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Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Core Network and Terminals;
5G System; Usage of the Unified Data Repository service for
Policy Data, Application Data and Structured Data for
Exposure;
Stage 3
(Release 16)**

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x   the first digit:

1   presented to TSG for information;

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y   the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z   the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present specification provides the stage 3 definition for the usage of the Unified Data Repository service (Nudr_DataRepository) of 5G System for Policy Data, Application Data and Structured Data for Exposure.

The Unified Data Repository (UDR) provides the Unified Data Repository service. This service provides a repository for policy data, application data and exposure data.

The stage 3 protocol definition for Nudr Service Based Interface which is common for subscription data, policy data, application data and exposure data is specified in 3GPP TS 29.504 [6].

2 References

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

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

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

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

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

[2]   Void.

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

[4]   3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

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

[6]   3GPP TS 29.504:"5G System; Unified Data Repository Services; Stage 3".

[7]   3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3".

[8]   3GPP TS 29.551: "5G System; Packet Flow Description Management Service; Stage 3".

[9]   3GPP TS 29.122: "T8 reference point for Northbound APIs".

[10]   3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[11]   3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[12]   3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[13]   3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[14]   Void.

[15]   3GPP TS 29.505: "5G System; Usage of the Unified Data Repository services for Subscription Data; Stage 3".

[16]   3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[17]   IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

[18]   3GPP TR 21.900: "Technical Specification Group working methods".

[19]   3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

AM	Access and Mobility Management
BDT	Background Data Transfer
DNAI	DN Access Identifier
DNN	Data Network Name
GPSI	Generic Public Subscription Identifier
JSON	JavaScript Object Notation
NEF	Network Exposure Function
NR	New Radio
NRF	Network Repository Function
PCF	Policy Control Function
PFD	Packet Flow Description
SM	Session Management
S-NSSAI	Single Network Slice Selection Assistance Information
SUPI	Subscription Permanent Identifier
UDR	Unified Data Repository
UPSI	UE Policy Section Identifier

4   Overview

The resources, data model and usage defined in the present document are used by the NFs (e.g. PCF, NEF) to access the policy data, application data or exposure data via the Unified Data Repository services as specified in 3GPP TS 29.504 [6].

5   Usage of Nudr_DataRepository Service API for Policy Data

5.1   Introduction

The following subclauses specify the usage of Nudr_DataRepository service for policy data. The principles specified in 3GPP TS 29.504 [6] are followed unless explicitly specified otherwise in the following subclauses.

5.2   Resources

5.2.1   Overview

This clause specifies the resources for the usage of the Unified Data Repository service for Policy Data.

5.2.2 Resource Structure

```
{apiRoot}/nudr-dr/{apiVersion}
        |
        |____ /policy-data
                    |
                    |____ /ues
                    |        |
                    |        |____ /{ueId}
                    |                  |
                    |                  |____ [ /am-data ]
                    |                  |
                    |                  |____ [ /ue-policy-set ]
                    |                  |
                    |                  |____ [ /sm-data ]
                    |                  |        |
                    |                  |        |____ [ /{usageMonId} ]
                    |                  |
                    |                  |____ [ /operator-specific-data ]
                    |
                    |____ /sponsor-connectivity-data
                    |              |
                    |              |____ [ /{sponsorId} ]
                    |
                    |____ [ /bdt-data ]
                    |          |
                    |          |____ [ /{bdtReferenceId} ]
                    |
                    |____ [ /subs-to-notify ]
                    |          |
                    |          |____ [ /{subsId} ]
                    |
                    |____ /plmns
                              |
                              |____ /{plmnId}
                                        |
                                        |____ [ /ue-policy-set ]
```
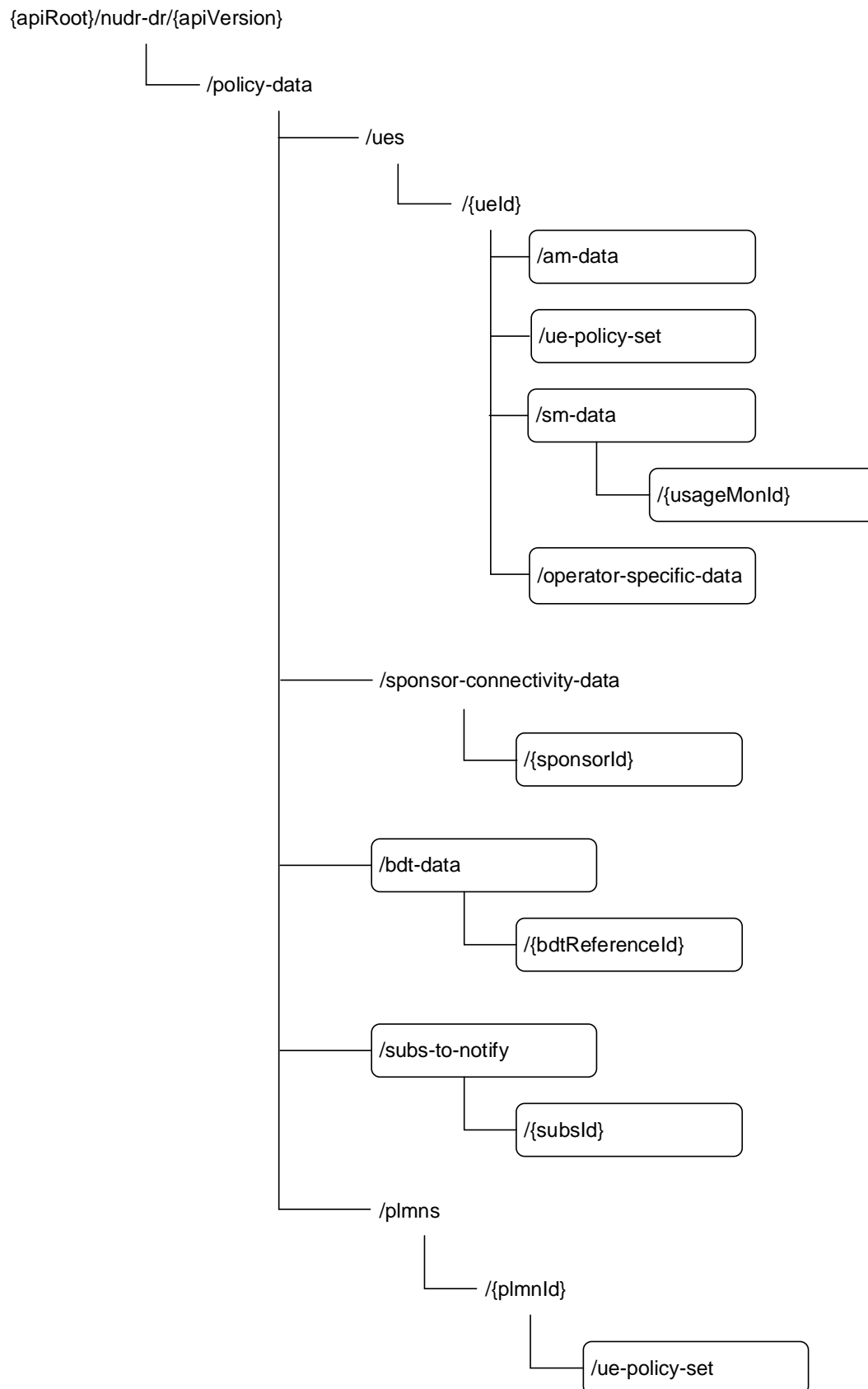
Figure 5.2.2-1: Resource URI structure of the Nudr_DataRepository API for policy data

Table 5.2.2-1 provides an overview of the resources and applicable HTTP methods.

Table 5.2.2-1: Resources and methods overview

Resource name	Resource URI	HTTP method or custom operation	Description
AccessAndMobilityPolicyData	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/ues/{ueId}/ am-data	GET	Retrieves the access and mobility policy data for a subscriber.
UEPolicySet	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/ues/{ueId}/ ue-policy-set	GET	Retrieves the UE policy set data for a subscriber.
		PUT	Create or modify the UE policy set data for a subscriber.
		PATCH	Modify the UE policy set data for a subscriber.
SessionManagementPolicyData	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/ues/{ueId}/ sm-data	GET	Retrieves the session management policy data for a subscriber.
		PATCH	When the feature "SessionManagementPolicyDataPatch" is supported, modifies the session management policy data for a subscriber.
UsageMonitoringInformation	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/ues/{ueId}/ sm-data/{usageMonId}	GET	Retrieve a usage monitoring resource.
		PUT	Create a usage monitoring resource.
		DELETE	Delete a usage monitoring resource.
OperatorSpecificData	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/ues/{ueId}/ operator-specific-data	GET	Retrieve the operator specific policy data of an UE
		PATCH	Modify the operator specific policy data of an UE.
		PUT	Modify the operator specific policy data of an UE.
SponsorConnectivityData	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/sponsor-connectivity-data/{sponsorId}	GET	Retrieves the sponsored connectivity information for a given sponsorId.
BdtData	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/bdt-data	GET	Retrieves the BDT data collection.
IndividualBdtData	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/bdt-data/ {bdtReferenceId}	GET	Retrieves the BDT data information associated with a BDT reference Id.
		PUT	Creates an BDT data resource associated with an BDT reference Id.
		DELETE	Deletes an BDT data resource associated with an BDT reference Id.
PolicyDataSubscriptions	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/subs-to-notify	POST	Create a subscription to receive notification of policy data changes.
IndividualPolicyDataSubscription	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/subs-to-notify/ {subsId}	PUT	Modify a subscription to receive notification of policy data changes.
		DELETE	Delete the subscription identified by {subsId}.
PlmnUePolicySet	{apiRoot}/nudr-dr/{apiVersion}/ policy-data/plmns/{plmnId}/ ue-policy-set	GET	Retrieve the UE policy set data for a H-PLMN.

5.2.3 Resource: AccessAndMobilityPolicyData

5.2.3.1 Description

The resource represents all UE related mobility and access policies attributes in the UDR for a given "ueId".

5.2.3.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/ues/{ueId}/am-data**

This resource shall support the resource URI variables defined in table 5.2.3.2-1.

Table 5.2.3.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].

5.2.3.3 Resource Standard Methods

5.2.3.3.1 GET

This method shall support the URI query parameters specified in table 5.2.3.3.1-1.

Table 5.2.3.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.3.3.1-2 and the response data structures and response codes specified in table 5.2.3.3.1-3.

Table 5.2.3.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.3.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
AmPolicyData	M	1	200 OK	Upon success, a response body containing access and mobility policies shall be returned.
NOTE:	The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

5.2.4 Resource: UEPolicySet

5.2.4.1 Description

The resource represents UE policy set for a given "ueId" stored in the UDR of the H-PLMN.

5.2.4.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/ues/{ueId}/ue-policy-set**

This resource shall support the resource URI variables defined in table 5.2.4.2-1.

Table 5.2.4.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].

5.2.4.3 Resource Standard Methods

5.2.4.3.1 PUT

This method shall support the URI query parameters specified in table 5.2.4.3.1-1.

Table 5.2.4.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.4.3.1-2 and the response data structures and response codes specified in table 5.2.4.3.1-3.

Table 5.2.4.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
UePolicySet	M	1	Create or modify the UE policy set resource for a given subscriber.

Table 5.2.4.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
UePolicySet	M	1	201 Created	Successful case. The resource has been successfully created and a response body containing a representation of the created UEPolicySet resource shall be returned.
UePolicySet	M	1	200 OK	Successful case. The resource has been successfully updated and a response body containing UE policies shall be returned.
n/a			204 No Content	Successful case. The resource has been successfully updated and no additional content is to be sent in the response message.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.4.3.2 PATCH

This method shall support the URI query parameters specified in table 5.2.4.3.2-1.

Table 5.2.4.3.2-1: URI query parameters supported by the PATCH method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.4.3.2-2 and the response data structures and response codes specified in table 5.2.4.3.2-3.

Table 5.2.4.3.2-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
UePolicySetPatch	M	1	Modify the UE policy set resource for a given subscriber.

Table 5.2.4.3.2-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Successful case. The resource has been successfully updated and no additional content is to be sent in the response message.
NOTE:	The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

5.2.4.3.3 GET

This method shall support the URI query parameters specified in table 5.2.4.3.3-1.

Table 5.2.4.3.3-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.4.3.3-2 and the response data structures and response codes specified in table 5.2.4.3.3-3.

Table 5.2.4.3.3-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.4.3.3-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
UePolicySet	M	1	200 OK	Upon success, a response body containing the UE policies shall be returned.
NOTE:	The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

5.2.5 Resource: SessionManagementPolicyData

5.2.5.1 Description

The resource represents all PDU session related subscription attributes in the UDR for a given ueId.

5.2.5.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/ues/{ueId}/sm-data**

This resource shall support the resource URI variables defined in table 5.2.5.2-1.

Table 5.2.5.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].

5.2.5.3 Resource Standard Methods

5.2.5.3.1 GET

This method shall support the URI query parameters specified in table 5.2.5.3.1-1.

Table 5.2.5.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
snssai	Snssai	O	0..1	Identifies a Single Network Slice Selection Assistance Information.
dnn	Dnn	O	0..1	Identifies an Data Network Name.
fields	array(string)	C	1..N	When the NF consumer only retrieves a subset of the resource, the "fields" query parameter shall be included. The "fields" query parameter contains the pointers of the attribute(s) to be retrieved.
supp-feat	SupportedFeatures	O	0..1	Identifies the features supported by the NF service consumer.

When an optional query parameter is not included, the UDR shall return session management policy data per DNN matching the value of the included query parameter(s) for all the possible values of the omitted query parameter. E.g. if "snssai" is not included, and "dnn" is included, UDR shall return the session management policy data per DNN for the DNN identified by "dnn" for all network slices where such DNN is available.

This method shall support the request data structures specified in table 5.2.5.3.1-2 and the response data structures and response codes specified in table 5.2.5.3.1-3.

Table 5.2.5.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.5.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
SmPolicyData	M	1	200 OK	Upon success, a response body containing SmPolicyData shall be returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

NOTE: This release supports that only one PCF can access to the UDR to retrieve the SM Policy Data under one S-NSSAI and DNN association.

5.2.5.3.2 PATCH

This method shall support the URI query parameters specified in table 5.2.5.3.2-1.

Table 5.2.5.3.2-1: URI query parameters supported by the PATCH method on this resource

Name	Data type	P	Cardinality	Description

This method shall support the request data structures specified in table 5.2.5.3.2-2 and the response data structures and response codes specified in table 5.2.5.3.2-3.

Table 5.2.5.3.2-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
SmPolicyDataPatch	M	1..N	When the "SessionManagementPolicyDataPatch" feature is supported, it requests the modification of the session management policy data for a subscriber.

Table 5.2.5.3.2-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Successful case. The resource has been successfully updated and no additional content is to be sent in the response message. (NOTE 2)
SmPolicyData	M	1	200 OK	Upon success, the execution report is returned. (NOTE 2)
NOTE 1: The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				
NOTE 2: If all the modification instructions in the PATCH request have been implemented, the UDR shall respond with 204 No Content response; if some of the modification instructions in the PATCH request have been discarded, and the NF service consumer supported the "PatchReport" feature, the UDR shall respond with SmPolicyData.				

5.2.6 Resource: UsageMonitoringInformation

5.2.6.1 Description

The resource represents an individual usage monitoring resource created in the UDR and associated with a ueId and a usageMonId.

5.2.6.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/ues/{ueId}/sm-data/{usageMonId}**

This resource shall support the resource URI variables defined in table 5.2.6.2-1.

Table 5.2.6.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].
usageMonId	Unique identifier of the individual SM Policy usage monitoring resource. It contains the identity of the corresponding limit as defined in the "limitId" attribute of the UsageMonDataLimit data type (see subclause 5.4.2.6).

5.2.6.3 Resource Standard Methods

5.2.6.3.1 PUT

This method shall support the URI query parameters specified in table 5.2.6.3.1-1.

Table 5.2.6.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.6.3.1-2 and the response data structures and response codes specified in table 5.2.6.3.1-3.

Table 5.2.6.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
UsageMonData	M	1	Create the usage monitoring resource.

Table 5.2.6.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
UsageMonData	M	1	201 Created	Successful case. The resource has been successfully created and a response body is returned containing a representation of the resource.
NOTE:			The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.	

5.2.6.3.2 DELETE

This method shall support the URI query parameters specified in table 5.2.6.3.2-1.

Table 5.2.6.3.2-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.6.3.2-2 and the response data structures and response codes specified in table 5.2.6.3.2-3.

Table 5.2.6.3.2-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.6.3.2-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Successful case. The resource has been successfully deleted.
NOTE:			The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.	

5.2.6.3.3 GET

This method shall support the URI query parameters specified in table 5.2.6.3.3-1.

Table 5.2.6.3.3-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.6.3.3-2 and the response data structures and response codes specified in table 5.2.6.3.3-3.

Table 5.2.6.3.3-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.6.3.3-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
UsageMonData	M	1	200 Ok	Successful case. The usage monitoring data is returned.
n/a			204 No Content	The resource was found but no usage monitoring data is available.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.7 Resource: SponsorConnectivityData

5.2.7.1 Description

The resource represents sponsored data connectivity related information stored in the UDR for a given sponsorId.

5.2.7.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/sponsor-connectivity-data/{sponsorId}**

This resource shall support the resource URI variables defined in table 5.2.7.2-1.

Table 5.2.7.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
sponsorId	String that represents the sponsor identity.

5.2.7.3 Resource Standard Methods

5.2.7.3.1 GET

This method shall support the URI query parameters specified in table 5.2.7.3.1-1.

Table 5.2.7.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.7.3.1-2 and the response data structures and response codes specified in table 5.2.7.3.1-3.

Table 5.2.7.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.7.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
SponsorConnectivityData	M	1	200 OK	Upon success, a response body containing Sponsor Connectivity Data shall be returned.
n/a			204 No Content	The resource was found but no Sponsor Connectivity Data is available.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.8 Resource: BdtData

5.2.8.1 Description

The resource represents background data transfer data stored in the UDR.

5.2.8.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/bdt-data**

This resource shall support the resource URI variables defined in table 5.2.8.2-1.

Table 5.2.8.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

5.2.8.3 Resource Standard Methods

5.2.8.3.1 GET

This method shall support the URI query parameters specified in table 5.2.8.3.1-1.

Table 5.2.8.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
bdt-ref-ids	array(BdtReferenceId)	O	1..N	If included, this IE shall contain a list of the BDT reference identifiers. Each member of the array is an individual BDT reference identifier.

This method shall support the request data structures specified in table 5.2.8.3.1-2 and the response data structures and response codes specified in table 5.2.8.3.1-3.

Table 5.2.8.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.8.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(BdtData)	M	0..N	200 OK	Upon success, a response body containing the BDT data shall be returned. Each member of the array is an individual BDT data.
NOTE:	The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

5.2.9 Resource: IndividualBdtData

5.2.9.1 Description

The resource represents individual background data transfer data stored in the UDR for a given "bdtReferenceId".

5.2.9.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/bdt-data/{bdtReferenceId}**

This resource shall support the resource URI variables defined in table 5.2.9.2-1.

Table 5.2.9.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
bdtReferenceId	Represents the transfer policy of background data transfer for provided ASP, see the data type BdtReferenceId as defined in 3GPP TS 29.122 [9].

5.2.9.3 Resource Standard Methods

5.2.9.3.1 GET

This method shall support the URI query parameters specified in table 5.2.9.3.1-1.

Table 5.2.9.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.9.3.1-2 and the response data structures and response codes specified in table 5.2.9.3.1-3.

