportWhenBelow | boolean | C | 0..1 | The direction in which the threshold must be crossed to trigger a UE data report.  If true, a report is triggered when the value of parameter drops below threshold.  If false, a report is triggered when the value of parameter exceeds threshold.  Only present when type is THRESHOLD. |
| eventTrigger | ReportingEventTrigger | C | 0..1 | The type of event that triggers a UE data report (see clause 7.2.3.3.3).  Only present when type is EVENT. |

NEXT CHANGE

Annex B (normative):  
OpenAPI representation of REST APIs for data collection and reporting

# B.1 General

This annex is based on the OpenAPI 3.0.0 specification [16] and provides corresponding representations of all APIs defined in the present document.

NOTE 1: An OpenAPIs representation embeds JSON Schema representations of HTTP message bodies.

This annex shall take precedence when being discrepant to other parts of the present document with respect to the encoding of information elements and methods within the API(s).

NOTE 2: The semantics and procedures, as well as conditions, e.g. for the applicability and allowed combinations of attributes or values, not expressed in the OpenAPI definitions but defined in other parts of the specification also apply.

# B.2 Data types applicable to multiple services

For the purpose of referencing entities defined in this clause, it shall be assumed that the OpenAPI definitions below are contained in a physical file named "TS26532\_CommonData.yaml".

|  |
| --- |
| openapi: 3.0.0  info:  title: Data Collection and Reporting Common Data Types  version: 1.0.1  description: |  Data Collection and Reporting Common Data Types  © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  tags:  - name: Data Collection and Reporting Common Data Types  description: 'Data Collection and Reporting: Common Data Types'  externalDocs:  description: 'TS 26.532 V17.0.0; Data Collection and Reporting; Protocols and Formats'  url: 'https://www.3gpp.org/ftp/Specs/archive/26\_series/26.532/'  paths: {}  components:  schemas:  #################################  # Clause 5.4.1: Simple data types  #################################  #####################################  # Clause 5.4.2: Structured data types  #####################################  DataSamplingRule:  description: "Instructions on how UE data is to be sampled by the data collection client."  type: object  properties:  samplingPeriod:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Float'  locationFilter:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'  DataReportingRule:  description: "Instructions on how collected UE data is to be reported by the data collection client to the Data Collection AF."  type: object  properties:  reportingProbability:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Percentage'  reportingFormat:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  dataPackagingStrategy:  type: string  required:  - reportingFormat  #####################################  # Clause 5.4.3: Enumerated data types  #####################################  DataCollectionClientType:  anyOf:  - type: string  enum: [DIRECT, INDIRECT, APPLICATION\_SERVER]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API. |

# B.3 Ndcaf\_DataReportingProvisioning service API

For the purpose of referencing entities defined in this clause, it shall be assumed that the OpenAPI definitions below are contained in a physical file named "TS26532\_Ndcaf\_DataReportingProvisioning.yaml".