Table 5.2.9.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.9.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
BdtData	M	1	200 OK	Upon success, a response body containing the BDT data shall be returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.9.3.2 PUT

This method shall support the URI query parameters specified in table 5.2.9.3.2-1.

Table 5.2.9.3.2-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.9.3.2-2 and the response data structures and response codes specified in table 5.2.9.3.2-3.

Table 5.2.9.3.2-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
BdtData	M	1	Create the BDT data for a given bdtReferenceId.

Table 5.2.9.3.2-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
BdtData	M	1	201 Created	Successful case. The resource has been successfully created.
ProblemDetails	M	1	403 Forbidden	The resource is not allowed to be updated. (NOTE 2)
NOTE 1: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				
NOTE 2: The "cause" attribute within the "ProblemDetails" data structure may be set to "MODIFICATION_NOT_ALLOWED" as defined in table 5.2.7.1-2 of 3GPP TS 29.500 [4].				

5.2.9.3.3 DELETE

This method shall support the URI query parameters specified in table 5.2.9.3.3-1.

Table 5.2.9.3.3-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.9.3.3-2 and the response data structures and response codes specified in table 5.2.9.3.3-3.

Table 5.2.9.3.3-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.9.3.3-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Successful case. The resource has been successfully deleted.
NOTE:	The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

5.2.10   Resource: PolicyDataSubscriptions

5.2.10.1   Description

This resource is used to represent subscriptions to notification of policy data modification.

5.2.10.2   Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/subs-to-notify**

This resource shall support the resource URI variables defined in table 5.2.10.2-1.

Table 5.2.10.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

5.2.10.3   Resource Standard Methods

5.2.10.3.1   POST

This method shall support the URI query parameters specified in table 5.2.10.3.1-1.

Table 5.2.10.3.1-1: 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 5.2.10.3.1-2 and the response data structures and response codes specified in table 5.2.10.3.1-3.

Table 5.2.10.3.1-2: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
PolicyDataSubscription	M	1	Identifies the subscription to notification of policy data modification.

Table 5.2.10.3.1-3: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
PolicyDataSubscription	M	1	201 Created	Upon success, a response body containing a representation of each Individual subscription resource shall be returned. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the created resource.
NOTE:	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.			

5.2.11 Resource: IndividualPolicyDataSubscription

5.2.11.1 Description

This resource is used to represent an individual subscription to notification of policy data modification.

5.2.11.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/subs-to-notify/{subsId}**

This resource shall support the resource URI variables defined in table 5.2.11.2-1.

Table 5.2.11.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
subsId	The subsId identifies an individual policy data subscription to notifications. The value is allocated by the UDR during creation of the PolicyDataSubscriptions resource.

5.2.11.3 Resource Standard Methods

5.2.11.3.1 PUT

This method shall support the URI query parameters specified in table 5.2.11.3.1-1.

Table 5.2.11.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.11.3.1-2 and the response data structures and response codes specified in table 5.2.11.3.1-3.

Table 5.2.11.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
PolicyDataSubscription	M	1	Updates the subscription to notification of policy data modification.

Table 5.2.11.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
PolicyDataSubscription	M	1	200 OK	The individual subscription resource was updated successfully.
n/a			204 No Content	The individual subscription resource was updated successfully and no additional content is to be sent in the response message.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.11.3.2 DELETE

This method shall support the URI query parameters specified in table 5.2.11.3.2-1.

Table 5.2.11.3.2-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.11.3.2-2 and the response data structures and response codes specified in table 5.2.11.3.2-3.

Table 5.2.11.3.2-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			The request body shall be empty.

Table 5.2.11.3.2-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon success, an empty response body shall be returned.
NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.12   Resource: OperatorSpecificData

5.2.12.1   Description

This resource represents the UE's operator specific data.

This resource is modelled with the Document resource archetype (see subclause C.1 of 3GPP TS 29.501 [5]).

5.2.12.2   Resource Definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/ues/{ueId}/operator-specific-data**

This resource shall support the resource URI variables defined in table 5.2.12.2-1.

Table 5.2.12.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].

5.2.12.3   Resource Standard Methods

5.2.12.3.1   GET

This method is used to retrieve operator specific data from the UDR.

This method shall support the URI query parameters specified in table 5.2.12.3.1-1.

Table 5.2.12.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
fields	array(string)	C	1..N	When the NF consumer only retrieves a subset of the resource, the "fields" query parameter shall be included. The "fields" query parameter contains the pointers of the attribute(s) to be retrieved.
supp-feat	SupportedFeatures	O	0..1	Identifies the features supported by the NF service consumer.

This method shall support the request data structures specified in table 5.2.12.3.1-2 and the response data structures and response codes specified in table 5.2.12.3.1-3.

Table 5.2.12.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.12.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
map(OperatorSpecificDataContainer)	M	1..N	200 OK	Upon success, a response body containing a map shall be returned. The key of the map is operator specific data element name and the value is the operator specific data of the UE.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.12.3.2 PATCH

This method is used to modify operator specific data in the UDR.

This method shall support the URI query parameters specified in table 5.2.12.3.2-1.

Table 5.2.12.3.2-1: URI query parameters supported by the PATCH method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.12.3.2-2 and the response data structures and response codes specified in table 5.2.12.3.2-3.

Table 5.2.12.3.2-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
array(PatchItem)	M	1..N	Contains the delta data to the operator specific data

Table 5.2.12.3.2-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon successful modification there is no body in the response message.(NOTE 2)
PatchResult	M	1	200 OK	Upon success, the execution report is returned. (NOTE 2)
ProblemDetails	M	1	403 Forbidden	One or more attributes are not allowed to be modified according to e.g. policy or local configuration. The invalidParams attribute shall contain the JSON pointers of attributes which are not allowed to be modified. The cause attribute shall be set to "MODIFICATION_NOT_ALLOWED" as defined in table 5.2.7.1-2 of 3GPP TS 29.500 [4].
NOTE 1: The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				
NOTE 2: If all the modification instructions in the PATCH request have been implemented, the UDR shall respond with 204 No Content response; if some of the modification instructions in the PATCH request have been discarded, and the NF service consumer supported the "PatchReport" feature, the UDR shall respond with PatchResult.				

5.2.12.3.3 PUT

This method is used to modify operator specific data in the UDR.

This method shall support the URI query parameters specified in table 5.2.12.3.3-1.

Table 5.2.12.3.3-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.12.3.3-2 and the response data structures and response codes specified in table 5.2.12.3.3-3.

Table 5.2.12.3.3-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
map(OperatorSpecificData Container)	M	1..N	A map containing the delta data to the operator specific data. The key of the map is operator specific data element name and the value is the operator specific data of the UE.

Table 5.2.12.3.3-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
map(OperatorSp ecificDataContai ner)	M	1	200 OK	Upon successful modification a response body containing a map shall be returned. The key of the map is operator specific data element name and the value is the operator specific data of the UE.
n/a			204 No Content	The resource has been successfully updated.
ProblemDetails	M	1	403 Forbidden	One or more attributes are not allowed to be modified according to e.g. policy or local configuration. The invalidParams attribute shall contain the JSON pointers of attributes which are not allowed to be modified. The cause attribute shall be set to "MODIFICATION_NOT_ALLOWED" as defined in table 5.2.7.1-2 of 3GPP TS 29.500 [4].
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.2.13 Resource: PlmnUePolicySet

5.2.13.1 Description

The resource represents the UE policy set for a given "plmnId" representing a H-PLMN stored in the UDR of a V-PLMN.

5.2.13.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/policy-data/plmns/{plmnId}/ue-policy-set**

This resource shall support the resource URI variables defined in table 5.2.13.2-1.

Table 5.2.13.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
plmnId	String concatenating a Mcc and Mnc as defined in 3GPP TS 29.505 [15].

5.2.13.3 Resource Standard Methods

5.2.13.3.1 GET

This method shall support the URI query parameters specified in table 5.2.13.3.1-1.

Table 5.2.13.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.2.13.3.1-2 and the response data structures and response codes specified in table 5.2.13.3.1-3.

Table 5.2.13.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 5.2.13.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
UePolicySet	M	1	200 OK	Upon success, a response body containing the UE policies shall be returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

5.3 Notifications

5.3.1 General

Notifications shall comply with subclause 6.2 of 3GPP TS 29.500 [4] and subclause 4.6.2.3 of 3GPP TS 29.501 [5].

This subclause describes the resources to provide notification to NF service consumers which have subscribed to be notified when policy data is changed.

5.3.2 Policy Data Change Notification

The POST method shall be used for policy data change notification and the URI shall be provided during the subscription procedure.

URI: **{notificationUri}**

This method shall support the URI query parameters specified in table 5.3.2-1.

Table 5.3.2-1: URI query parameters supported by the POST method

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 5.3.2-2 and the response data structures and response codes specified in table 5.3.2-3.

Table 5.3.2-2: Data structures supported by the POST Request Body

Data type	P	Cardinality	Description
array(PolicyDataChangeNotification)	M	1..N	Notification of policy data changes.

Table 5.3.2-3: Data structures supported by the POST Response Body

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	The reception of the notification is acknowledged.
NOTE: 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.				

5.4 Data Model

5.4.1 General

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

Table 5.4.1-1 specifies the data types defined for the Nudr_DataRepository for Policy Data service based interface protocol.

Table 5.4.1-1: Nudr_DataRepository specific Data Types for Policy Data

Data type	Section defined	Description	Applicability
AmPolicyData	5.4.2.2	Contains the AM policy data for a given subscriber.	
BdtData	5.4.2.9	Contains the background data transfer data.	
DnnRouteSelectionDescriptor	5.4.2.20	Contains the route selector parameters per DNN.	
LimitIdToMonitoringKey	5.4.2.16	Contains the limit identifier and the corresponding monitoring key for a given S-NSSAI and DNN.	
OsId	5.4.3.2	Operating System supported by the UE.	
Periodicity	5.4.3.4	Indicates a type of time period.	
PlmnRouteSelectionDescriptor	5.4.2.18	Contains the route selectors for a serving PLMN.	
PolicyDataChangeNotification	5.4.2.11	Contains changed policy data for which notification was requested.	
PolicyDataSubscription	5.4.2.10	Identifies a subscription to policy data change notification.	
SmPolicyData	5.4.2.5	Contains SM policy data for a subscriber.	
SmPolicyDataPatch	5.4.2.21	Contains modifiable SM policy data for a subscriber.	SessionManagementPolicyDataPatch
SmPolicyDnnData	5.4.2.15	Contains SM policy data for a DNN and S-NSSAI.	
SmPolicyDnnDataPatch	5.4.2.23	Contains modifiable SM policy data for a DNN and S-NSSAI.	SessionManagementPolicyDataPatch
SmPolicySnssaiData	5.4.2.14	Contains SM policy data for a S-NSSAI.	
SmPolicySnssaiDataPatch	5.4.2.22	Contains modifiable SM policy data for a S-NSSAI.	SessionManagementPolicyDataPatch
SnssaiRouteSelectionDescriptor	5.4.2.19	Contains the route selector parameters per SNSSAI.	
SponsorConnectivityData	5.4.2.8	Contains the sponsored data connectivity related information for a sponsor identifier.	
TimePeriod	5.4.2.12	Contains the periodicity for the defined usage monitoring data limits.	
UePolicySetPatch	5.4.2.17	Contains the UE policy data that can be modified by the PCF.	
UePolicySection	5.4.2.3	Contains the UE policy section.	
UePolicySet	5.4.2.4	Contains the UE policy set for a given subscriber.	
UsageMonLevel	5.4.3.3	Indicates the level of the usage monitoring instance (PDU Session level or per Service)	
UsageMonData	5.4.2.7	Contains remain allowed usage data for a subscriber.	
UsageMonDataLimit	5.4.2.6	Contains usage monitoring control data for a subscriber.	
UsageMonDataScope	5.4.2.13	Contains SNSSAI and DNN combinations to which the UsageMonData instance belongs to.	

Table 5.4.1-2 specifies data types re-used by the Nudr_DataRepository for Policy Data 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 Nudr_DataRepository for Policy Data service based interface.

Table 5.4.1-2: Nudr_DataRepository re-used Data Types for Policy Data

Data type	Reference	Comments	Applicability
BdtReferenceId	3GPP TS 29.122 [9]	Indicates the background data transfer reference ID for the transfer policy.	
BitRate	3GPP TS 29.571 [7]	String representing a bit rate that shall be formatted as follows: pattern: "^\d+(\.\d+)?(bps|Kbps|Mbps|Gbps|Tbps)$" Examples: "125 Mbps", "0.125 Gbps", "125000 Kbps".	
Bytes	3GPP TS 29.571 [7]	String with format "byte" as defined in OpenAPI Specification [3], i.e., base64-encoded characters.	
ChargingInformation	3GPP TS 29.512 [12]	The address of the Charging Function.	
DateTime	3GPP TS 29.571 [7]	String with format "date-time" as defined in OpenAPI Specification [3].	
Dnn	3GPP TS 29.571 [7]	Data Network Name.	
NetworkAreaInfo	3GPP TS 29.554 [13]	Represents a network area information.	
OperatorSpecificDataContainer	3GPP TS 29.505 [15]	Container for operator specific data	
PatchResult	3GPP TS 29.571 [7]		
PatchItem	3GPP TS 29.571 [7]	Data structure used for JSON patch.	
PduSessionType	3GPP TS 29.571 [7]	PDU Session Type.	
Pei	3GPP TS 29.571 [7]	Personal Equipment Identifier.	
PlmnId	3GPP TS 29.571 [7]	PLMN Identity.	
PresenceInfo	3GPP TS 29.571 [7]	Presence Reporting Area Information.	
ProblemDetails	3GPP TS 29.571 [7]	Used in error responses to provide more detailed information about an error.	
Snssai	3GPP TS 29.571 [7]	Identifies the S-NSSAI.	
SscMode	3GPP TS 29.571 [7]	SSC mode.	
SupportedFeatures	3GPP TS 29.571 [7]	Used to negotiate the applicability of the optional features	
TransferPolicy	3GPP TS 29.554 [13]	Represents a transfer policy.	
Uinteger	3GPP TS 29.571 [7]	Unsigned Integer, i.e. only value 0 and integers greater than 0 are allowed.	
Uri	3GPP TS 29.571 [7]	String providing an URI.	
UsageThreshold	3GPP TS 29.122 [9]	Usage Thresholds (a data volume expected to be transferred per UE and/or time duration in seconds).	
VarUeId	3GPP TS 29.571 [7]	String represents the SUPI or GPSI.	

5.4.2 Structured data types

5.4.2.1 Introduction

This subclause defines the structures to be used in resource representations.

5.4.2.2 Type AmPolicyData

Table 5.4.2.2-1: Definition of type AmPolicyData

Attribute name	Data type	P	Cardinality	Description
praInfos	map(PresenceInfo)	O	1..N	Presence reporting area information. Each PresenceInfo element shall include the Presence Reporting Area Identifier within the "praId" attribute and, for a UE-dedicated presence reporting area, may also include the list of elements composing the presence reporting area. A "praId" may indicate a Presence Reporting Area Set. The "praId" attribute within the PresenceInfo data type shall also be the key of the map. The attribute "presenceState" shall not be present.
subscCats	array(string)	O	1..N	List of categories associated with the subscriber

5.4.2.3 Type UePolicySection

Table 5.4.2.3-1: Definition of type UePolicySection

Attribute name	Data type	P	Cardinality	Description
uePolicySectionInfo	Bytes	M	1	Contains the UE Policy Section Information for the given UPSI
upsi	string	M	1	Identifier for UE Policy Section. The format is represented in 3GPP TS 24.501 [11] subclause D.6.2.

5.4.2.4 Type UePolicySet

Table 5.4.2.4-1: Definition of type UePolicySet

Attribute name	Data type	P	Cardinality	Description
praInfos	map(PresenceInfo)	O	1..N	Presence reporting area information. Each PresenceInfo element shall include the Presence Reporting Area Identifier within the "praId" attribute and, for a UE-dedicated presence reporting area, may also include the list of elements composing the presence reporting area. A "praId" may indicate a Presence Reporting Area Set. The "praId" attribute within the PresenceInfo data type shall also be the key of the map. The attribute "presenceState" shall not be present.
subscCats	array(string)	O	1..N	List of categories associated with the subscriber
uePolicySections	map(UePolicySection)	O	1..N	Contains the UE Policy Sections. The UPSI (UE Policy Section Identifier) is used as the key in the map.
upsis	array(string)	O	1..N	List of identifiers for the "uePolicySections". The format of the UPSI is represented in 3GPP TS 24.501 [11] subclause D.6.2
allowedRouteSelDescs	map(PlmnRouteSelectionDescriptor)	O	1..N	Contains allowed route selection descriptors per serving PLMN for a UE. The serving PLMN identifier is the key of the map.
andspInd	boolean	O	0..1	Indication of UE supporting ANDSP. Default value is false.
pei	Pei	O	0..1	Personal Equipment Identifier.
osIds	array(OsId)	O	1..N	Identification of the UE Operating System(s).

5.4.2.5 Type SmPolicyData

Table 5.4.2.5-1: Definition of type SmPolicyData

Attribute name	Data type	P	Cardinality	Description	Applicability
smPolicySnssaiData	map(SmPolicySnssaiData)	M	1..N	Session Management Policy data per S-NSSAI for all the SNSSAIs of the subscriber. The key of the map is the S-NSSAI.	
umDataLimits	map(UsageMonDataLimit)	O	1..N	Contains a list of usage monitoring profiles associated with the subscriber. The limit identifier is used as the key of the map.	
umData	map(UsageMonData)	O	1..N	Contains the remaining allowed usage data associated with the subscriber. The limit identifier is used as the key in the map.	
suppFeat	SupportedFeatures	C	0..1	Indicates the list of negotiated supported features. This parameter shall be supplied by the UDR in the response to the GET request when the GET request includes the "supported-features" query parameter and the UDR supports feature negotiation for Session Management Policy Data.	
NOTE: In this Release of the specification the "limitId" corresponds to the Monitoring Key.					

5.4.2.6 Type UsageMonDataLimit

Table 5.4.2.6-1: Definition of type UsageMonDataLimit

Attribute name	Data type	P	Cardinality	Description
limitId	string	M	1	Identifies the limit, i.e. the usage monitoring control instance
scopes	map(UsageMonDataScope)	O	1..N	Identifies the SNSSAI and DNN combinations to which the usage monitoring data limit applies. The S-NSSAI is the key of the map. If omitted, the limit applies to every S-NSSAI and DNN.
umLevel	UsageMonLevel	O	0..1	Indicates the level of the usage monitoring instance (PDU Session level or per Service).
startDate	DateTime	C	0..1	Start date and time when the usage monitoring instance applies. It shall be provided when the resetPeriod attribute is provided.
endDate	DateTime	O	0..1	End date and time when the usage monitoring instance applies.
usageLimit	UsageThreshold	O	0..1	Maximum allowed traffic volume/time usage for a usage monitoring instance. If a resetPeriod is specified, this limit applies to every period separately and not for the entire time between the start and end dates. So for example, if the resetPeriod is daily, the usageLimit is applicable for each day until the end date is specified.
resetPeriod	TimePeriod	O	0..1	Time period to reset the remaining allowed usage for a periodic usage monitoring instance (postpaid subscriptions). This attribute along with the startDate determine the actual absolute time at which usage needs to be reset.
NOTE: In this Release of the specification the "limitId" attribute is the Monitoring Key, and the "scopes" attribute shall always be present including one distinct SNSSAI and DNN pair.				