|  |
| --- |
| openapi: 3.0.0  info:  title: Ndcaf\_DataReportingProvisioning  version: 1.2.0  description: |  Data Collection AF: Provisioning Sessions API  © 2023, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  tags:  - name: Ndcaf\_DataReportingProvisioning  description: 'Data Collection and Reporting: Application Service Provider Provisioning (R1) APIs'  externalDocs:  description: 'TS 26.532 V17.2.0; Data Collection and Reporting; Protocols and Formats'  url: 'https://www.3gpp.org/ftp/Specs/archive/26\_series/26.532/'  servers:  - url: '{apiRoot}/3gpp-ndcaf\_data-reporting-provisioning/v1'  variables:  apiRoot:  default: https://example.com  description: See 3GPP TS 29.532 clause 5.2.  security:  - {}  - oAuth2ClientCredentials: []  paths:  /sessions:  post:  operationId: CreateSession  summary: 'Create a new Data Reporting Provisioning Session'  requestBody:  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingProvisioningSession'  responses:  '201':  description: 'Data Reporting Provisioning Session successfully created'  headers:  Location:  description: 'URL including the resource identifier of the newly created Data Reporting Provisioning Session.'  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingProvisioningSession'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '411':  $ref: 'TS29571\_CommonData.yaml#/components/responses/411'  '413':  $ref: 'TS29571\_CommonData.yaml#/components/responses/413'  '415':  $ref: 'TS29571\_CommonData.yaml#/components/responses/415'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  /sessions/{sessionId}:  parameters:  - name: sessionId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Data Reporting Provisioning Session.'  get:  operationId: RetrieveSession  summary: 'Retrieve an existing Data Reporting Provisioning Session'  responses:  '200':  description: 'Representation of Data Reporting Provisioning Session is returned'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingProvisioningSession'  '307':  $ref: 'TS29571\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29571\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '406':  $ref: 'TS29571\_CommonData.yaml#/components/responses/406'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  delete:  operationId: DestroySession  summary: 'Destroy an existing Data Reporting Provisioning Session'  responses:  '204':  description: 'Data Reporting Provisioning Session resource successfully destroyed'  # No Content  '307':  $ref: 'TS29571\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29571\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  /sessions/{sessionId}/configurations/{configurationId}:  parameters:  - name: sessionId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Data Reporting Provisioning Session.'  - name: configurationId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Data Reporting Configuration.'  post:  operationId: CreateConfiguration  summary: 'Create a new Data Reporting Configuration subresource within the scope of an existing Data Reporting Provisioning Session'  requestBody:  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingConfiguration'  responses:  '201':  description: 'Data Reporting Configuration successfully created'  headers:  Location:  description: 'URL including the resource identifier of the newly created Data Reporting Configuration.'  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingConfiguration'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '411':  $ref: 'TS29571\_CommonData.yaml#/components/responses/411'  '413':  $ref: 'TS29571\_CommonData.yaml#/components/responses/413'  '415':  $ref: 'TS29571\_CommonData.yaml#/components/responses/415'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  get:  operationId: RetrieveConfiguration  summary: 'Retrieve an existing Data Reporting Configuration'  responses:  '200':  description: 'Representation of Data Reporting Configuration is returned'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingConfiguration'  '307':  $ref: 'TS29571\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29571\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '406':  $ref: 'TS29571\_CommonData.yaml#/components/responses/406'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  put:  operationId: UpdateConfiguration  summary: 'Replace an existing Data Reporting Configuration subresource'  requestBody:  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingConfiguration'  responses:  '200':  description: 'Data Reporting Configuration successfully replaced and updated resource representation is returned'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingConfiguration'  '204':  description: 'Data Reporting Configuration successfully replaced'  # No Content.  '307':  $ref: 'TS29122\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29122\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '411':  $ref: 'TS29571\_CommonData.yaml#/components/responses/411'  '413':  $ref: 'TS29571\_CommonData.yaml#/components/responses/413'  '415':  $ref: 'TS29571\_CommonData.yaml#/components/responses/415'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  patch:  operationId: ModifyConfiguration  summary: 'Modify an existing Data Reporting Configuration subresource'  requestBody:  required: true  content:  application/merge-patch+json:  schema:  $ref: '#/components/schemas/DataReportingConfigurationPatch'  responses:  '200':  description: 'Data Reporting Configuration successfully replaced and updated resource representation is returned'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingConfiguration'  '204':  description: 'Data Reporting Configuration successfully replaced'  # No Content.  '307':  $ref: 'TS29122\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29122\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '411':  $ref: 'TS29571\_CommonData.yaml#/components/responses/411'  '413':  $ref: 'TS29571\_CommonData.yaml#/components/responses/413'  '415':  $ref: 'TS29571\_CommonData.yaml#/components/responses/415'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  delete:  operationId: DestroyConfiguration  summary: 'Destroy an existing Data Reporting Configuration'  responses:  '204':  description: 'Data Reporting Configuration resource successfully destroyed'  # No Content  '307':  $ref: 'TS29571\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29571\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '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: '{tokenUri}'  scopes: {}  description: >  For a trusted Provisioning AF, 'ndcaf-datareportingprovisioning' shall be used  as 'scopes' and '{nrfApiRoot}/oauth2/token' shall be used as 'tokenUri'.  schemas:  DataReportingProvisioningSession:  description: "A representation of a Data Reporting Provisioning Session."  type: object  properties:  provisioningSessionId:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  aspId:  $ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/AspId'  externalApplicationId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/ApplicationId'  internalApplicationId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/ApplicationId'  eventId:  $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AfEvent'  dataReportingConfigurationIds:  type: array  items:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  minItems: 0  required:  - provisioningSessionId  - aspId  - externalApplicationId  - eventId  - dataReportingConfigurationIds  DataReportingConfiguration:  description: "A Data Reporting Configuration subresource."  type: object  properties:  dataReportingConfigurationId:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  dataCollectionClientType:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataCollectionClientType'  authorizationURL:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  dataSamplingRules:  type: array  items:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataSamplingRule'  minItems: 0  dataReportingRules:  type: array  items:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataReportingRule'  minItems: 0  dataAccessProfiles:  type: array  items:  $ref: '#/components/schemas/DataAccessProfile'  minItems: 1  required:  - dataReportingConfigurationId  - dataCollectionClientType  - dataAccessProfiles  DataReportingConfigurationPatch:  description: "A JSON patch for a Data Reporting Configuration."  type: object  properties:  authorizationURL:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  dataSamplingRules:  type: array  items:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataSamplingRule'  minItems: 0  dataReportingRules:  type: array  items:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataReportingRule'  minItems: 0  dataAccessProfiles:  type: array  items:  $ref: '#/components/schemas/DataAccessProfile'  minItems: 1  DataAccessProfile:  description: "A data access profile."  type: object  properties:  dataAccessProfileId:  type: string  targetEventConsumerTypes:  type: array  items:  $ref: '#/components/schemas/EventConsumerType'  minItems: 0  uniqueItems: true  parameters:  type: array  items:  type: string  minItems: 0  uniqueItems: true  timeAccessRestrictions:  type: object  properties:  duration:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'  aggregationFunctions:  type: array  items:  $ref: '#/components/schemas/DataAggregationFunctionType'  minItems: 0  uniqueItems: true  required:  - duration  - aggregationFunctions  userAccessRestrictions:  type: object  properties:  groupIds:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/GroupId'  minItems: 0  uniqueItems: true  userIds:  type: array  items:  anyOf:  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Supi'  minItems: 0  uniqueItems: true  aggregationFunctions:  type: array  items:  $ref: '#/components/schemas/DataAggregationFunctionType'  minItems: 0  uniqueItems: true  required:  - groupIds  - userIds  - aggregationFunctions  locationAccessRestrictions:  type: object  properties:  locationAreas:  type: array  items:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'  minItems: 1  uniqueItems: true  aggregationFunctions:  type: array  items:  $ref: '#/components/schemas/DataAggregationFunctionType'  minItems: 0  uniqueItems: true  required:  - locationAreas  - aggregationFunctions  required:  - dataAccessProfileId  - targetEventConsumerTypes  - parameters  EventConsumerType:  description: "The type of event consumer."  anyOf:  - type: string  enum: [NWDAF, EVENT\_CONSUMER\_AF, NEF]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API.  DataAggregationFunctionType:  description: "The type of data aggregation function."  anyOf:  - type: string  enum: ["NULL", COUNT, MEAN, MAXIMUM, MINIMUM, SUM]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API. |

# B.4 Ndcaf\_DataReporting service API

For the purpose of referencing entities defined in this clause, it shall be assumed that the OpenAPI definitions below are contained in a physical file named "TS26532\_Ndcaf\_DataReporting.yaml".

|  |
| --- |
| openapi: 3.0.0  info:  title: Ndcaf\_DataReporting  version: 1.2.0  description: |  Data Collection AF: Data Collection and Reporting Configuration API and Data Reporting API  © 2023, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  tags:  - name: Ndcaf\_DataReporting  description: 'Data Collection and Reporting: Client Configuration and Data Reporting (R2/R3/R4) APIs'  externalDocs:  description: 'TS 26.532 V17.2.0; Data Collection and Reporting; Protocols and Formats'  url: 'https://www.3gpp.org/ftp/Specs/archive/26\_series/26.532/'  servers:  - url: '{apiRoot}/3gpp-ndcaf\_data-reporting/v1'  variables:  apiRoot:  default: https://example.com  description: See 3GPP TS 29.532 clause 5.2.  security:  - {}  - oAuth2ClientCredentials: []  paths:  /sessions:  post:  operationId: CreateSession  summary: 'Create a new Data Reporting Session'  requestBody:  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingSession'  responses:  '201':  description: 'Data Reporting Session successfully created'  headers:  Location:  description: 'URL including the resource identifier of the newly created Data Reporting Session.'  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingSession'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '411':  $ref: 'TS29571\_CommonData.yaml#/components/responses/411'  '413':  $ref: 'TS29571\_CommonData.yaml#/components/responses/413'  '415':  $ref: 'TS29571\_CommonData.yaml#/components/responses/415'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  /sessions/{sessionId}:  parameters:  - name: sessionId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Data Reporting Session.'  get:  operationId: RetrieveSession  summary: 'Retrieve an existing Data Reporting Session'  responses:  '200':  description: 'Representation of Data Reporting Session is returned'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingSession'  '307':  $ref: 'TS29571\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29571\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '406':  $ref: 'TS29571\_CommonData.yaml#/components/responses/406'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  delete:  operationId: DestroySession  summary: 'Destroy an existing Data Reporting Session'  responses:  '204':  description: 'Data Reporting Session resource successfully destroyed'  # No Content  '307':  $ref: 'TS29571\_CommonData.yaml#/components/responses/307'  '308':  $ref: 'TS29571\_CommonData.yaml#/components/responses/308'  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '500':  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  /sessions/{sessionId}/report:  parameters:  - name: sessionId  in: path  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  description: 'The resource identifier of an existing Data Reporting Session.'  post:  operationId: Report  summary: 'Report UE data in the context of an existing Data Reporting Session'  requestBody:  required: true  content:  application/json:  schema:  $ref: '#/components/schemas/DataReport'  responses:  '200':  description: 'Data Report accepted and updated Data Reporting Session is returned'  headers:  Location:  description: 'URL including the resource identifier of the returned Data Reporting Session.'  required: true  schema:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/Url'  content:  application/json:  schema:  $ref: '#/components/schemas/DataReportingSession'  '204':  description: 'Data Report accepted'  # No Content  '400':  $ref: 'TS29571\_CommonData.yaml#/components/responses/400'  '401':  $ref: 'TS29571\_CommonData.yaml#/components/responses/401'  '403':  $ref: 'TS29571\_CommonData.yaml#/components/responses/403'  '404':  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '411':  $ref: 'TS29571\_CommonData.yaml#/components/responses/411'  '413':  $ref: 'TS29571\_CommonData.yaml#/components/responses/413'  '415':  $ref: 'TS29571\_CommonData.yaml#/components/responses/415'  '429':  $ref: 'TS29571\_CommonData.yaml#/components/responses/429'  '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: '{tokenUri}'  scopes: {}  description: >  For a trusted data collection client, 'ndcaf-datareporting' shall be used  as 'scopes' and '{nrfApiRoot}/oauth2/token' shall be used as 'tokenUri'.  schemas:  DataReportingSession:  description: "A representation of a Data Reporting Session."  type: object  properties:  sessionId:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/ResourceId'  validUntil:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  externalApplicationId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/ApplicationId'  supportedDomains:  type: array  items:  $ref: '#/components/schemas/DataDomain'  minItems: 0  samplingRules:  type: array  items:  type: object  required:  - dataDomain  - rules  properties:  dataDomain:  $ref: '#/components/schemas/DataDomain'  rules:  type: array  items:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataSamplingRule'  minItems: 0  reportingConditions:  type: array  items:  type: object  required:  - dataDomain  - reportingCondition  properties:  dataDomain:  $ref: '#/components/schemas/DataDomain'  conditions:  type: array  items:  $ref: '#/components/schemas/ReportingCondition'  minItems: 0  reportingRules:  type: array  items:  type: object  required:  - dataDomain  - rules  properties:  dataDomain:  $ref: '#/components/schemas/DataDomain'  rules:  type: array  items:  $ref: 