5.4.2.7 Type UsageMonData

Table 5.4.2.7-1: Definition of type UsageMonData

Attribute name	Data type	P	Cardinality	Description	Applicability
limitId	string	M	1	Identifies the limit as defined in the "limitId" attribute of the UsageMonDataLimit data type (see subclause 5.4.2.6).	
umLevel	UsageMonLevel	O	0..1	Indicates the level of the usage monitoring instance (PDU Session level or per Service).	
allowedUsage	UsageThreshold	O	0..1	Remaining allowed traffic volume usage and/or resource time usage.	
resetTime	DateTime	O	0..1	Time to reset the allowed usage back to the usageLimit of the corresponding UsageMonDataLimit. This is computed based on the corresponding startDate, resetPeriod and endDate of the corresponding UsageMonDataLimit. The allowedUsage is only applicable if the resetTime is in the future relative to the current time.	
NOTE: In this Release of the specification the "limitId" attribute is the Monitoring Key, and the "scopes" attribute shall always be present including one distinct SNSSAI and DNN pair.					

5.4.2.8 Type SponsorConnectivityData

Table 5.4.2.8-1: Definition of type SponsorConnectivityData

Attribute name	Data type	P	Cardinality	Description
aspIds	array(string)	M	1..N	Identifies a list of Application Service Provider Identifiers associated with the sponsor identity.

5.4.2.9 Type BdtData

Table 5.4.2.9-1: Definition of type BdtData

Attribute name	Data type	P	Cardinality	Description
aspId	string	M	1	This IE contains an identity of an application service provider.
transPolicy	TransferPolicy	M	1	This IE contains the transfer policy.
bdtRefId	BdtReferenceId	O	0..1	This IE indicates the background data transfer reference ID for the transfer policy.
nwAreaInfo	NetworkAreaInfo	O	0..1	This IE represents a network area information.
numOfUes	Uinteger	O	0..1	This IE contains the number of UEs using the indicated transfer policy. It shall be present when available.
volPerUe	UsageThreshold	O	0..1	This IE contains a data volume expected to be transferred per UE for the indicated transfer policy. It shall be present when available.

5.4.2.10 Type PolicyDataSubscription

Table 5.4.2.10-1: Definition of type PolicyDataSubscription

Attribute name	Data type	P	Cardinality	Description
notificationUri	Uri	M	1	URI provided by the NF service consumer indicating where to receive the subscribed notifications from the UDR.
monitoredResource Uris	array(Uri)	M	1..N	A set of URIs that identify the resources as defined in table 5.2.2-1 for which a modification triggers a notification. (NOTE)
expiry	DateTime	C	0..1	This IE shall be included in a subscription response if, based on operator policy and taking into account the expiry time included in the request, the UDR needs to include an expiry time. This IE may be included in a subscription request. When present, this IE shall represent the time after which the subscription becomes invalid. The absence of this attribute in the subscription response means the subscription to be valid without an expiry time.
supportedFeatures	SupportedFeatures	C	0..1	Used to negotiate the applicability of the optional features. This attribute shall be provided in the POST request and in the response of successful resource creation.
NOTE: Neither the resource URI of the IndividualPolicyDataSubscription resource nor the resource URI of the PolicyDataSubscriptions resource shall be included in the "monitoredResourceUris" attribute.				

5.4.2.11 Type PolicyDataChangeNotification

Table 5.4.2.11-1: Definition of type PolicyDataChangeNotification

Attribute name	Data type	P	Cardinality	Description	Applicability
amPolicyData	AmPolicyData	O	0..1	Access and Mobility Policy Data, if changed and notification was requested.	
uePolicySet	UePolicySet	O	0..1	UE Policy Set, if changed and notification was requested.	
plmnUePolicySet	UePolicySet	O	0..1	PLMN UE Policy Set, if changed and notification was requested.	
smPolicyData	SmPolicyData	O	0..1	Session Management Policy Data, if changed and notification was requested.	
usageMonData	UsageMonData	O	0..1	Usage Monitoring Data, if changed and notification was requested.	
sponsorConnectivity Data	SponsorConnectivity Data	O	0..1	Sponsor data connectivity profile information, if changed and notification was requested.	
bdtData	BdtData	O	0..1	Background Data Transfer Data, if changed and notification was requested.	
opSpecData	OperatorSpecificDat aContainer	O	0..1	Operator Specific Data, if changed and notification was requested.	
ueId	VarUeId	C	0..1	Represents the UE subscription identifier SUPI or GPSI. It shall only be present when the "amPolicyData", "uePolicySet", "smPolicyData", "opSpecData" and/or "usageMonData" attribute is present.	
sponsorId	string	C	0..1	Represents the sponsor identity. It shall only be present when the "sponsorConnectivityData" attribute is present.	
bdtRefId	BdtReferenceId	C	0..1	Represents the BDT reference identifier. It shall only be present when the "bdtData" attribute is present.	
usageMonId	string	C	0..1	Represents the unique identifier of the individual SM Policy usage monitoring resource. It shall only be present when the "usageMonData" attribute is present.	
plmnId	PlmnId	C	0..1	Represents the PLMN identifier. It shall only be present when the "plmnUePolicySet" attribute is present.	
delResources	array(Uri)	O	1..N	The resources, as defined in table 5.2.2-1, if removed from UDR and notification on resource data change was requested. (NOTE 2)	ResourceRemov alNotificationPoli cyData
NOTE 1: When the "ResourceRemovalNotificationPolicyData" feature is not supported, at least one of the "amPolicyData", "uePolicySet", "smPolicyData", "usageMonData", "sponsorConnectivityData", "bdtData", "opSpecData" or "plmnUePolicySet" shall be present.					
NOTE 2: When the "ResourceRemovalNotificationPolicyData" feature is supported, and the "delResources" attribute is present, the attributes that correspond with the values included in the "delResources" attribute shall be omitted. E.g., when the "delResources" attribute includes the value "../policy-data/ues/{ueId}/am-data" the attribute "amPolicyData" shall be omitted.					

5.4.2.12 Type TimePeriod

Table 5.4.2.12-1: Definition of type TimePeriod

Attribute name	Data type	P	Cardinality	Description	Applicability
period	Periodicity	M	1	Indicates whether the periodicity is "YEARLY", "MONTHLY", "WEEKLY", "DAILY" or "HOURLY".	
maxNumPeriod	Uinteger	O	0..1	Indicates the maximum number of periods after which the usage monitoring instance does not apply. If omitted, there is no limit in the number of periods.	

5.4.2.13 Type UsageMonDataScope

Table 5.4.2.13-1: Definition of type UsageMonDataScope

Attribute name	Data type	P	Cardinality	Description	Applicability
snssai	Snssai	M	1	Represents the SNSSAI.	
dnn	array(Dnn)	O	1..N	Represents the Dnn. If omitted, the usage monitoring scope applies to all the DNNs.	
NOTE: In this Release of the specification the "dnn" attribute shall always be present with one and only one entry.					

5.4.2.14 Type SmPolicySnssaiData

Table 5.4.2.14-1: Definition of type SmPolicySnssaiData

Attribute name	Data type	P	Cardinality	Description	Applicability
snssai	Snssai	M	1	S-NSSAI associated with the data.	
smPolicyDnnData	map(SmPolicyDnnData)	O	1..N	Session Management Policy data per DNN for all the DNNs of the indicated S-NSSAI. The key of the map is the DNN.	

5.4.2.15 Type SmPolicyDnnData

Table 5.4.2.15-1: Definition of type SmPolicyDnnData

Attribute name	Data type	P	Cardinality	Description	Applicability
dnn	Dnn	M	1	DNN associated with the data	
allowedServices	array(string)	O	1..N	List of subscriber's allowed service identifiers	
subscCats	array(string)	O	1..N	List of categories associated with the subscriber	
gbrUl	BitRate	O	0..1	Maximum aggregate UL bitrate that can be provided across all GBR QoS Flows in the DNN	
gbrDl	BitRate	O	0..1	Maximum aggregate DL bitrate that can be provided across all GBR QoS Flows in the DNN	
adcSupport	boolean	O	0..1	Indicates whether application detection and control can be enabled for a subscriber. The default value is "FALSE".	
subscSpendingLimits	boolean	O	0..1	Indicates whether the PCF must enforce policies based on subscriber spending limits. The default value is "FALSE".	
ipv4Index	IpIndex	O	0..1	Information that identifies which IP pool or external server is used to allocate the IPv4 address.	
ipv6Index	IpIndex	O	0..1	Information that identifies which IP pool or external server is used to allocate the IPv6 address.	
offline	boolean	O	0..1	Indicates the offline charging is applicable to the PDU session. The default value is "FALSE".	
online	boolean	O	0..1	Indicates the online charging is applicable to the PDU session. The default value is "FALSE".	
chfInfo	ChargingInformation	O	0..1	The address of the Charging Function	
refUmdLimitIds	map(LimitIdToMonitoringKey)	O	1..N	A reference to the "UsageMonitoringDataLimit" or "UsageMonitoringData" instances for this DNN and SNSSAI that may also include the related monitoring key(s). The key of the map is the limit identifier.	
mpsPriority	boolean	O	0..1	Indicates subscription to the MPS priority service; priority applies to all traffic on the PDU Session. The default value is "FALSE".	
mcsPriority	boolean	O	0..1	Indicates subscription to the MCS priority service; priority applies to all traffic on the PDU Session. The default value is "FALSE".	
imsSignallingPrio	boolean	O	0..1	Indicates subscription to the IMS signalling priority service; priority only applies to IMS signalling traffic. The default value is "FALSE".	
mpsPriorityLevel	integer	O	0..1	Relative priority level for the multimedia priority services	
mcsPriorityLevel	integer	O	0..1	Relative priority level for the mission critical services	
praInfos	map(PresenceInfo)	O	1..N	Presence reporting area information. Each PresenceInfo element shall include the Presence Reporting Area Identifier within the "praId" attribute and, for a UE-dedicated presence reporting area, may also include the list of elements composing the presence reporting area. A "praId" may indicate a Presence Reporting Area Set. The "praId" attribute within the PresenceInfo data type shall also be the key of the map. The attribute "presenceState" shall not be present.	
bdtRefIds	map(BdtReference	O	1..N	Identifies transfer policies of background data	EnhancedBac

	nceId)		transfer		kgroundData Transfer

5.4.2.16 Type LimitIdToMonitoringKey

Table 5.4.2.16-1: Definition of type LimitIdToMonitoringKey

Attribute name	Data type	P	Cardinality	Description	Applicability
limitId	string	M	1	Limit Identifier.	
monKeys	array(string)	O	1..N	Monitoring Keys.	
NOTE: In this Release of the specification there is only one Monitoring Key per Limit Identifier					

5.4.2.17 Type UePolicySetPatch

Table 5.4.2.17-1: Definiton of type UePolicySetPatch

Attribute name	Data type	P	Cardinality	Description
uePolicySections	map(UePolicySection)	O	1..N	Contains the UE Policy Sections. The UPSI (UE Policy Section Identifier) is used as the key in the map.
upsis	array(string)	O	1..N	List of identifiers for the "uePolicySections". The format of the UPSI is represented in 3GPP TS 24.501 [11] subclause D.6.2.
andspInd	boolean	O	0..1	Indication of UE supporting ANDSP.
pei	Pei	O	0..1	Personal Equipment Identifier.
osIds	array(OsId)	O	1..N	Identification of the UE Operating System(s).

5.4.2.18 Type PlmnRouteSelectionDescriptor

Table 5.4.2.18-1: Definition of type PlmnRouteSelectionDescriptor

Attribute name	Data type	P	Cardinality	Description
servingPlmn	PlmnId	M	1	Identity of the serving PLMN.
snssaiRouteSelDescs	array(SnssaiRouteSelectionDescriptor)	O	1..N	Contains the route selection descriptor parameters (DNNs, PDU session types and SSC modes) per SNSSAI.

5.4.2.19 Type SnssaiRouteSelectionDescriptor

Table 5.4.2.19-1: Definition of type SnssaiRouteSelectionDescriptor

Attribute name	Data type	P	Cardinality	Description
snssai	Snssai	M	1	SNSSAI.
dnnRouteSelDescs	array(DnnRouteSelectionDescriptor)	O	1..N	Contains the route selection descriptor parameters (PDU session types and SSC modes) per DNN.

5.4.2.20 Type DnnRouteSelectionDescriptor

Table 5.4.2.20-1: Definition of type DnnRouteSelectionDescriptor

Attribute name	Data type	P	Cardinality	Description
dnn	Dnn	M	1	DNN.
sscModes	array(SscMode)	O	1..N	Contains the allowed SSC modes for the traffic to this DNN.
pduSessTypes	array(PduSessionType)	O	1..N	Contains the allowed PDU Session types for the traffic to this DNN.

5.4.2.21 Type SmPolicyDataPatch

Table 5.4.2.21-1: Definition of type SmPolicyDataPatch

Attribute name	Data type	P	Cardinality	Description	Applicability
umData	map(UsageMon Data)	O	1..N	Contains the remaining allowed usage data associated with the subscriber. The value of the limit identifier is used as the key in the map.	
smPolicySnssaiData	map(SmPolicyS nssaiDataPatch)	O	1..N	Modifiable Session Management Policy data per S-NSSAI for all the SNSSAIs of the subscriber. The key of the map is the S-NSSAI.	
NOTE: In this Release of the specification the "limitId" corresponds to the Monitoring Key.					

5.4.2.22 Type SmPolicySnssaiDataPatch

Table 5.4.2.22-1: Definition of type SmPolicySnssaiDataPatch

Attribute name	Data type	P	Cardinality	Description	Applicability
snssai	Snssai	M	1	S-NSSAI associated with the data.	
smPolicyDnnData	map(SmPolicyDnn DataPatch)	O	1..N	Modifiable Session Management Policy data per DNN for all the DNNs of the indicated S-NSSAI. The key of the map is the DNN.	

5.4.2.23 Type SmPolicyDnnDataPatch

Table 5.4.2.23-1: Definition of type SmPolicyDnnDataPatch

Attribute name	Data type	P	Cardinality	Description	Applicability
dnn	Dnn	M	1	DNN associated with the data	
bdtRefIds	map(BdtRefere nceId)	O	1..N	Updated transfer policies of background data transfer.	EnhancedBac kgroundData Transfer

5.4.3 Simple data types and enumerations

5.4.3.1 Introduction

This subclause defines simple data types and enumerations that can be referenced from data structures defined in the previous subclauses.

5.4.3.2 Simple data types

The simple data types defined in table 5.4.3.2-1 shall be supported.

Table 5.4.3.2-1: Simple data types

Type Name	Type Definition	Description	Applicability
IpIndex	integer	Information that identifies which IP pool or external server is used to allocate the IP address.	
OsId	string	Operating System of the served UE. It contains a Universally Unique IDentifier (UUID) as specified in IETF RFC 4122 [17]. The format of the OS Id is represented in 3GPP TS 24.501 [11].	

5.4.3.3 Enumeration: UsageMonLevel

The enumeration represents the usage monitoring level. It shall comply with the provisions defined in table 5.4.3.3-1.

Table 5.4.3.3-1: Enumeration UsageMonLevel

Enumeration value	Description
SESSION_LEVEL	The usage monitoring is applicable for PDU session level.
SERVICE_LEVEL	The usage monitoring is applicable for service level.

5.4.3.4 Enumeration: Periodicity

The enumeration represents the time period. It shall comply with the provisions defined in table 5.4.3.4-1.

Table 5.4.3.4-1: Enumeration Periodicity

Enumeration value	Description
YEARLY	Time period is yearly
MONTHLY	Time period is monthly
WEEKLY	Time period is weekly
DAILY	Time period is daily
HOURLY	Time period is hourly

5.5 Error handling

5.5.1 General

For the Nudr_DataRepository service API for Policy Data, HTTP error responses shall be supported as specified in subclause 4.8 of 3GPP TS 29.501 [5]. Protocol errors and application errors specified in table 5.2.7.2-1 of 3GPP TS 29.500 [4] shall be supported for an HTTP method if the corresponding HTTP status codes are specified as mandatory for that HTTP method in table 5.2.7.1-1 of 3GPP TS 29.500 [4].

In addition, the requirements in the following subclauses are applicable for the Nudr_DataRepository service API for Policy Data.

5.5.2 Protocol Errors

No specific procedures for the Nudr_DataRepository service API for Policy Data are specified.

5.5.3 Application Errors

The application errors defined for the Nudr_DataRepository service API for Policy Data are listed in table 5.5.3-1. The PCF shall include in the HTTP status code a "ProblemDetails" data structure with the "cause" attribute indicating the application error as listed in table 5.5.3-1.

Table 5.5.3-1: Application errors

Application Error	HTTP status code	Description

The application error handling shall follow 3GPP TS 29.504 [6] clause 6.1.6 unless explicitly specified in this document.

5.6 Feature negotiation

The optional features in table 6.1.8-1 of 3GPP TS 29.504 [6] are defined for the Nudr_DataRepository API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6 of 3GPP TS 29.500 [4].

6 Usage of Nudr_DataRepository Service API for Application Data

6.1 Introduction

The following subclauses specify the usage of Nudr_DataRepository service for application data. The principles specified in 3GPP TS 29.504 [6] are followed unless explicitly specified otherwise in the following subclauses.

6.2 Resources

6.2.1 Overview

This clause specifies the resources for the usage of the Unified Data Repository service for Application Data.

6.2.2   Resource Structure

```
{apiRoot}/nudr-dr/{apiVersion}
        │
        └──────── /application-data
                        │
                        ├──── /pfds
                        │         │
                        │         └──── /{appId}
                        │
                        ├──── /influenceData
                        │         │
                        │         ├──── /{influenceId}
                        │         │
                        │         └──── /subs-to-notify
                        │                   │
                        │                   └──── /{subscriptionId}
                        │
                        ├──── /iptvConfigData
                        │         │
                        │         └──── /{configurationId}
                        │
                        ├──── /bdtPolicyData
                        │         │
                        │         └──── /{bdtPolicyId}
                        │
                        └──── /subs-to-notify
                                  │
                                  └──── /{subsId}
```
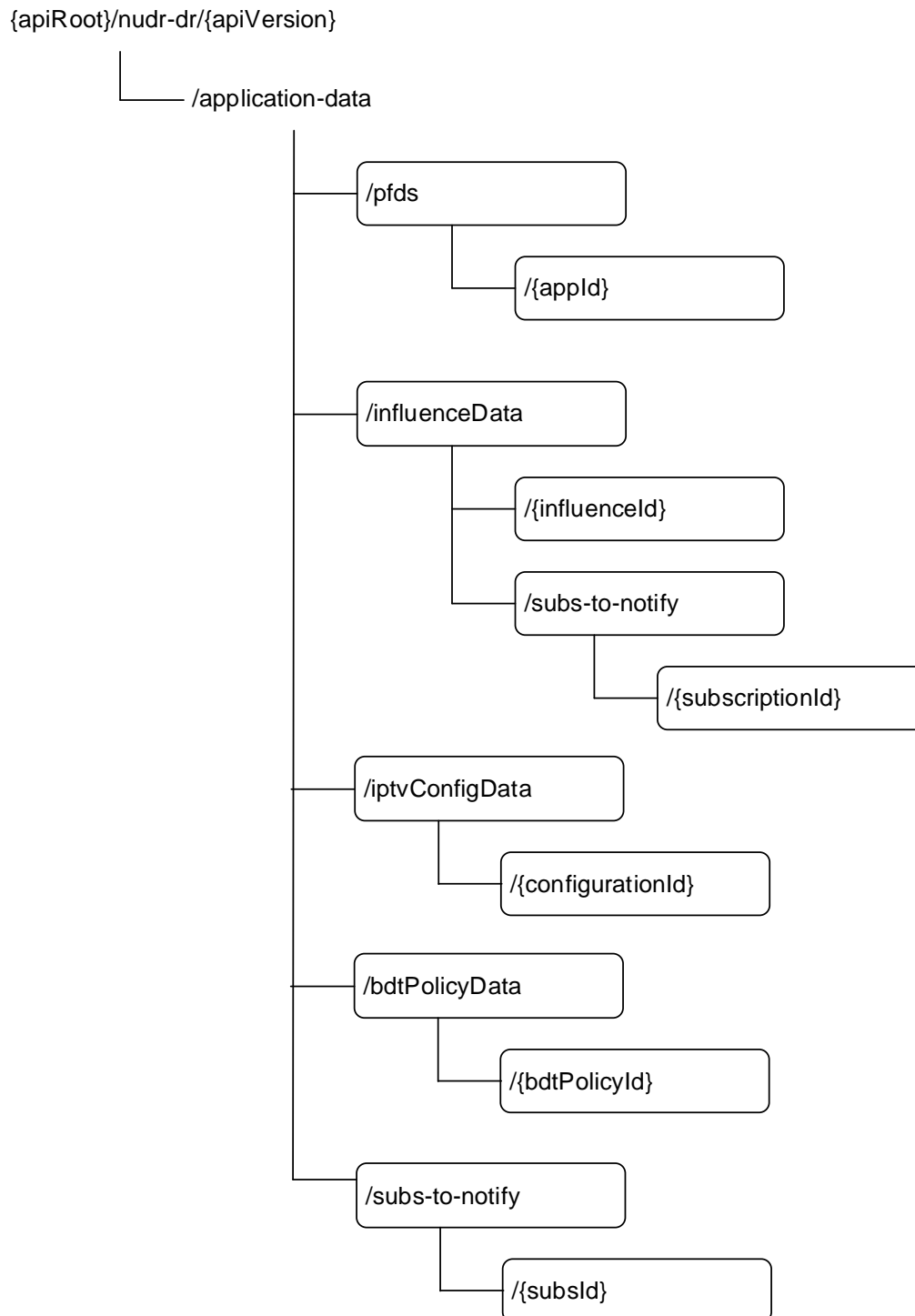
Figure 6.2.2-1: Resource URI structure of the Nudr_DataRepository API for application data

Table 6.2.2-1 provides an overview of the resources and applicable HTTP methods.

Table 6.2.2-1: Resources and methods overview

Resource name	Resource URI	HTTP method or custom operation	Description
PFD Data	{apiRoot}/nudr-dr/{apiVersion}/application-data/pfds	GET	Retrieve PFDs for application identifier(s) identified by query parameter(s). Retrieve PFDs for all application identifier(s) if no query parameter is included in the Request URI.
Individual PFD Data	{apiRoot}/nudr-dr/{apiVersion}/application-data/pfds/{appId}	GET	Retrieve the corresponding PFDs of the specified application identifier.
		DELETE	Delete the corresponding PFDs of the specified application identifier.
		PUT	Create or update the corresponding PFDs for the specified application identifier.
Influence Data	{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData	GET	Retrieve the Session Influence Data of given services, S-NSSAIs and DNNs or Internal Group Identifiers or SUPIs.
Individual Influence Data	{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/{influenceId}	PUT	Create an individual Influence Data resource identified by {influenceId}, or modify all of the properties of an individual Influence Data resource identified by {influenceId}.
		PATCH	Modify part of the properties of an individual Influence Data resource identified by {influenceId}.
		DELETE	Delete an individual Influence Data resource identified by {influenceId}.
Influence Data Subscription	{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/subs-to-notify	POST	Create a new Individual Influence Data Subscription resource.
		GET	Read subscriptions for a given S-NSSAI and DNN or Internal Group Identifier or SUPI.
Individual Influence Data Subscription	{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/subs-to-notify/{subscriptionId}	GET	Get an existing individual Influence Data Subscription resource identified by {subscriptionId}.
		PUT	Modify an existing individual Influence Data Subscription resource identified by {subscriptionId}.
		DELETE	Delete an individual Influence Data Subscription resource identified by {subscriptionId}.
Applied BDT Policy Data	{apiRoot}/nudr-dr/{apiVersion}/application-data/bdtPolicyData	GET	Retrieve the applied BDT policy data.
Individual Applied BDT Policy Data	{apiRoot}/nudr-dr/{apiVersion}/application-data/bdtPolicyData/{bdtPolicyId}	PUT	Create an individual applied BDT Policy Data resource identified by {bdtPolicyId}.
		PATCH	Modify BDT Reference Id of an individual applied BDT Policy Data resource identified by {bdtPolicyId}.
		DELETE	Delete an individual applied BDT Policy Data resource identified by {bdtPolicyId}.
IptvConfigurations	{apiRoot}/nudr-dr/{apiVersion}/application-data/iptvConfigData	GET	Retrieve IPTV configurations for configuration identifier(s), given S-NSSAI(s) and DNN(s), or SUPIs or Internal Group Identifiers
IndividualIptvConfiguration	{apiRoot}/nudr-dr/{apiVersion}/application-data/iptvConfigData/{configurationId}	PUT	Create an IndividualIptvConfiguration resource identified by {configurationId}, or modify all the properties of an Individual IPTV Configuration resource identified by {configurationId}.
		PATCH	Modify some properties of an Individual IPTV Configuration resource identified by {configurationId}.

		DELETE	Delete an Individual IPTV Configuration resource identified by {configurationId}
ApplicationDataSubs criptions	{apiRoot}/nudr-dr/{apiVersion}/ application-data/subs-to-notify	POST	Create a subscription to receive notification of application data changes.
		GET	Read all the subscriptions, or subscriptions for given S-NSSAI and DNN or Internal Group Identifier or SUPI.
IndividualApplication DataSubscription	{apiRoot}/nudr-dr/{apiVersion}/ application-data/subs-to-notify/ {subsId}	PUT	Modify a subscription to receive notification of application data changes.
		DELETE	Delete the subscription identified by {subsId}.
		GET	Read an existing individual Subscription resource identified by {subsId}.

6.2.3   Resource: PFD Data

6.2.3.1   Description

The PFD Data resource represents all the PFD Datas to the Nudr_DataRepository Service at a given UDR.

6.2.3.2   Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/pfds**

Table 6.2.3.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

6.2.3.3   Resource Standard Methods

6.2.3.3.1   GET

This method shall support the URI query parameters specified in table 6.2.3.3.1-1.

Table 6.2.3.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
appId	array(ApplicationId)	O	1..N	Contains the information of the application identifier(s) for the querying PFD Data resource. If none appId is included in the URI, it applies to all application identifier(s) for the querying PFD Data resource.

This method shall support the request data structures specified in table 6.2.3.3.1-2 and the response data structures and response codes specified in table 6.2.3.3.1-3.

Table 6.2.3.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.3.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(PfdDataForAppExt)	M	0..N	200 OK	A representation of PFDs for request applications is returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.4 Resource: Individual PFD Data

6.2.4.1 Description

The Individual PFD Data resource represents Individual PFD Datas to the Nudr_DataRepository Service at a given UDR.

6.2.4.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/pfds/{appId}**

This resource shall support the resource URI variables defined in table 6.2.4.2-1.

Table 6.2.4.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
appId	Indicates the application identifier for the request pfd(s). It shall be formatted as data type ApplicationId, see 3GPP TS 29.571 [7].

6.2.4.3 Resource Standard Methods

6.2.4.3.1 GET

This method shall support the URI query parameters specified in table 6.2.4.3.1-1.

Table 6.2.4.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.4.3.1-2 and the response data structures and response codes specified in table 6.2.4.3.1-3.

Table 6.2.4.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.4.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
PfdDataForAppExt	M	1	200 OK	A representation of PFDs for the request application identified by the application identifier is returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.4.3.2 DELETE

This method shall support the URI query parameters specified in table 6.2.4.3.2-1.

Table 6.2.4.3.2-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.4.3.2-2 and the response data structures and response codes specified in table 6.2.4.3.2-3.

Table 6.2.4.3.2-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.4.3.2-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No content	Successful case. The Individual PFD Data resource related to the application identifier was deleted.
NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.4.3.3 PUT

This method shall support the URI query parameters specified in table 6.2.4.3.3-1.

Table 6.2.4.3.3-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.4.3.3-2 and the response data structures and response codes specified in table 6.2.4.3.3-3.

Table 6.2.4.3.3-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
PfdDataForAppExt	M	1	Contains the information for the creation or modification of an individual PFD Data resource.

Table 6.2.4.3.3-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
PfdDataForAppExt	M	1	201 Created	The resource has been successfully created and a response body is returned containing a representation of the resource.
PfdDataForAppExt	M	1	200 OK	The resource has been successfully updated and a response body is returned containing a representation of the resource.
n/a			204 No Content	The resource has been successfully updated.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.5 Resource: Influence Data

6.2.5.1 Description

The Influence Data resource represents a Traffic Influence Data to the Nudr_DataRepository Service at a given UDR.

6.2.5.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData**

This resource shall support the resource URI variables defined in table 6.2.5.2-1.

Table 6.2.5.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

6.2.5.3 Resource Standard Methods

6.2.5.3.1 GET

This method shall support the URI query parameters specified in table 6.2.5.3.1-1.

Table 6.2.5.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
influence-Ids	array(string)	O	1..N	Each element identifies a service.
dnns	array(Dnn)	O	1..N	Each element identifies a DNN.
snssais	array(Snssai)	O	1..N	Each element identifies a slice.
internal-Group-Ids	array(string)	O	1..N	Each element identifies a group of users.
supis	array(Supi)	O	1..N	Each element identifies a user.
supp-feat	SupportedFeatures	O	0..1	Identifies the features supported by the NF service consumer.
NOTE: At least one of the "influence-Ids", "dnns", "snssais", "internal-Groups-Ids" or "supis" attributes shall be provided.				

This method shall support the request data structures specified in table 6.2.5.3.1-2 and the response data structures and response codes specified in table 6.2.5.3.1-3.

Table 6.2.5.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.5.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(TrafficInfluData)	M	0..N	200 OK	The Traffic Influence Data stored in the UDR are returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.6   Resource: Individual Influence Data

6.2.6.1   Description

The Individual Influence Data resource represents an Individual Traffic Influence Data to the Nudr_DataRepository Service at a given UDR.

6.2.6.2   Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/{influenceId}**

This resource shall support the resource URI variables defined in table 6.2.6.2-1.

Table 6.2.6.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
influenceId	The Identifier of an Individual Influence Data to be updated. It shall apply the format of Data type string. To enable the value to be used as part of a URI, the string shall only contain allowed characters according to the "lower-with-hyphen" naming convention defined in subclause 5.1.3 of 3GPP TS 29.501 [5].

6.2.6.3   Resource Standard Methods

6.2.6.3.1   PUT

This method shall support the URI query parameters specified in table 6.2.6.3.1-1.

Table 6.2.6.3.1-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 6.2.6.3.1-2 and the response data structures and response codes specified in table 6.2.6.3.1-3.

Table 6.2.6.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
TrafficInfluData	M	1	The Traffic Influence Data to be stored in the UDR.

Table 6.2.6.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
TrafficInfluData	M	1	201 Created	The resource has been successfully created and a response body is returned containing a representation of the resource.
TrafficInfluData	M	1	200 OK	The resource has been successfully updated and a response body is returned containing a representation of the resource.
n/a			204 No Content	The resource has been successfully updated.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.6.3.2   PATCH

This method shall support the URI query parameters specified in table 6.2.6.3.2-1.

Table 6.2.6.3.2-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.2.6.3.2-2 and the response data structures and response codes specified in table 6.2.6.3.2-3.

Table 6.2.6.3.2-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
TrafficInfluDataPatch	M	1	The Traffic Influence Data to be updated in the UDR.

Table 6.2.6.3.2-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
TrafficInfluData	M	1	200 OK	The update of an Individual Traffic Influence Data resource is confirmed and a response body containing Traffic Influence Data shall be returned.
n/a			204 No Content	The Individual Traffic Influence Data resource has been successfully updated.
NOTE: The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.6.3.3   DELETE

This method shall support the URI query parameters specified in table 6.2.6.3.3-1.

Table 6.2.6.3.3-1: URI query parameters supported by the DELETE method on this resource

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

This method shall support the request data structures specified in table 6.2.6.3.3-2 and the response data structures and response codes specified in table 6.2.6.3.3-3.

Table 6.2.6.3.3-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.6.3.3-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	The Individual Influence Data was deleted successfully.
NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.7   Resource: Influence Data Subscription

6.2.7.1   Description

The Influence Data Subscription resource represents all Influence Data subscriptions to the Nudr_DataRepository Service at a given UDR.

6.2.7.2   Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/subs-to-notify**

This resource shall support the resource URI variables defined in table 6.2.7.2-1.

Table 6.2.7.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

6.2.7.3   Resource Standard Methods

6.2.7.3.1   POST

This method shall support the URI query parameters specified in table 6.2.7.3.1-1.

Table 6.2.7.3.1-1: 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 6.2.7.3.1-2 and the response data structures and response codes specified in table 6.2.7.3.1-3.

Table 6.2.7.3.1-2: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
TrafficInfluSub	M	1	Parameters to register a subscription to Traffic Influence Data.

Table 6.2.7.3.1-3: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
TrafficInfluSub	M	1	201 Created	The subscription was created successfully.
NOTE: 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.				

6.2.7.3.2   GET

This method shall support the URI query parameters specified in table 6.2.7.3.2-1.

Table 6.2.7.3.2-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
dnn	Dnn	O	0..1	Identifies a DNN.
snssai	Snssai	O	0..1	Identifies a slice.
internal-Group-Id	string	O	0..1	Identifies a group of users.(NOTE x)
supi	Supi	O	0..1	Identifies a user.
NOTE 1: At least one of the above attribute shall be provided. NOTE x: For the Traffic Influence Data applies to any UE, the "interGroupId" sets to "AnyUE".				

This method shall support the request data structures specified in table 6.2.7.3.2-2 and the response data structures and response codes specified in table 6.2.7.3.2-3.

Table 6.2.7.3.2-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.7.3.2-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(TrafficInfluSub)	M	0..N	200 OK	The subscription information as request in the request URI query parameter(s) are returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.8 Resource: Individual Influence Data Subscription

6.2.8.1 Description

The Individual Influence Data Subscription resource represents a single Influence Data subscription to the Nudr_DataRepository Service at a given UDR.

6.2.8.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/subs-to-notify/{subscriptionId}**

This resource shall support the resource URI variables defined in table 6.2.8.2-1.

Table 6.2.8.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
subscriptionId	String identifying an Individual Influence Data Subscription resource. To enable the value to be used as part of a URI, the string shall only contain allowed characters according to the "lower-with-hyphen" naming convention defined in subclause 5.1.3 of 3GPP TS 29.501 [5].

6.2.8.3 Resource Standard Methods

6.2.8.3.1 GET

This method shall support the URI query parameters specified in table 6.2.8.3.1-1.

Table 6.2.8.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.8.3.1-2 and the response data structures and response codes specified in table 6.2.8.3.1-3.

Table 6.2.8.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.8.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
TrafficInfluSub	M	1	200 OK	The subscription information is returned.

6.2.8.3.2   PUT

This method shall support the URI query parameters specified in table 6.2.8.3.2-1.

Table 6.2.8.3.2-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.8.3.2-2 and the response data structures and response codes specified in table 6.2.8.3.2-3.

Table 6.2.8.3.2-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
TrafficInfluSub	M	1	Modify an existing subscription to Traffic Influence Data.

Table 6.2.8.3.2-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
TrafficInfluSub	M	1	200 OK	The subscription was updated successfully.
n/a			204 No Content	The subscription has been successfully updated.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.8.3.3   DELETE

This method shall support the URI query parameters specified in table 6.2.8.3.3-1.

Table 6.2.8.3.3-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.8.3.3-2 and the response data structures and response codes specified in table 6.2.8.3.3-3.

Table 6.2.8.3.3-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.8.3.3-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	The subscription was terminated successfully.
NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.9 Resource: Applied BDT Policy Data

6.2.9.1 Description

The Applied BDT Policy Data resource represents an applied BDT Policy Data to the Nudr_DataRepository Service at a given UDR.

6.2.9.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/bdtPolicyData**

This resource shall support the resource URI variables defined in table 6.2.9.2-1.

Table 6.2.9.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

6.2.9.3 Resource Standard Methods

6.2.9.3.1 GET

This method shall support the URI query parameters specified in table 6.2.9.3.1-1.

Table 6.2.9.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
bdt-policy-ids	array(string)	O	1..N	Each element identifies a service.
Internal-group-ids	array(string)	O	1..N	Each element identifies a group of users.
supis	array(Supi)	O	1..N	Each element identifies a user.

This method shall support the request data structures specified in table 6.2.9.3.1-2 and the response data structures and response codes specified in table 6.2.9.3.1-3.

Table 6.2.9.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.9.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(BdtPolicyData)	M	0..N	200 OK	The applied BDT Policy Data stored in the UDR are returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.10 Resource: Individual Applied BDT Policy Data

6.2.10.1 Description

The Individual Applied BDT Policy Data resource represents an Individual Applied BDT Policy Data to the Nudr_DataRepository Service at a given UDR.

6.2.10.2　Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/bdtPolicyData/{bdtPolicyId}**

This resource shall support the resource URI variables defined in table 6.2.10.2-1.

Table 6.2.10.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
bdtPolicyId	The Identifier of an Individual BDT Policy Data to be updated. It shall apply the format of Data type string. To enable the value to be used as part of a URI, the string shall only contain allowed characters according to the "lower-with-hyphen" naming convention defined in subclause 5.1.3 of 3GPP TS 29.501 [5].

6.2.10.3　Resource Standard Methods

6.2.10.3.1　PUT

This method shall support the URI query parameters specified in table 6.2.10.3.1-1.

Table 6.2.10.3.1-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 6.2.10.3.1-2 and the response data structures and response codes specified in table 6.2.10.3.1-3.

Table 6.2.10.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
BdtPolicyData	M	1	The applied BDT Policy Data to be stored in the UDR.

Table 6.2.10.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
BdtPolicyData	M	1	201 Created	The resource has been successfully created and a response body is returned containing a representation of the resource.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.10.3.2　PATCH

This method shall support the URI query parameters specified in table 6.2.10.3.2-1.

Table 6.2.10.3.2-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.2.10.3.2-2 and the response data structures and response codes specified in table 6.2.10.3.2-3.

Table 6.2.10.3.2-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
BdtPolicyDataPatch	M	1	The applied BDT Policy Data to be updated in the UDR.

Table 6.2.10.3.2-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
BdtPolicyData	M	1	200 OK	The update of an applied BDT Policy Data resource is confirmed and a response body containing applied BDT Policy Data shall be returned.
n/a			204 No Content	The update of an applied BDT Policy Data resource is confirmed.
NOTE:	The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

6.2.10.3.3 DELETE

This method shall support the URI query parameters specified in table 6.2.10.3.3-1.

Table 6.2.10.3.3-1: URI query parameters supported by the DELETE method on this resource

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

This method shall support the request data structures specified in table 6.2.10.3.3-2 and the response data structures and response codes specified in table 6.2.10.3.3-3.