'TS26532\_CommonData.yaml#/components/schemas/DataReportingRule'  minItems: 0  required:  - externalApplicationId  - supportedDomains  - reportingConditions  ReportingCondition:  description: "A condition that triggers data reporting by a data collection client to the Data Collection AF."  type: object  properties:  type:  $ref: '#/components/schemas/ReportingConditionType'  period:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'  parameter:  type: string  threshold:  anyOf:  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Double'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Float'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Int32'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Int64'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint16'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint64'  - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  reportWhenBelow:  type: boolean  eventTrigger:  $ref: '#/components/schemas/ReportingEventTrigger'  required:  - type  DataReport:  description: "A data report sent by a data collection client to the Data Collection AF."  type: object  properties:  externalApplicationId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/ApplicationId'  serviceExperienceRecords:  type: array  items:  $ref: '#/components/schemas/ServiceExperienceRecord'  minItems: 1  locationRecords:  type: array  items:  $ref: '#/components/schemas/LocationRecord'  minItems: 1  communicationRecords:  type: array  items:  $ref: '#/components/schemas/CommunicationRecord'  minItems: 1  performanceDataRecords:  type: array  items:  $ref: '#/components/schemas/PerformanceDataRecord'  minItems: 1  applicationSpecificRecords:  type: array  items:  $ref: '#/components/schemas/ApplicationSpecificRecord'  minItems: 1  tripPlanRecords:  type: array  items:  $ref: '#/components/schemas/TripPlanRecord'  minItems: 1  mediaStreamingAccessRecords:  type: array  items:  $ref: 'TS26512\_R4\_DataReporting.yaml#/components/schemas/MediaStreamingAccessRecord'  minItems: 1  required:  - externalApplicationId  DataDomain:  description: "A data reporting domain."  anyOf:  - type: string  enum: [SERVICE\_EXPERIENCE, LOCATION, COMMUNICATION, PERFORMANCE, APPLICATION\_SPECIFIC, MS\_ACCESS\_ACTIVITY, PLANNED\_TRIPS]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API.  ReportingConditionType:  description: "The type of condition that triggers reporting by a data collection client to the Data Collection AF."  anyOf:  - type: string  enum: [INTERVAL, THRESHOLD, EVENT]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API.  ReportingEventTrigger:  description: "The type of event that triggers reporting by a data collection client to the Data Collection AF."  anyOf:  - type: string  enum: [LOCATION, DESTINATION]  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API.  BaseRecord:  type: object  properties:  timestamp:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  required:  - timestamp  ServiceExperienceRecord:  allOf:  - $ref: '#/components/schemas/BaseRecord'  - type: object  properties:  serviceExperienceInfos:  $ref: '#/components/schemas/PerFlowServiceExperienceInfo'  required:  - serviceExperienceInfos    PerFlowServiceExperienceInfo:  type: object  properties:  serviceExperience:  $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/SvcExperience'  timeInterval:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/TimeWindow'  remoteEndpoint:  $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AddrFqdn'  required:  - serviceExperience  - timeInterval  - remoteEndpoint  LocationRecord:  allOf:  - $ref: '#/components/schemas/BaseRecord'  - type: object  properties:  location:  $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocationData'  required:  - location    CommunicationRecord:  allOf:  - $ref: '#/components/schemas/BaseRecord'  - type: object  properties:  timeInterval:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/TimeWindow'  uplinkVolume:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/Volume'  downlinkVolume:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/Volume'  required:  - timeInterval    PerformanceDataRecord:  allOf:  - $ref: '#/components/schemas/BaseRecord'  - type: object  properties:  timeInterval:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/TimeWindow'  location:  $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'  remoteEndpoint:  $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AddrFqdn'  packetDelayBudget:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketDelBudget'  packetLossRate:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketLossRate'  uplinkThroughput:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'  downlinkThrougput:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'  required:  - timeInterval    ApplicationSpecificRecord:  allOf:  - $ref: '#/components/schemas/BaseRecord'  - type: object  properties:  recordType:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  recordContainer:  {}  # (Syntax determined by recordType.)  required:  - recordType  - recordContainer    TripPlanRecord:  allOf:  - $ref: '#/components/schemas/BaseRecord'  - type: object  properties:  startingPoint:  $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocationData'  waypoints:  type: array  items:  $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocationData'  minItems: 1  destination:  $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocationData'  estimatedAverageSpeed:  $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/HorizontalSpeed'  estimatedArrivalTime:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  required:  - startingPoint  - destination |

END OF CHANGES