Table 6.2.10.3.3-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.10.3.3-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	The Individual Influence Data was deleted successfully.
NOTE:	The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

6.2.11 Resource: IptvConfigurations

6.2.11.1 Description

This resource allows the NF service consumer to read all active IPTV Configurations applicable for given configuration identifier(s), DNN(s) and/or S-NSSAI(s), SUPI(s) or Internal Group Identifier(s) stored at the UDR.

6.2.11.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/iptvConfigData**

This resource shall support the resource URI variables defined in table 6.2.11.2-1.

Table 6.2.11.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

6.2.11.3   Resource Standard Methods

6.2.11.3.1   GET

This method shall support the URI query parameters specified in table 6.2.11.3.1-1.

Table 6.2.11.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
config-ids	array(string)	O	1..N	Each element identifies a configuration.
dnns	array(Dnn)	O	1..N	Each element identifies a DNN.
snssais	array(Snssai)	O	1..N	Each element identifies a slice.
supi	array(Supi)	O	1..N	Each element identifies a SUPI.
inter-group-ids	array(string)	O	1..N	Each element identifies a group of users.
NOTE: At least one of the above attributes shall be provided.				

This method shall support the request data structures specified in table 6.2.11.3.1-2 and the response data structures and response codes specified in table 6.2.11.3.1-3.

Table 6.2.11.3.1-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.11.3.1-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(IptvConfigData)	M	0..N	200 OK	The IPTV configuration data stored in the UDR are returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.12   Resource: IndividualIptvConfiguration

6.2.12.1   Description

The resource allows the NF sevice consumer to modify or delete an existing Individual IPTV configuration Data.

6.2.12.2   Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/iptvConfigData/{configurationId}**

This resource shall support the resource URI variables defined in table 6.2.12.2-1.

Table 6.2.12.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
configurationId	The Identifier of an Individual IPTV Configuration to be updated. It shall apply the format of Data type string. To enable the value to be used as part of a URI, the string shall only contain allowed characters according to the "lower-with-hyphen" naming convention defined in subclause 5.1.3 of 3GPP TS 29.501 [5].

6.2.12.3 Resource Standard Methods

6.2.12.3.1 PUT

This method shall support the URI query parameters specified in table 6.2.12.3.1-1.

Table 6.2.12.3.1-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 6.2.12.3.1-2 and the response data structures and response codes specified in table 6.2.12.3.1-3.

Table 6.2.12.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
IptvConfigData	M	1	The IPTV configuration data to be stored in the UDR.

Table 6.2.12.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
IptvConfigData	M	1	201 Created	The resource has been successfully created and a response body is returned containing a representation of the resource.
IptvConfigData	M	1	200 OK	The resource has been successfully updated and a response body is returned containing a representation of the resource.
n/a			204 No Content	The resource has been successfully updated.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.12.3.2 DELETE

This method shall support the URI query parameters specified in table 6.2.12.3.2-1.

Table 6.2.12.3.2-1: URI query parameters supported by the DELETE method on this resource

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

This method shall support the request data structures specified in table 6.2.12.3.2-2 and the response data structures and response codes specified in table 6.2.12.3.2-3.

Table 6.2.12.3.2-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.12.3.2-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	The resource was deleted successfully.
NOTE:	The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

6.2.12.3.3 PATCH

This method shall support the URI query parameters specified in table 6.2.12.3.3-1.

Table 6.2.12.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.2.12.3.3-2 and the response data structures and response codes specified in table 6.2.12.3.3-3.

Table 6.2.12.3.3-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
IptvConfigDataPatch	M	1	The IPTV configuration related data to be updated in the UDR.

Table 6.2.12.3.3-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
IptvConfigData	M	1	200 OK	The resource has been successfully updated.
n/a			204 No Content	The resource has been successfully updated.
NOTE:	The mandatory HTTP error status codes for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

6.2.13 Resource: ApplicationDataSubscriptions

6.2.13.1 Description

This resource is used to represent subscriptions to notification of application data modification, e.g. PFD data change, IPTV configuration data change, BDT policy data change, but not for Traffic Influence Data.

6.2.13.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/subs-to-notify**

This resource shall support the resource URI variables defined in table 6.2.13.2-1.

Table 6.2.13.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

6.2.13.3 Resource Standard Methods

6.2.13.3.1 POST

This method shall support the URI query parameters specified in table 6.2.13.3.1-1.

Table 6.2.13.3.1-1: 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 6.2.13.3.1-2 and the response data structures and response codes specified in table 6.2.13.3.1-3.

Table 6.2.13.3.1-2: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
ApplicationDataSubs	M	1	Identifies the subscription to notification of application data modification.

Table 6.2.13.3.1-3: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
ApplicationDataSubs	M	1	201 Created	Upon success, a response body containing a representation of each Individual subscription resource shall be returned. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the created resource.
NOTE: 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.				

6.2.13.3.2 GET

This method shall support the URI query parameters specified in table 6.2.13.3.2-1.

Table 6.2.13.3.2-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
dnn	Dnn	O	0..1	Identifies a DNN.
snssai	Snssai	O	0..1	Identifies a slice.
internal-group-id	string	O	0..1	Identifies a group of users.
supi	Supi	O	0..1	Identifies a user.
data-inds	array(DataInd)	O	0..1	Each element indicates the data for query
NOTE: At least one of the above attribute shall be provided.				

Editor's Note: How the query parameters is structured to satisfy the need for different data subsets is FFS.

This method shall support the request data structures specified in table 6.2.13.3.2-2 and the response data structures and response codes specified in table 6.2.13.3.2-3.

Table 6.2.13.3.2-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.13.3.2-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
array(ApplicationDataSubs)	M	0..N	200 OK	The subscription information as request in the request URI query parameter(s) are returned.
NOTE: The mandatory HTTP error status codes for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.14 Resource: IndividualApplicationDataSubscription

6.2.14.1 Description

This resource is used to represent an individual subscription to notification of application data modification.

6.2.14.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/application-data/subs-to-notify/{subsId}**

This resource shall support the resource URI variables defined in table 6.2.14.2-1.

Table 6.2.14.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
subsId	The subsId identifies an individual application data subscription to notifications. The value is allocated by the UDR during creation of the ApplicationDataSubscriptions resource.

6.2.14.3 Resource Standard Methods

6.2.14.3.1 PUT

This method shall support the URI query parameters specified in table 6.2.14.3.1-1.

Table 6.2.14.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.14.3.1-2 and the response data structures and response codes specified in table 6.2.14.3.1-3.

Table 6.2.14.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
ApplicationDataSubs	M	1	Updates the subscription to notification of application data modification.

Table 6.2.14.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
ApplicationDataSubs	M	1	200 OK	The individual subscription resource was updated successfully.
n/a			204 No Content	The individual subscription resource was updated successfully and no additional content is to be sent in the response message.
NOTE: The mandatory HTTP error status codes for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.14.3.2 DELETE

This method shall support the URI query parameters specified in table 6.2.14.3.2-1.

Table 6.2.14.3.2-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.14.3.2-2 and the response data structures and response codes specified in table 6.2.14.3.2-3.

Table 6.2.14.3.2-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			The request body shall be empty.

Table 6.2.14.3.2-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon success, an empty response body shall be returned.
NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.2.14.3.3 GET

This method shall support the URI query parameters specified in table 6.2.14.3.3-1.

Table 6.2.14.3.3-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.2.14.3.3-2 and the response data structures and response codes specified in table 6.2.14.3.3-3.

Table 6.2.14.3.3-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 6.2.14.3.3-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
ApplicationDataSubs	M	1	200 OK	The subscription information is returned.

6.3 Notifications

6.3.1 General

Notifications shall comply with subclause 6.2 of 3GPP TS 29.500 [4] and subclause 4.6.2.3 of 3GPP TS 29.501 [5].

Table 6.3.1-1: Notifications

Custom operation URI	Mapped HTTP method	Description
{notificationUri}	POST	One of notification reference provided by the service consumer during the subscription of the AF Influence Data.

6.3.2 Void

6.3.3 Influence Data Update Notification

6.3.3.1 Description

The Influence Update Notification is used by the UDR to report one or several observed Influence Data(s) to a NF service consumer that has subscribed to such Notifications.

6.3.3.2 Operation Definition

The POST method shall be used for traffic influence data change notification and the URI shall be provided during the subscription procedure.

URI: **{notificationUri}**

This method shall support the URI query parameters specified in table 6.3.3.2-1.

Table 6.3.3.2-1: URI query parameters supported by the POST method

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.3.3.2-2 and the response data structures and response codes specified in table 6.3.3.2-3.

Table 6.3.3.2-2: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
array(TrafficInfluData)	M	1..N	Provides Information about observed Influence Data (s).

Table 6.3.3.2-3: 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.
NOTE: 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.				

6.3.4 Application Data Change Notification

The POST method shall be used for application data change notification and the URI shall be provided during the subscription procedure.

URI: **{notificationUri}**

This method shall support the URI query parameters specified in table 6.3.4-1.

Table 6.3.4-1: URI query parameters supported by the POST method

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 6.3.4-2 and the response data structures and response codes specified in table 6.3.4-3.

Table 6.3.4-2: Data structures supported by the POST Request Body

Data type	P	Cardinality	Description
array(ApplicationDataChangeNotif)	M	1..N	Notification of application data changes.

Table 6.3.4-3: Data structures supported by the POST Response Body

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	The reception of the notification is acknowledged.
NOTE: 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.				

6.4 Data Model

6.4.1 General

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

Table 6.4.1-1 specifies the data types defined for the Nudr_DataRepository Service API for Application Data service based interface protocol.

Table 6.4.1-1: Nudr_DataRepository specific Data Types for Application Data

Data type	Section defined	Description	Applicability
ApplicationDataSubs	6.4.2.10		
ApplicationDataChangeNotif	6.4.2.11		
BdtPolicyData	6.4.2.7	Contains applied BDT policy data.	EnhancedBackgroundDataTransfer
BdtPolicyDataPatch	6.4.2.8	Contains modification instructions to be performed on the applied BDT policy data.	EnhancedBackgroundDataTransfer
IptvConfigData	6.4.2.9	Represents IPTV configuration data information.	IptvConfigData
PfdDataForAppExt	6.4.2.6	The PFDs and related data for the application	
TrafficInfluData	6.4.2.2	Contains traffic influence data.	
TrafficInfluDataPatch	6.4.2.3	Contains modification instructions to be performed on the traffic influence data.	
TrafficInfluSub	6.4.2.4	Contains traffic influence subscription data.	

Table 6.4.1-2 specifies data types re-used by the Nudr_DataRepository Service API for Application Data 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 Nudr_DataRepository Service API for Application Data service based interface.

Table 6.4.1-2: Nudr_DataRepository re-used Data Types for Application Data

Data type	Reference	Comments	Applicability
ApplicationId	3GPP TS 29.571 [7]	Indicates an application identifier.	
BdtReferenceId	3GPP TS 29.122 [9]	Identifies a selected policy of background data transfer.	EnhancedBackgroundDataTransfer
DateTime	3GPP TS 29.571 [7]	Indicates a date and time.	
DnaiChangeType	3GPP TS 29.571 [7]	Describes the types of DNAI change.	
Dnn	3GPP TS 29.571 [7]	Identifies a Data Network Name.	
EthFlowDescription	3GPP TS 29.514 [16]	Contains the Ethernet data flow information.(NOTE)	
FlowInfo	3GPP TS 29.122 [9]	Contains the flow information.	
MulticastAccessControl	3GPP TS 29.522 [19]	Represents the multicast access control information.	
NetworkAreaInfo	3GPP TS 29.554 [13]	Describes a network area information.	
PfdChangeNotification	3GPP TS 29.551 [8]	Describes the PFD change.	
PfdChangeReport	3GPP TS 29.551 [8]	Describes errors that can occur during the PFD update notification.	
PfdDataForApp	3GPP TS 29.551 [8]	Identifies the PFDs for one application identifier.	
PfdSubscription	3GPP TS 29.551 [8]	Identifies the PFDs for subscription.	
RouteToLocation	3GPP TS 29.571 [7]	Identifies the N6 traffic routing requirement.	
Snssai	3GPP TS 29.571 [7]	Identifies a Single Network Slice Selection Assistance Information.	
SubscribedEvent	3GPP TS 29.522 [19]	Identified the type of UP path management events of which the AF requests to be notified.	
Supi	3GPP TS 29.571 [7]	Identifies a SUPI that shall contain either an IMSI or an NAI.	
SupportedFeatures	3GPP TS 29.571 [7]	Used to negotiate the applicability of the optional features.	
Uri	3GPP TS 29.571 [7]	Identifies a URI.	
NOTE: In order to support a set of MAC addresses with a specific range in the traffic filter, feature MacAddressRange as specified in clause 6.1.8 of TS 29.504 [6] shall be supported.			

6.4.2   Structured data types

6.4.2.1   Introduction

This subclause defines the structures to be used in resource representations.

6.4.2.2 Type TrafficInfluData

Table 6.4.2.2-1: Definition of type TrafficInfluData

Attribute name	Data type	P	Cardinality	Description	Applicability
upPathChgNotifCorr eId	string	C	0..1	Contains the Notification Correlation Id allocated by the NEF for the UP path change notification. It shall be included when the NEF requests the UP path change notification.	
appReloInd	boolean	O	0..1	Identifies whether an application can be relocated once a location of the application has been selected.	
afAppId	string	O	0..1	Identifies an application. (NOTE 1) (NOTE 3)	
dnn	Dnn	O	0..1	Identifies a DNN	
ethTrafficFilters	array(EthFlowDesc ription)	O	1..N	Identifies Ethernet packet filters. (NOTE 1) (NOTE 3)	
snssai	Snssai	O	0..1	The identification of slice.	
interGroupId	string	O	0..1	Identifies a group of users. (NOTE 2) (NOTE 3)(NOTE 5)	
supi	Supi	O	0..1	Identifies a user. (NOTE 2) (NOTE 3)	
trafficFilters	array(FlowInfo)	O	1..N	Identifies IP packet filters. (NOTE 1) (NOTE 3)	
trafficRoutes	array(RouteToLoca tion)	O	1..N	Identifies the N6 traffic routing requirement.	
validStartTime	DateTime	O	0..1	Identifies when the traffic routings start to be applicable. (NOTE 4)	
validEndTime	DateTime	O	0..1	Identifies when the traffic routings are not applicable. (NOTE 4)	
tempValidities	array(TemporalVali dity)	O	1..N	Indicates the time interval(s) during which the AF request is to be applied. (NOTE 4)	MultiTempora lCondition
nwAreaInfo	NetworkAreaInfo	O	0..1	Identifies a network area information that the request applies only to the traffic of UE(s) located in this specific zone.	
upPathChgNotifUri	Uri	C	0..1	Contains the URI where the NEF receives the UP path change notification. It shall be included when the NEF requests the UP path change notification.	
subscribedEvents	array(SubscribedE vent)	O	1..N	Identifies the requirement to be notified of the event(s).	
dnaiChgType	DnaiChangeType	O	0..1	Identifies a type of notification regarding UP path management event.	
afAckInd	boolean	O	0..1	Identifies whether the AF acknowledgement of UP path event notification is expected. Set to "true" if the AF acknowledgement is expected; otherwise set to "false". Default value is "false" if omitted.	URLLC
addrPreserInd	boolean	O	0..1	Indicates whether UE IP address should be preserved. This attribute shall set to "true" if preserved, otherwise, set to "false". Default value is false if omitted.	URLLC
supportedFeatures	SupportedFeatures	C	0..1	Indicates the list of negotiated supported features. This attribute shall be supplied by the UDR in the response to the PUT request when it was present in the PUT request and the UDR supports feature negotiation for Influence Data. This attribute shall be supplied by the UDR in the response to the GET request	

| | | | | when the GET request includes the "supp-feat" query parameter and the UDR supports feature negotiation for Influence Data. | |

NOTE 1: One of "afAppId", "trafficFilters" or "ethTrafficFilters" shall be included.
NOTE 2: Either "supi" or "interGroupId" shall be included.
NOTE 3: To indicate the deletion of a Traffic Individual Influence Data resource, only the appropriate combination of "supi" or "interGroupId", and "afAppId", "trafficFilters" or "ethTrafficFilters" that identify the resource shall be included. The rest of attributes shall be omitted.
NOTE 4: Properties "validStartTime" and "validEndTime" shall only be included for single temporal validity condition. Property "tempValidities" shall only be included for multiple temporal validity conditions when the feature MultiTemporalCondition is supported.
NOTE 5: If the Traffic Influence Data applies to any UE, then the "interGroupId" sets to "AnyUE".

6.4.2.3 Type TrafficInfluDataPatch

Table 6.4.2.3-1: Definition of type TrafficInfluDataPatch

Attribute name	Data type	P	Cardinality	Description	Applicability
upPathChgNotifCorrel d	string	O	0..1	Contains the Notification Correlation Id allocated by the NEF for the UP path change notification.	
appReloInd	boolean	O	0..1	Identifies whether an application can be relocated once a location of the application has been selected.	
dnn	Dnn	O	0..1	Identifies a DNN.	
snssai	Snssai	O	0..1	The identification of slice	
internalGroupId	string	O	0..1	Identifies a group of users.	
ethTrafficFilters	array(EthFlowDescription)	O	1..N	Identifies Ethernet packet filters.	
supi	Supi	O	0..1	Identifies a user.	
trafficFilters	array(FlowInfo)	O	1..N	Identifies IP packet filters	
trafficRoutes	array(RouteToLocation)	O	1..N	Identifies the N6 traffic routing requirement.	
validStartTime	DateTime	O	0..1	Identifies when the traffic routings start to be applicable.	
validEndTime	DateTime	O	0..1	Identifies when the traffic routings are not applicable.	
tempValidities	array(TemporalValidity)	O	1..N	Indicates the time interval(s) during which the AF request is to be applied.	MultiTemporalCondition
nwAreaInfo	NetworkAreaInfo	O	0..1	Identifies a network area information that the request applies only to the traffic of UE(s) located in this specific zone.	
upPathChgNotifUri	Uri	O	0..1	Contains the URI where the NEF receives the UP path change notification.	
afAckInd	boolean	O	0..1	Identifies whether the AF acknowledgement of UP path event notification is expected.	URLLC
addrPreserInd	boolean	O	0..1	Indicates UE IP address should be preserved.	URLLC

6.4.2.4 Type TrafficInfluSub

Table 6.4.2.4-1: Definition of type TrafficInfluSub

Attribute name	Data type	P	Cardinality	Description	Applicability
dnns	array(Dnn)	O	1..N	Each element identifies a DNN.	
snssais	array(Snssai)	O	1..N	Each element identifies a slice.	
internalGroupIds	array(string)	O	1..N	Each element identifies a group of users.(NOTE 2)	
supis	array(Supi)	O	1..N	Each element identifies the user.	
notificationUri	Uri	M	1	URI provided by the NF service consumer indicating where to receive the subscribed notifications from the UDR.	
expiry	DateTime	C	0..1	This IE shall be included in a subscription response if, based on operator policy and taking into account the expiry time included in the request, the UDR needs to include an expiry time. This IE may be included in a subscription request. When present, this IE shall represent the time after which the subscription becomes invalid. The absence of this attribute in the subscription response means the subscription to be valid without an expiry time.	
supportedFeatures	SupportedFeatures	O	0..1	Used to negotiate the applicability of the optional features. This attribute shall be provided in the POST request and in the response of successful resource creation.	
NOTE 1: At least one of "dnns", "snssais", "internalGroupIds" or "supis" shall be provided.					
NOTE 2: For the Traffic Influence Data applies to any UE, the "interGroupIds" needs to have an entry set to "AnyUE".					

6.4.2.5 Void

6.4.2.6 Type: PfdDataForAppExt

Table 6.4.2.6-1: Definition of type PfdDataForAppExt

Attribute name	Data type	P	Cardinality	Description	Applicability
suppFeat	SupportedFeatures	O	0..1	Used to negotiate the applicability of the optional features. This attribute shall be provided in the PUT request and in the response of successful resource creation.	
NOTE: This data type also contains all the properties defined for PfdDataForApp data type in 3GPP TS 29.551 [8].					

6.4.2.7 Type BdtPolicyData

Table 6.4.2.7-1: Definition of type BdtPolicyData

Attribute name	Data type	P	Cardinality	Description	Applicability
interGroupId	string	O	0..1	Identifies a group of users. (NOTE)	
supi	Supi	O	0..1	Identifies a user. (NOTE)	
bdfRefId	BdtReferenceId	M	1	Identifies a selected policy of background data transfer.	
dnn	Dnn	O	0..1	Identifies a DNN	
snssai	Snssai	O	0..1	The identification of slice.	
NOTE: Either "supi" or "interGroupId" shall be included.					

6.4.2.8 Type BdtPolicyDataPatch

Table 6.4.2.8-1: Definition of type TrafficInfluDataPatch

Attribute name	Data type	P	Cardinality	Description	Applicability
bdfRefId	BdtReferenceId	M	1	Identifies a selected policy of background data transfer.	

6.4.2.9 Type IptvConfigData

Table 6.4.2.9-1: Definition of type IptvConfigData

Attribute name	Data type	P	Cardinality	Description	Applicability
supi	Supi	C	0..1	Identifies a user. (NOTE)	
interGroupId	string	C	0..1	Identifies a group of users. (NOTE)	
dnn	Dnn	M	1	Identifies a DNN	
snssai	Snssai	M	1	The identification of slice.	
afAppId	string	M	1	Identifies an application.	
multiAccCtrls	array(MulticastAccessControl)	M	1..N	Identifies a list of multicast address access control information.	
NOTE: Either "supi" or "interGroupId" shall be included.					

Editor's Note: It's FFS whether other UE identifier (e.g. any UE indication) allowed to be included.

6.4.2.10 Type ApplicationDataSubs

Table 6.4.2.10-1: Definition of type ApplicationDataSubs

Attribute name	Data type	P	Cardinality	Description
notificationUri	Uri	M	1	URI provided by the NF service consumer indicating where to receive the subscribed notifications from the UDR.
dataFilters	array(DataFilter)	O	1..N	Each element identifies a data filter for subscription to data change.notification. If absent, the subscription applies to all data change notification except traffic influence data.
expiry	DateTime	C	0..1	This IE shall be included in a subscription response if, based on operator policy and taking into account the expiry time included in the request, the UDR needs to include an expiry time. This IE may be included in a subscription request. When present, this IE shall represent the time after which the subscription becomes invalid. The absence of this attribute in the subscription response means the subscription to be valid without an expiry time.
supportedFeatures	SupportedFeatures	C	0..1	Used to negotiate the applicability of the optional features. This attribute shall be provided in the POST request and in the response of successful resource creation.

6.4.2.11 Type ApplicationDataChangeNotif

Table 6.4.2.11-1: Definition of type ApplicationDataChangeNotif

Attribute name	Data type	P	Cardinality	Description	Applicability
iptvConfigData	string(FFS)	O	0..1	IPTV Configuration Data, if changed and notification was requested.	
pfdData	PfdChangeNotification	O	0..1	PFD Data, if changed and notification was requested.	

Editor's Note: the definition of ApplicationDataChangeNotif data type is FFS, which should be general for all data subsets under Application Data except Influence Data.

6.4.2.12 Type DataFilter

Table 6.4.2.12-1: Definition of type DataFilter

Attribute name	Data type	P	Cardinality	Description
dataInd	DataInd	M	1	Indicate the type of data.
dnns	array(Dnn)	O	1..N	Each element identifies a DNN.
snssais	array(Snssai)	O	1..N	Each element identifies a slice.
internalGroupIds	array(string)	O	1..N	Each element identifies a group of users.
supis	array(Supi)	O	1..N	Each element identifies the user.
NOTE: At least one of "dnns", "snssais", "internalGroupIds" or "supis" shall be provided.				

Editor's Note: the above table should be updated to cover all the scenario for subscription to application data change notification, except traffic influence data.

6.4.2.13 Type IptvConfigDataPatch

Table 6.4.2.13-1: Definition of type IptvConfigDataPatch

Attribute name	Data type	P	Cardinality	Description	Applicability
multiAccCtrls	map(MulticastAccessControl)	O	1..N	Identifies a list of multicast address access control information.	

6.4.3 Simple data types and enumerations

6.4.3.1 Introduction

This subclause defines simple data types and enumerations that can be referenced from data structures defined in the previous subclauses.

6.4.3.2 Simple data types

The simple data types defined in table 6.4.3.2-1 shall be supported.

Table 6.4.3.2-1: Simple data types

Type Name	Type Definition	Description	Applicability

6.4.3.3 Enumeration: DataInd

Table 6.4.3.3-1: Enumeration DataInd

Enumeration value	Description	Applicability
PFD	PFD data change notification	
IPTV	IPTV configuration data change notification	
BDT	BDT data change notification	

6.5 Error handling

6.5.1 General

HTTP error handling shall be supported as specified in subclause 5.2.4 of 3GPP TS 29.500 [4].

For the Nudr_DataRepository Service API for Application Data, HTTP error responses shall be supported as specified in subclause 4.8 of 3GPP TS 29.501 [5]. Protocol errors and application errors specified in table 5.2.7.2-1 of 3GPP TS 29.500 [4] shall be supported for an HTTP method if the corresponding HTTP status codes are specified as mandatory for that HTTP method in table 5.2.7.1-1 of 3GPP TS 29.500 [4]. In addition, the requirements in the following subclauses shall apply.

6.5.2 Protocol Errors

In this Release of the specification, there are no additional protocol errors applicable for the Nudr_DataRepository Service API for Application Data.

6.5.3 Application Errors

The application errors defined for the Nudr_DataRepository Service API for Application Data are listed in table 6.5.3-1. The PCF shall include in the HTTP status code a "ProblemDetails" data structure with the "cause" attribute indicating the application error as listed in table 6.5.3-1.

Table 6.5.3-1: Application errors

Application Error	HTTP status code	Description

The application error handling shall follow 3GPP TS 29.504 [6] clause 6.1.6 unless explicitly specified in this document.

6.6 Feature negotiation

The optional features in table 6.1.8-1 of 3GPP TS 29.504 [6] are defined for the Nudr_DataRepository API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6 of 3GPP TS 29.500 [4].

7 Usage of Nudr_DataRepository Service API for Structured Data for Exposure

7.1 Introduction

The following subclauses specify the usage of Nudr_DataRepository service for exposure data. The principles specified in 3GPP TS 29.504 [6] are followed unless explicitly specified otherwise in the following subclauses.

7.2 Resources

7.2.1 Overview

This clause specifies the resources for the usage of the Unified Data Repository service for Structured Data for Exposure.

7.2.2 Resource Structure

{apiRoot}/nudr-dr/{apiVersion}/exposure-data

```
                    ┌─────── /{ueId}
                    │           │
                    │           ├─── /access-and-mobility-data
                    │           │
                    │           └─── /session-management-data
                    │                       │
                    │                       └─── /{pduSessionId}
                    │
                    └─── /subs-to-notify
                                │
                                └─── /{subId}
```
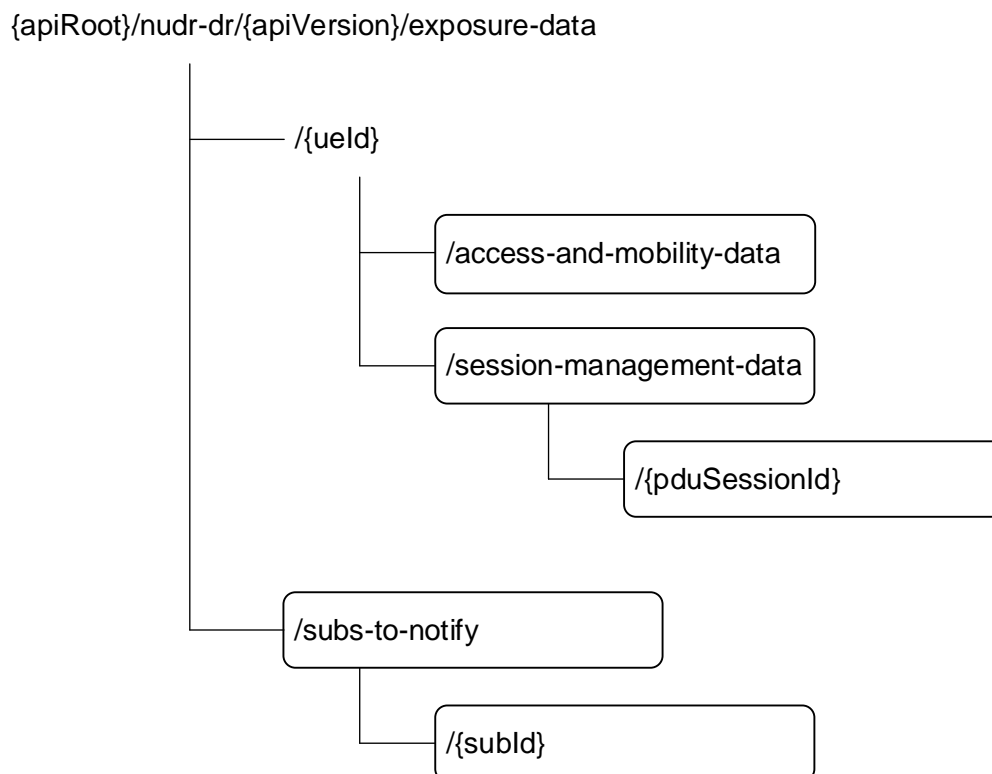
Figure 7.2.2-1: Resource URI structure of the Nudr_DataRepository API for exposure data

Table 7.2.2-1 provides an overview of the resources and applicable HTTP methods.

Table 7.2.2-1: Resources and methods overview

Resource name	Resource URI	HTTP method	Description
AccessAndMobility Data	{apiRoot}/nudr-dr/{apiVersion}/ exposure-data/{ueId}/ access-and-mobility-data	PUT	Creates and updates the access and mobility exposure data for a UE
		PATCH	Update the access and mobility exposure data for a UE.
		GET	Retrieves the access and mobility exposure data for a UE
		DELETE	Deletes the access and mobility exposure data for a UE
PduSessionManag ementData	{apiRoot}/nudr-dr/{apiVersion}/ exposure-data/{ueId}/ session-management-data/ {pduSessionId}	PUT	Creates and updates the session management data for a UE and for an individual PDU session
		GET	Retrieves the session management data for a UE and for an individual PDU session
		DELETE	Deletes the session management data for a UE and for an individual PDU session
ExposureDataSubs criptions	{apiRoot}/nudr-dr/{apiVersion}/ exposure-data/subs-to-notify	POST	Create a subscription to receive notification of exposure data changes.
IndividuaExposure DataSubscription	{apiRoot}/nudr-dr/{apiVersion}/ exposure-data/subs-to-notify/ {subId}	PUT	Modify a subscription to receive notification of exposure data changes.
		DELETE	Delete the subscription identified by {subsId}.

7.2.3   Resource: AccessAndMobilityData

7.2.3.1   Description

This resource represents the exposure data related to access and mobility.

7.2.3.2   Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/exposure-data/{ueId}/access-and-mobility-data**

This resource shall support the resource URI variables defined in table 7.2.3.2-1.

Table 7.2.3.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].

7.2.3.3   Resource Standard Methods

7.2.3.3.1   PUT

This method shall support the URI query parameters specified in table 7.2.3.3.1-1.

Table 7.2.3.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.3.3.1-2 and the response data structures and response codes specified in table 7.2.3.3.1-3.

Table 7.2.3.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
AccessAndMobilityData	M	1	Access and mobility data for the UE is created.

Table 7.2.3.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
AccessAndMobilityData	M	1	201 Created	Upon success, a response body is returned containing a representation of the access and mobility data.
NOTE: The HTTP status code for the PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.3.3.2   GET

This method shall support the URI query parameters specified in table 7.2.3.3.2-1.

Table 7.2.3.3.2-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
supp-feat	SupportedFeatures	O	0..1	see 3GPP TS 29.500 [4] subclause 6.6.2 and 3GPP TS 29.571 [7].

This method shall support the request data structures specified in table 7.2.3.3.2-2 and the response data structures and response codes specified in table 7.2.3.3.2-3.

Table 7.2.3.3.2-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 7.2.3.3.2-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response codes	Description
AccessAndMobilityData	M	1	200 OK	The response body contains the access and mobility data.
NOTE: The HTTP status code for the GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.3.3.3 DELETE

This method shall support the URI query parameters specified in table 7.2.3.3.3-1.

Table 7.2.3.3.3-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.3.3.3-2 and the response data structures and response codes specified in table 7.2.3.3.3-3.

Table 7.2.3.3.3-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 7.2.3.3.3-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon success, an empty response body shall be returned.
NOTE: The HTTP status code for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.3.3.4 PATCH

This method shall support the URI query parameters specified in table 7.2.3.3.4-1.

Table 7.2.3.3.4-1: URI query parameters supported by the PATCH method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.3.3.4-2 and the response data structures and response codes specified in table 7.2.3.3.4-3.

Table 7.2.3.3.4-2: Data structures supported by the PATCH Request Body on this resource

Data type	P	Cardinality	Description
AccessAndMobilityData	M	1	Access and mobility data for the UE.

Table 7.2.3.3.4-3: Data structures supported by the PATCH Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon successful modification there is no body in the response message.
NOTE: The HTTP status code for the PATCH method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.4 Resource: PduSessionManagementData

7.2.4.1 Description

This resource represents the exposure data related to session and management data for a given subscriber and a given PDU session.

7.2.4.2 Resource definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/exposure-data/{ueId}/session-management-data/{pduSessionId}**

This resource shall support the resource URI variables defined in table 7.2.4.2-1.

Table 7.2.4.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
ueId	Represents the SUPI or GPSI, see the data type VarUeId as defined in 3GPP TS 29.571 [7].
pduSessionId	Identifies an individual PDU session, see the data type PduSessionId as defined in 3GPP TS 29.571 [7].

7.2.4.3 Resource Standard Methods

7.2.4.3.1 PUT

This method shall support the URI query parameters specified in table 7.2.4.3.1-1.

Table 7.2.4.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.4.3.1-2 and the response data structures and response codes specified in table 7.2.4.3.1-3.

Table 7.2.4.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
PduSessionManagementData	M	1	Session management data for a UE and a PDU session is created.

Table 7.2.4.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response Codes	Description
PduSessionManagementData	M	1	201 Created	Upon success, a response body is returned containing a representation of the session management data.
NOTE: The HTTP status code for the PUT method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.4.3.2 GET

This method shall support the URI query parameters specified in table 7.2.4.3.2-1.

Table 7.2.4.3.2-1: URI query parameters supported by the GET method on this resource

Name	Data type	P	Cardinality	Description
ipv4-addr	Ipv4Addr	O	0..1	UE IPv4 address.
ipv6-prefix	Ipv6Prefix	O	0..1	UE IPv6 prefix.
dnn	Dnn	O	0..1	Identifies a DNN.
fields	array(string)	C	1..N	When the NF consumer only retrieves a subset of the resource, the "fields" query parameter shall be included. The "fields" query parameter contains the pointers of the attribute(s) to be retrieved.
supp-feat	SupportedFeatures	O	0..1	see 3GPP TS 29.500 [4] subclause 6.6.2 and 3GPP TS 29.571 [7].

This method shall support the request data structures specified in table 7.2.4.3.2-2 and the response data structures and response codes specified in table 7.2.4.3.2-3.

Table 7.2.4.3.2-2: Data structures supported by the GET Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 7.2.4.3.2-3: Data structures supported by the GET Response Body on this resource

Data type	P	Cardinality	Response Codes	Description
PduSessionManagement Data	M	1	200 OK	The response body contains the session management data.
NOTE: The HTTP status code for the GET method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.4.3.3 DELETE

This method shall support the URI query parameters specified in table 7.2.4.3.3-1.

Table 7.2.4.3.3-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.4.3.3-2 and the response data structures and response codes specified in table 7.2.4.3.3-3.

Table 7.2.4.3.3-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			

Table 7.2.4.3.3-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon success, an empty response body shall be returned.
NOTE: The HTTP status code for the DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

7.2.5 Resource: ExposureDataSubscriptions

7.2.5.1 Description

This resource is used to represent subscriptions to notifications of exposure data modifications.

7.2.5.2 Resource Definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/exposure-data/subs-to-notify**

This resource shall support the resource URI variables defined in table 7.2.5.2-1.

Table 7.2.5.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.

7.2.5.3 Resource Standard Methods

7.2.5.3.1 POST

This method shall support the URI query parameters specified in table 7.2.5.3.1-1.

Table 7.2.5.3.1-1: 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 7.2.5.3.1-2 and the response data structures and response codes specified in table 7.2.5.3.1-3.

Table 7.2.5.3.1-2: Data structures supported by the POST Request Body on this resource

Data type	P	Cardinality	Description
ExposureDataSubscription	M	1	Identifies an individual subscription to notifications of exposure data modifications.

Table 7.2.5.3.1-3: Data structures supported by the POST Response Body on this resource

Data type	P	Cardinality	Response codes	Description
ExposureDataSubscription	M	1	201 Created	Upon success, a response body containing a representation of the Individual subscription resource shall be returned. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the created resource.
NOTE: 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.				

7.2.6 Resource: IndividualExposureDataSubscription

7.2.6.1 Description

This resource represents an individual subscription to notifications of exposure data modifications.

7.2.6.2 Resource Definition

Resource URI: **{apiRoot}/nudr-dr/{apiVersion}/exposure-data/subs-to-notify/{subId}**

This resource shall support the resource URI variables defined in table 7.2.6.2-1.

Table 7.2.6.2-1: Resource URI variables for this resource

Name	Definition
apiRoot	See 3GPP TS 29.504 [6] subclause 6.1.1.
apiVersion	See 3GPP TS 29.504 [6] subclause 6.1.1.
subId	The subId is a string that identifies an individual subscription to notifications. The value is allocated by the UDR during creation of the IndividualExposureDataSubscription resource.

7.2.6.3 Resource Standard Methods

7.2.6.3.1 PUT

This method shall support the URI query parameters specified in table 7.2.6.3.1-1.

Table 7.2.6.3.1-1: URI query parameters supported by the PUT method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.6.3.1-2 and the response data structures and response codes specified in table 7.2.6.3.1-3.

Table 7.2.6.3.1-2: Data structures supported by the PUT Request Body on this resource

Data type	P	Cardinality	Description
ExposureDataSubscription	M	1	Identifies an individual subscription to notifications of exposure data modifications.

Table 7.2.6.3.1-3: Data structures supported by the PUT Response Body on this resource

Data type	P	Cardinality	Response codes	Description
ExposureData Subscription	M	1	200 OK	The individual subscription resource was updated successfully and a body with the modified subscription to notifications about exposure data is returned.
n/a			204 No Content	The individual subscription resource was successfully modified.
NOTE:	The mandatory HTTP error status codes for the PUT method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

7.2.6.3.2 DELETE

This method shall support the URI query parameters specified in table 7.2.6.3.2-1.

Table 7.2.6.3.1-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	P	Cardinality	Description
n/a				

This method shall support the request data structures specified in table 7.2.6.3.2-2 and the response data structures and response codes specified in table 7.2.6.3.2-3.

Table 7.2.6.3.2-2: Data structures supported by the DELETE Request Body on this resource

Data type	P	Cardinality	Description
n/a			The request body shall be empty.

Table 7.2.6.3.2-3: Data structures supported by the DELETE Response Body on this resource

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon success, an empty response body shall be returned.
NOTE:	The mandatory HTTP error status codes for the DELETE method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.			

7.3 Data Model

7.3.1 General

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

Table 7.3.1-1 specifies the data types defined for the Nudr_DataRepository for Exposure Data service based interface protocol.

Table 7.3.1-1: Nudr_DataRepository specific Data Types for Exposure Data

Data type	Section defined	Description	Applicability
AccessAndMobilityData	7.3.2.2		
ExposureDataChangeNotification	7.3.2.5	Contains changed exposure data for one UE for which Notification was requested.	
ExposureDataSubscription	7.3.2.4	Subscription to Notifications about Exposure Data.	
PduSessionManagementData	7.3.2.3		
PduSessionStatus	7.3.3.3	Represents the state of the PDU session, i.e. active or released.	

Table 7.3.1-2 specifies data types re-used by the Nudr_DataRepository for Exposure Data 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 Nudr_DataRepository for Exposure Data service based interface.

Table 7.3.1-2: Nudr_DataRepository re-used Data Types for Exposure Data

Data type	Reference	Comments	Applicability
AccessType	3GPP TS 29.571 [7]	Identifies the access type, i.e. 3GPP access or Non-3GPP access.	
CmInfo	3GPP TS 29.518 [10]	Describes the connectivity management state of a UE.	
DateTime	3GPP TS 29.571 [7]		
Dnai	3GPP TS 29.571 [7]	Identifies a Data network access identifier.	
Dnn	3GPP TS 29.571 [7]	Identifies a Data Network Name.	
Ipv4Addr	3GPP TS 29.571 [7]	The IPv4 Address.	
Ipv6Prefix	3GPP TS 29.571 [7]	The Ipv6 Address Prefix.	
PduSessionId	3GPP TS 29.571 [7]	PDU Session Identifier	
PlmnId	3GPP TS 29.571 [7]	Identifies a PLMN.	
RatType	3GPP TS 29.571 [7]	Identifies a RAT type.	
RmInfo	3GPP TS 29.518 [10]	Describes the registration management state of a UE.	
RouteToLocation	3GPP TS 29.571 [7]	A traffic route to/from an DNAI.	
TimeZone	3GPP TS 29.571 [7]	Identifies a time zone.	
SmsSupport	3GPP TS 29.518 [10]	Indicates the supported SMS delivery of a UE.	
SupportedFeatures	3GPP TS 29.571 [7]	Used to negotiate the applicability of the optional features.	
UeReachability	3GPP TS 29.518 [10]	Describes the reachability of the UE.	
Uri	3GPP TS 29.571 [7]		
UserLocation	3GPP TS 29.571 [7]	Identifies the user location.	
VarUeId	3GPP TS 29.571 [7]	String represents the SUPI or GPSI.	

7.3.2   Structured data types

7.3.2.1   Introduction

This subclause defines the structures to be used in resource representations.

7.3.2.2 Type AccessAndMobilityData

Table 7.3.2.2-1: Definition of type AccessAndMobilityData

Attribute name	Data type	P	Cardinality	Description	Applicability
location	UserLocation	O	0..1	Current location for the UE, which can be a combination of E-UTRA, NR and non-3GPP access location.	
locationTs	DateTime	O	0..1	Indicates when the location was last updated.	
timeZone	TimeZone	O	0..1	Current time zone for the UE.	
timeZoneTs	DateTime	O	0..1	Indicates when the timeZone was last updated.	
accessType	AccessType	O	0..1	Current access type for the UE (3GPP access or non-3GPP access).	
accessTypeTs	DateTime	O	0..1	Indicates when the accessType was last updated.	
regStates	array(RmInfo)	O	1..N	Describes the registration management state of the UE.	
regStatesTs	DateTime	O	0..1	Indicates when the regStates were last updated.	
connStates	array(CmInfo)	O	1..N	Describes the connectivity management state of the UE.	
connStatesTs	DateTime	O	0..1	Indicates when the connStates were last updated.	
reachabilityStatus	UeReachability	O	0..1	Describes the reachability of the UE.	
reachabilityStatusTs	DateTime	O	0..1	Indicates when the reachabilityStatus was last updated.	
smsOverNasStatus	SmsSupport	O	0..1	Indicates the supported SMS delivery of the UE.	
smsOverNasStatusTs	DateTime	O	0..1	Indicates when thesmsOverNasStatus was last updated.	
roamingStatus	boolean	O	0..1	True: The serving PLMN of the UE is different from the HPLMN of the UE; False: The serving PLMN of the UE is the HPLMN of the UE.	
roamingStatusTs	DateTime	O	0..1	Indicates when the roamingStatus was last updated.	
currentPlmn	PlmnId	O	0..1	The identity of the PLMN serving the UE.	
currentPlmnTs	DateTime	O	0..1	Indicates when the currentPlmn was last updated.	
ratTypes	array(RatType)	O	1..N	RAT type(s)	
ratTypesTs	DateTime	O	0..1	Indicates when the ratTypes was last updated.	

7.3.2.3 Type PduSessionManagementData

Table 7.3.2.3-1: Definition of type PduSessionManagementData

Attribute name	Data type	P	Cardinality	Description	Applicability
pduSessionStatus	PduSessionStatus	O	0..1	Status of the PDU session.	
pduSessionStatusTs	DateTime	O	0..1	Indicates when the pduSessionStatus was last updated.	
dnai	Dnai	O	0..1	DNAI	
dnaiTs	DateTime	O	0..1	Indicates when the dnai was last updated.	
n6TrafficRoutingInfo	array(RouteToLocation)	O	1..N	N6 traffic routing information.	
n6TrafficRoutingInfoTs	DateTime	O	0..1	Indicates when the n6TrafficRoutingInfo was last updated.	
ipv4Addr	Ipv4Addr	O	0..1	UE IPv4 address.	
ipv6Prefix	array(Ipv6Prefix)	O	1..N	UE IPv6 prefix.	
ipAddrTs	DateTime	O	0..1	Indicates when the ipv4Addr and Ipv6Prefix were last updated.	
dnn	Dnn	O	0..1	DNN	
pduSessionId	PduSessionId	O	0..1	The identifier of a PduSessionManagement resource. (NOTE).	ResourceNotificationExposureDataFix
NOTE:The "pduSessionId" attribute shall be present when the ResourceNotificationExposureDataFix is supported.					

7.3.2.4 Type ExposureDataSubscription

Table 7.3.2.4-1: Definition of type ExposureDataSubscription

Attribute name	Data type	P	Cardinality	Description
notificationUri	Uri	M	1	URI provided by the NF service consumer indicating where to receive to subscribed notifications from the UDR.
monitoredResourceUris	array(Uri)	M	1..N	A set of URIs that identify the resources for which a modification triggers a notification.
expiry	DateTime	C	0..1	This IE shall be included in a subscription response if, based on operator policy and taking into account the expiry time included in the request, the UDR needs to include an expiry time. This IE may be included in a subscription request. When present, this IE shall represent the time after which the subscription becomes invalid. The absence of this attribute in the subscription response means the subscription to be valid without an expiry time.
supportedFeatures	SupportedFeatures	C	0..1	Used to negotiate the applicability of the optional features. This attribute shall be provided in the POST request and in the response of successful resource creation.

7.3.2.5 Type ExposureDataChangeNotification

Table 7.3.2.5-1: Definition of type ExposureDataChangeNotification

Attribute name	Data type	P	Cardinality	Description	Applicability
ueId	VarUeId	O	0..1	User identity of modified data.	
accessAndMobilityData	AccessAndMobility Data	O	0..1	Access and Mobility Data for the UE.	
pduSessionManagement Data	array(PduSession ManagementData)	O	1..N	PDU Session Management Data for one or several PDU sessions of the UE.	
delResources	array(Uri)	O	1..N	The resources, as defined in table 7.2.2-1, if removed from UDR and notification on resource data change was requested. It may be present when the ResourceNotificationExposureData Fix is supported (NOTE).	
NOTE: When the "delResources" attribute is present, the attributes that correspond with the values included in the "delResources" attribute shall be omitted. I.e., when the "delResources" attribute includes the value "../{ueId}/access-and-mobility-data" the attribute "accessAndMobilityData" shall be omitted, and when the "delResources" attribute includes all the existing "../{ueId}/session-management-data/{pduSessionId}" resource URIs, the attribute "pduSessionManagementData" shall be omitted.					

7.3.3 Simple data types and enumerations

7.3.3.1 Introduction

This subclause defines simple data types and enumerations that can be referenced from data structures defined in the previous subclauses.

7.3.3.2 Simple data types

The simple data types defined in table 7.3.3.2-1 shall be supported.

Table 7.3.3.2-1: Simple data types

Type Name	Type Definition	Description	Applicability

7.3.3.3 Enumeration: PduSessionStatus

Table 7.3.3.3-1: Enumeration PduSessionStatus

Enumeration value	Description	Applicability
"ACTIVE"	The PDU session is active.	
"RELEASED"	The PDU session is released.	

7.4 Error handling

7.4.1 General

For the Nudr_DataRepository service API for Exposure Data, HTTP error responses shall be supported as specified in subclause 4.8 of 3GPP TS 29.501 [5]. Protocol errors and application errors specified in table 5.2.7.2-1 of 3GPP TS 29.500 [4] shall be supported for an HTTP method if the corresponding HTTP status codes are specified as mandatory for that HTTP method in table 5.2.7.1-1 of 3GPP TS 29.500 [4].

In addition, the requirements in the following subclauses are applicable for the Nudr_DataRepository service API for Exposure Data.

7.4.2   Protocol Errors

No specific procedures for the Nudr_DataRepository service API for Exposure Data are specified.

7.4.3   Application Errors

The application errors defined for the Nudr_DataRepository service API for Exposure Data are listed in table 7.4.3-1.

Table 7.4.3-1: Application errors

Application Error	HTTP status code	Description

The application error handling shall follow 3GPP TS 29.504 [6] clause 6.1.6 unless explicitly specified in this document.

7.5   Feature negotiation

The optional features in table 6.1.8-1 of 3GPP TS 29.504 [6] are defined for the Nudr_DataRepository API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6 of 3GPP TS 29.500 [4].

7.6   Notifications

7.6.1   General

Notifications shall comply with subclause 6.2 of 3GPP TS 29.500 [4] and subclause 4.6.2.3 of 3GPP TS 29.501 [5].

This subclause describes the resources to provide Notification to NF service consumers which have subscribed to be notified when exposure data is changed.

7.6.2   Exposure Data Change Notification

The POST method shall be used for Data Change Notifications and the URI shall be as provided during the subscription procedure.

Resource URI: {**notificationUri**}

Support of URI query parameters is specified in table 7.6.2-1.

Table 7.6.2-1: URI query parameters supported by the POST method

Name	Data type	P	Cardinality	Description
n/a				

Support of request data structures is specified in table 7.6.2-2 and of response data structures and response codes is specified in table 7.6.2-3.

Table 7.6.2-2: Data structures supported by the POST Request Body

Data type	P	Cardinality	Description
array(ExposureDataChange Notification)	M	1..N	Each element in the array provides the changed exposure data for one user.

Table7.6.2-3: Data structures supported by the POST Response Body

Data type	P	Cardinality	Response codes	Description
n/a			204 No Content	Upon success, an empty response body shall be returned.
NOTE: 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.				

Annex A (normative):
OpenAPI specification

A.1 General

The present Annex contains an OpenAPI [3] specification of HTTP messages and content bodies used by the Nudr_DataRepository service for Policy Data, Application Data and Exposure Data.

This Annex shall take precedence when being discrepant to other parts of the specification with respect to the encoding of information elements and methods.

NOTE 1: 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.

Informative copies of the OpenAPI specification files contained in this 3GPP Technical Specification are available on the public 3GPP file server in the following locations (see clause 5B of the 3GPP TR 21.900 [18] for further information):

- https://www.3gpp.org/ftp/Specs/archive/OpenAPI/<Release>/, and

- https://www.3gpp.org/ftp/Specs/<Plenary>/<Release>/OpenAPI/.

NOTE 2: To fetch the OpenAPI specification file after CT#83 plenary meeting for Release 15 in the above links <Plenary> must be replaced with the date the CT Plenary occurs, in the form of year-month (yyyy-mm), e.g. for CT#83 meeting <Plenary> must be replaced with value "2019-03" and <Release> must be replaced with value "Rel-15".

A.2 Nudr_DataRepository API for Policy Data

For the purpose of referencing entities in the Open API file defined in this Annex, it shall be assumed that this Open API file is contained in a physical file named "TS29519_Policy_Data.yaml".

```
openapi: 3.0.0
info:
  version: '-'
  title: Unified Data Repository Service API file for policy data
  description: |
    The API version is defined in 3GPP TS 29.504
    © 2019, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
externalDocs:
  description: 3GPP TS 29.519 V16.2.0; 5G System; Usage of the Unified Data Repository Service for
Policy Data, Application Data and Structured Data for Exposure.
  url: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.519/'

paths:
  /policy-data/ues/{ueId}/am-data:
    parameters:
     - name: ueId
       in: path
       required: true
       schema:
         $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
    get:
      summary: Retrieves the access and mobility policy data for a subscriber
      operationId: ReadAccessAndMobilityPolicyData
      tags:
        - AccessAndMobilityPolicyData (Document)
      responses:
        '200':
          description: Upon success, a response body containing access and mobility policies shall
be returned.
```

```
            content:
              application/json:
                schema:
                  $ref: '#/components/schemas/AmPolicyData'
          '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'

  /policy-data/ues/{ueId}/ue-policy-set:
    parameters:
      - name: ueId
        in: path
        required: true
        schema:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
    get:
      summary: Retrieves the UE policy set data for a subscriber
      operationId: ReadUEPolicySet
      tags:
        - UEPolicySet (Document)
      responses:
        '200':
          description: Upon success, a response body containing UE policies shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/UePolicySet'
        '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:
      summary: Create or modify the UE policy set data for a subscriber
      operationId: CreateOrReplaceUEPolicySet
      tags:
        - UEPolicySet (Document)
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/UePolicySet'
      responses:
        '201':
          description: Successful case. The resource has been successfully created and a response
body containing a representation of the created UEPolicySet resource shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/UePolicySet'
```

```
              headers:
                Location:
                  description: 'Contains the URI of the newly created resource'
                  required: true
                  schema:
                    type: string
          '200':
            description: Successful case. The resource has been successfully created and a response
body containing UE policies shall be returned.
            content:
              application/json:
                schema:
                  $ref: '#/components/schemas/UePolicySet'
          '204':
            description: Successful case. The resource has been successfully updated and no additional
content is to be sent in the response message.
          '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:
      summary: Modify the UE policy set data for a subscriber
      operationId: UpdateUEPolicySet
      tags:
        - UEPolicySet (Document)
      requestBody:
        content:
          application/merge-patch+json:
            schema:
              $ref: '#/components/schemas/UePolicySetPatch'
      responses:
        '204':
          description: Successful case. The resource has been successfully updated and no additional
content is to be sent in the response message.
        '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'

  /policy-data/ues/{ueId}/sm-data:
    get:
      summary: Retrieves the session management policy data for a subscriber
```

```
       operationId: ReadSessionManagementPolicyData
       tags:
         - SessionManagementPolicyData (Document)
       parameters:
        - name: ueId
          in: path
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
         - name: snssai
          in: query
          required: false
          content:
            application/json:
              schema:
                $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
         - name: dnn
          in: query
          required: false
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
         - name: fields
          in: query
          description: attributes to be retrieved
          required: false
          schema:
            type: array
            items:
              type: string
            minItems: 1
         - name: supp-feat
          in: query
          description: Supported Features
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
       responses:
         '200':
           description: Upon success, a response body containing SmPolicyData shall be returned.
           content:
             application/json:
               schema:
                 $ref: '#/components/schemas/SmPolicyData'
         '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'
         '414':
           $ref: 'TS29571_CommonData.yaml#/components/responses/414'
         '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:
     summary: Modify the session management policy data for a subscriber
     operationId: UpdateSessionManagementPolicyData
     tags:
       - SessionManagementPolicyData (Document)
     parameters:
      - name: ueId
        in: path
        required: true
        schema:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
     requestBody:
       content:
         application/merge-patch+json:
           schema:
             $ref: '#/components/schemas/SmPolicyDataPatch'
```

```
      responses:
        '204':
          description: Successful case. The resource has been successfully updated and no additional
content is to be sent in the response message.
        '200':
          description: Expected response to a valid request
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/SmPolicyData'
        '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'

  /policy-data/ues/{ueId}/sm-data/{usageMonId}:
    get:
      summary: Retrieve a usage monitoring resource
      operationId: ReadUsageMonitoringInformation
      tags:
        - UsageMonitoringInformation (Document)
      parameters:
        - name: ueId
          in: path
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
        - name: usageMonId
          in: path
          required: true
          schema:
            type: string
      responses:
        '200':
          description: Successful case. The usage monitoring data is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/UsageMonData'
        '204':
          description: The resource was found but no usage monitoring data is available.
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
        summary: Create a usage monitoring resource
        operationId: CreateUsageMonitoringResource
        tags:
          - UsageMonitoringInformation (Document)
        parameters:
         - name: ueId
           in: path
           required: true
           schema:
             $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
         - name: usageMonId
           in: path
           required: true
           schema:
             type: string
        requestBody:
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/UsageMonData'
        responses:
          '201':
            description: Successful case. The resource has been successfully created and a response
body is returned containing a representation of the resource.
            content:
              application/json:
                schema:
                  $ref: '#/components/schemas/UsageMonData'
            headers:
              Location:
                description: 'Contains the URI of the newly created resource'
                required: true
                schema:
                  type: string
          '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'
          '414':
            $ref: 'TS29571_CommonData.yaml#/components/responses/414'
          '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:
        summary: Delete a usage monitoring resource
        operationId: DeleteUsageMonitoringInformation
        tags:
          - UsageMonitoringInformation (Document)
        parameters:
         - name: ueId
           in: path
           required: true
           schema:
             $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
         - name: usageMonId
           in: path
           required: true
           schema:
             type: string
        responses:
          '204':
```

```
          description: Successful case. The resource has been successfully deleted.
        '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'

  /policy-data/sponsor-connectivity-data/{sponsorId}:
    parameters:
     - name: sponsorId
       in: path
       required: true
       schema:
         type: string
    get:
      summary: Retrieves the sponsored connectivity information for a given sponsorId
      operationId: ReadSponsorConnectivityData
      tags:
        - SponsorConnectivityData (Document)
      responses:
        '200':
          description: Upon success, a response body containing Sponsor Connectivity Data shall be
returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/SponsorConnectivityData'
        '204':
          description: The resource was found but no Sponsor Connectivity Data is available.
        '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'

  /policy-data/bdt-data:
    get:
      summary: Retrieves the BDT data collection
      operationId: ReadBdtData
      tags:
        - BdtData (Store)
      parameters:
        - name: bdt-ref-ids
          in: query
          description: List of the BDT reference identifiers.
          schema:
            type: array
            items:
              $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
            minItems: 1
          style: form
          explode: false
      responses:
        '200':
```

```
            description: Upon success, a response body containing the BDT data shall be returned.
            content:
              application/json:
                schema:
                  type: array
                  items:
                    $ref: '#/components/schemas/BdtData'
        '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'

  /policy-data/bdt-data/{bdtReferenceId}:
    parameters:
     - name: bdtReferenceId
       in: path
       required: true
       schema:
         type: string
    get:
      summary: Retrieves the BDT data information associated with a BDT reference Id
      operationId: ReadIndividualBdtData
      tags:
       - IndividualBdtData (Document)
      responses:
        '200':
          description: Upon success, a response body containing the BDT data shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/BdtData'
        '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:
      summary: Creates an BDT data resource associated with an BDT reference Id
      operationId: CreateIndividualBdtData
      tags:
       - IndividualBdtData (Document)
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/BdtData'
      responses:
        '201':
          description: Successful case. The resource has been successfully created.
          content:
            application/json:
```

```yaml
              schema:
                $ref: '#/components/schemas/BdtData'
            headers:
              Location:
                description: 'Contains the URI of the newly created resource'
                required: true
                schema:
                  type: string
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
      summary: Deletes an BDT data resource associated with an BDT reference Id
      operationId: DeleteIndividualBdtData
      tags:
        - IndividualBdtData (Document)
      responses:
        '204':
          description: Successful case. The resource has been successfully deleted.
        '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'

  /policy-data/subs-to-notify:
    post:
      summary: Create a subscription to receive notification of policy data changes
      operationId: CreateIndividualPolicyDataSubscription
      tags:
        - PolicyDataSubscriptions (Collection)
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/PolicyDataSubscription'
      responses:
        '201':
          description: Upon success, a response body containing a representation of each Individual
subscription resource shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/PolicyDataSubscription'
          headers:
            Location:
```

```
                    description: 'Contains the URI of the newly created resource'
                    required: true
                    schema:
                      type: string
                '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:
                  $ref: 'TS29571_CommonData.yaml#/components/responses/default'
          callbacks:
            policyDataChangeNotification:
              '{$request.body#/notificationUri}':
                post:
                  requestBody:
                    required: true
                    content:
                      application/json:
                        schema:
                          type: array
                          items:
                            $ref: '#/components/schemas/PolicyDataChangeNotification'
                          minItems: 1
                  responses:
                    '204':
                      description: No Content, Notification was successful
                    '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'

  /policy-data/subs-to-notify/{subsId}:
    parameters:
      - name: subsId
        in: path
        required: true
        schema:
          type: string
    put:
      summary: Modify a subscription to receive notification of policy data changes
      operationId: ReplaceIndividualPolicyDataSubscription
      tags:
        - IndividualPolicyDataSubscription (Document)
      requestBody:
```

```
            content:
              application/json:
                schema:
                  $ref: '#/components/schemas/PolicyDataSubscription'
        responses:
          '200':
            description: The individual subscription resource was updated successfully.
            content:
              application/json:
                schema:
                  $ref: '#/components/schemas/PolicyDataSubscription'
          '204':
            description: The individual subscription resource was updated successfully and no
additional content is to be sent in the response message.
          '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:
      summary: Delete the individual Policy Data subscription
      operationId: DeleteIndividualPolicyDataSubscription
      tags:
        - IndividualPolicyDataSubscription (Document)
      responses:
        '204':
          description: Upon success, an empty response body shall be returned.
        '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'

  /policy-data/ues/{ueId}/operator-specific-data:
    get:
      summary: Retrieve the operator specific policy data of an UE
      operationId: ReadOperatorSpecificData
      tags:
        - OperatorSpecificData (Document)
      parameters:
        - name: ueId
          in: path
          description: UE Id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
        - name: fields
          in: query
          description: attributes to be retrieved
          required: false
```

```
              schema:
                type: array
                items:
                  type: string
                minItems: 1
          - name: supp-feat
            in: query
            description: Supported Features
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
        responses:
          '200':
            description: Expected response to a valid request
            content:
              application/json:
                schema:
                  type: object
                  additionalProperties:
                    $ref:
'TS29505_Subscription_Data.yaml#/components/schemas/OperatorSpecificDataContainer'
          '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'
          '414':
            $ref: 'TS29571_CommonData.yaml#/components/responses/414'
          '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:
      summary: Modify the operator specific policy data of an UE
      operationId: UpdateOperatorSpecificData
      tags:
        - OperatorSpecificData (Document)
      parameters:
        - name: ueId
          in: path
          description: UE Id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
      requestBody:
        content:
          application/json-patch+json:
            schema:
              type: array
              items:
                $ref: 'TS29571_CommonData.yaml#/components/schemas/PatchItem'
        required: true
      responses:
        '204':
          description: No content. Response to successful modification.
        '200':
          description: Expected response to a valid request
          content:
            application/json:
              schema:
                $ref: 'TS29571_CommonData.yaml#/components/schemas/PatchResult'
        '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'
      put:
        summary: Modify the operator specific policy data of an UE
        operationId: ReplaceOperatorSpecificData
        tags:
          - OperatorSpecificData (Document)
        parameters:
          - name: ueId
            in: path
            description: UE Id
            required: true
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
        requestBody:
          required: true
          content:
            application/json:
              schema:
                type: object
                additionalProperties:
                  $ref:
'TS29505_Subscription_Data.yaml#/components/schemas/OperatorSpecificDataContainer'
        responses:
          '200':
            description: OK
            content:
              application/json:
                schema:
                  type: object
                  additionalProperties:
                    $ref:
'TS29505_Subscription_Data.yaml#/components/schemas/OperatorSpecificDataContainer'
          '204':
            description: The resource has been successfully updated.
          '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'
  /policy-data/plmns/{plmnId}/ue-policy-set:
    parameters:
      - name: plmnId
        in: path
        required: true
        schema:
          $ref: 'TS29505_Subscription_Data.yaml#/components/schemas/VarPlmnId'
    get:
      summary: Retrieve the UE policy set data for an H-PLMN
```

```
        operationId: ReadPlmnUePolicySet
        tags:
        - PlmnUePolicySet (Document)
        responses:
          '200':
            description: Upon success, a response body containing UE policies shall be returned.
            content:
              application/json:
                schema:
                  $ref: '#/components/schemas/UePolicySet'
          '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'
          '412':
            $ref: 'TS29571_CommonData.yaml#/components/responses/412'
          '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:
  schemas:
    AmPolicyData:
      description: Contains the AM policy data for a given subscriber.
      type: object
      properties:
        praInfos:
          type: object
          additionalProperties:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'
          minProperties: 1
        subscCats:
          type: array
          items:
            type: string
          minItems: 1
    UePolicySet:
      description: Contains the UE policy data for a given subscriber.
      type: object
      properties:
        praInfos:
          type: object
          additionalProperties:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'
          minProperties: 1
        subscCats:
          type: array
          items:
            type: string
          minItems: 1
        uePolicySections:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UePolicySection'
          minProperties: 1
        upsis:
          type: array
          items:
            type: string
          minItems: 1
        allowedRouteSelDescs:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/PlmnRouteSelectionDescriptor'
          minProperties: 1
        andspInd:
          type: boolean
        pei:
```

```
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Pei'
        osIds:
          type: array
          items:
            $ref: '#/components/schemas/OsId'
          minItems: 1
    UePolicySetPatch:
      description: Contains the UE policy set for a given subscriber.
      type: object
      properties:
        uePolicySections:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UePolicySection'
          minProperties: 1
        upsis:
          type: array
          items:
            type: string
          minItems: 1
        andspInd:
          type: boolean
        pei:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Pei'
        osIds:
          type: array
          items:
            $ref: '#/components/schemas/OsId'
          minItems: 1
    UePolicySection:
      description: Contains the UE policy section.
      type: object
      properties:
        uePolicySectionInfo:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
        upsi:
          type: string
      required:
        - uePolicySectionInfo
        - upsi
    SmPolicyData:
      description: Contains the SM policy data for a given subscriber.
      type: object
      properties:
        smPolicySnssaiData:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/SmPolicySnssaiData'
          minProperties: 1
        umDataLimits:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UsageMonDataLimit'
          minProperties: 1
        umData:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UsageMonData'
          minProperties: 1
        suppFeat:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      required:
        - smPolicySnssaiData
    SmPolicySnssaiData:
      description: Contains the SM policy data for a given subscriber and S-NSSAI.
      type: object
      properties:
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        smPolicyDnnData:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/SmPolicyDnnData'
          minProperties: 1
      required:
        - snssai
    SmPolicyDnnData:
      description: Contains the SM policy data for a given DNN (and S-NSSAI).
```

```
        type: object
        properties:
          dnn:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
          allowedServices:
            type: array
            items:
              type: string
            minItems: 1
          subscCats:
            type: array
            items:
              type: string
            minItems: 1
          gbrUl:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
          gbrDl:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
          adcSupport:
            type: boolean
          subscSpendingLimits:
            type: boolean
          ipv4Index:
            $ref: '#/components/schemas/IpIndex'
          ipv6Index:
            $ref: '#/components/schemas/IpIndex'
          offline:
            type: boolean
          online:
            type: boolean
          chfInfo:
            $ref: 'TS29512_Npcf_SMPolicyControl.yaml#/components/schemas/ChargingInformation'
          refUmDataLimitIds:
            type: object
            additionalProperties:
              $ref: '#/components/schemas/LimitIdToMonitoringKey'
            minProperties: 1
          mpsPriority:
            type: boolean
          mcsPriority:
            type: boolean
          imsSignallingPrio:
            type: boolean
          mpsPriorityLevel:
            type: integer
          mcsPriorityLevel:
            type: integer
          praInfos:
            type: object
            additionalProperties:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'
            minProperties: 1
          bdtRefIds:
            type: object
            additionalProperties:
              $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
              nullable: true
            minProperties: 1
            nullable: true
        required:
          - dnn
    UsageMonDataLimit:
      description: Contains usage monitoring control data for a subscriber.
      type: object
      properties:
        limitId:
          type: string
        scopes:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UsageMonDataScope'
          minProperties: 1
        umLevel:
          $ref: '#/components/schemas/UsageMonLevel'
        startDate:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        endDate:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
```

```
        usageLimit:
          $ref: 'TS29122_CommonData.yaml#/components/schemas/UsageThreshold'
        resetPeriod:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
      required:
        - limitId
    UsageMonData:
      description: Contains remain allowed usage data for a subscriber.
      type: object
      properties:
        limitId:
          type: string
        scopes:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UsageMonDataScope'
          minProperties: 1
        umLevel:
          $ref: '#/components/schemas/UsageMonLevel'
        allowedUsage:
          $ref: 'TS29122_CommonData.yaml#/components/schemas/UsageThreshold'
        resetTime:
          $ref: '#/components/schemas/TimePeriod'
      required:
        - limitId
    LimitIdToMonitoringKey:
      description: Contains the limit identifier and the corresponding monitoring key for a given S-
NSSAI and DNN.
      type: object
      properties:
        limitId:
          type: string
        monkey:
          type: array
          items:
            type: string
          minItems: 1
      required:
        - limitId
      nullable: true
    UsageMonDataScope:
      description: Contains a SNSSAI and DNN combinations to which the UsageMonData instance belongs
to.
      type: object
      properties:
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        dnn:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
          minItems: 1
      required:
        - snssai
    TimePeriod:
      description: Contains the periodicity for the defined usage monitoring data limits.
      type: object
      properties:
        period:
          $ref: '#/components/schemas/Periodicity'
        maxNumPeriod:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Uinteger'
      required:
        - period
    SponsorConnectivityData:
      description: Contains the sponsored data connectivity related information for a sponsor
identifier.
      type: object
      properties:
        aspIds:
          type: array
          items:
            type: string
      required:
        - aspIds
    BdtData:
      description: Contains the background data transfer data.
      type: object
```

```
          properties:
            aspId:
              type: string
            transPolicy:
              $ref: 'TS29554_Npcf_BDTPolicyControl.yaml#/components/schemas/TransferPolicy'
            bdtRefId:
              $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
            nwAreaInfo:
              $ref: 'TS29554_Npcf_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'
            numOfUes:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Uinteger'
            volPerUe:
              $ref: 'TS29122_CommonData.yaml#/components/schemas/UsageThreshold'
          required:
            - aspId
            - transPolicy
      PolicyDataSubscription:
        description: Identifies a subscription to policy data change notification.
        type: object
        properties:
          notificationUri:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
          monitoredResourceUris:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
          expiry:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
          supportedFeatures:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
        required:
          - notificationUri
          - monitoredResourceUris
      PolicyDataChangeNotification:
        description: Contains changed policy data for which notification was requested.
        type: object
        properties:
          amPolicyData:
            $ref: '#/components/schemas/AmPolicyData'
          uePolicySet:
            $ref: '#/components/schemas/UePolicySet'
          plmnUePolicySet:
            $ref: '#/components/schemas/UePolicySet'
          smPolicyData:
            $ref: '#/components/schemas/SmPolicyData'
          usageMonData:
            $ref: '#/components/schemas/UsageMonData'
          SponsorConnectivityData:
            $ref: '#/components/schemas/SponsorConnectivityData'
          bdtData:
            $ref: '#/components/schemas/BdtData'
          opSpecData:
            $ref: 'TS29505_Subscription_Data.yaml#/components/schemas/OperatorSpecificDataContainer'
          ueId:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
          sponsorId:
            type: string
          bdtRefId:
            $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
          usageMonId:
            type: string
          plmnId:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          delResources:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
            minItems: 1
      PlmnRouteSelectionDescriptor:
        description: Contains the route selection descriptors (combinations of SNSSAI, DNNs, PDU
  session types, and SSC modes) allowed by subscription to the UE for a serving PLMN
        type: object
        properties:
          servingPlmn:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          snssaiRouteSelDescs:
            type: array
            items:
```

```
              $ref: '#/components/schemas/SnssaiRouteSelectionDescriptor'
            minItems: 1
        required:
          - servingPlmn
    SnssaiRouteSelectionDescriptor:
      description: Contains the route selector parameters (DNNs, PDU session types and SSC modes)
per SNSSAI
      type: object
      properties:
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        dnnRouteSelDescs:
          type: array
          items:
            $ref: '#/components/schemas/DnnRouteSelectionDescriptor'
          minItems: 1
      required:
        - snssai
    DnnRouteSelectionDescriptor:
      description: Contains the route selector parameters (PDU session types and SSC modes) per DNN
      type: object
      properties:
        dnn:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        sscModes:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/SscMode'
          minItems: 1
        pduSessTypes:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionType'
          minItems: 1
      required:
        - dnn
    SmPolicyDataPatch:
      description: Contains the SM policy data for a given subscriber.
      type: object
      properties:
        umData:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/UsageMonData'
          minProperties: 1
          nullable: true
        smPolicySnssaiData:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/SmPolicySnssaiDataPatch'
          minProperties: 1
    SmPolicySnssaiDataPatch:
      description: Contains the SM policy data for a given subscriber and S-NSSAI.
      type: object
      properties:
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        smPolicyDnnData:
          type: object
          additionalProperties:
            $ref: '#/components/schemas/SmPolicyDnnDataPatch'
          minProperties: 1
      required:
        - snssai
    SmPolicyDnnDataPatch:
      description: Contains the SM policy data for a given DNN (and S-NSSAI).
      type: object
      properties:
        dnn:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        bdtRefIds:
          type: object
          additionalProperties:
            $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
            nullable: true
          minProperties: 1
          nullable: true
      required:
```

```
            - dnn
    IpIndex:
      type: integer
    OsId:
      type: string
      format: uuid
    UsageMonLevel:
      anyOf:
      - type: string
        enum:
          - SESSION_LEVEL
          - SERVICE_LEVEL
      - type: string
    Periodicity:
      anyOf:
      - type: string
        enum:
          - YEARLY
          - MONTHLY
          - WEEKLY
          - DAILY
          - HOURLY
      - type: string
```

A.3   Nudr_DataRepository API for Application Data

For the purpose of referencing entities in the Open API file defined in this Annex, it shall be assumed that this Open API file is contained in a physical file named "TS29519_Application_Data.yaml".

```
openapi: 3.0.0
info:
  version: '-'
  title: Unified Data Repository Service API file for Application Data
  description: |
    The API version is defined in 3GPP TS 29.504
    © 2019, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
externalDocs:
  description: 3GPP TS 29.519 V16.2.0; 5G System; Usage of the Unified Data Repository Service for
Policy Data, Application Data and Structured Data for Exposure.
  url: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.519/'

paths:
  /application-data/pfds:
    get:
      summary: Retrieve PFDs for application identifier(s)
      operationId: ReadPFDData
      tags:
        - PFD Data (Store)
      parameters:
        - name: appId
          in: query
          description: Contains the information of the application identifier(s) for the querying
PFD Data resource. If none appId is included in the URI, it applies to all application identifier(s)
for the querying PFD Data resource.
          required: false
          schema:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/ApplicationId'
            minItems: 1
      responses:
        '200':
          description: A representation of PFDs for request applications is returned.
          content:
            application/json:
              schema:
                type: array
                items:
                  $ref: '#/components/schemas/PfdDataForAppExt'
        '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'
               '414':
                 $ref: 'TS29571_CommonData.yaml#/components/responses/414'
               '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'
  /application-data/pfds/{appId}:
    get:
      summary: Retrieve the corresponding PFDs of the specified application identifier
      operationId: ReadIndividualPFDData
      tags:
        - Individual PFD Data (Document)
      parameters:
        - name: appId
          in: path
          description: Indicate the application identifier for the request pfd(s). It shall apply
the format of Data type ApplicationId.
          required: true
          schema:
            type: string
      responses:
        '200':
          description: A representation of PFDs for the request application identified by the
application identifier is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/PfdDataForAppExt'
        '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:
      summary: Delete the corresponding PFDs of the specified application identifier
      operationId: DeleteIndividualPFDData
      tags:
        - Individual PFD Data (Document)
      parameters:
        - name: appId
          in: path
          description: Indicate the application identifier for the request pfd(s). It shall apply
the format of Data type ApplicationId.
          required: true
          schema:
            type: string
      responses:
        '204':
          description: Successful case. The Individual PFD Data resource related to the application
identifier was deleted.
        '400':
          $ref: 'TS29571_CommonData.yaml#/components/responses/400'
        '401':
          $ref: 'TS29571_CommonData.yaml#/components/responses/401'
        '403':
          $ref: 'TS29571_CommonData.yaml#/components/responses/403'
```

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          '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'
    put:
      summary: Create or update the corresponding PFDs for the specified application identifier
      operationId: CreateOrReplaceIndividualPFDData
      tags:
        - Individual PFD Data (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/PfdDataForAppExt'
      parameters:
        - name: appId
          in: path
          description: Indicate the application identifier for the request pfd(s). It shall apply
the format of Data type ApplicationId.
          required: true
          schema:
            type: string
      responses:
        '201':
          description: The creation of an Individual PFD Data resource related to the application-
identifier is confirmed and a representation of that resource is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/PfdDataForAppExt'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource, according to the
structure: {apiRoot}/nudr-dr/{apiVersion}/application-data/pfds/{appId}'
              required: true
              schema:
                type: string
        '200':
          description: Successful case. The upgrade of an Individual PFD Data resource related to
the application identifier is confirmed and a representation of that resource is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/PfdDataForAppExt'
        '204':
          description: 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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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'
  /application-data/influenceData:
```

```
get:
  summary: Retrieve Traffic Influence Data
  operationId: ReadInfluenceData
  tags:
    - Influence Data (Store)
  parameters:
    - name: influence-Ids
      in: query
      description: Each element identifies a service.
      required: false
      schema:
        type: array
        items:
          type: string
        minItems: 1
    - name: dnns
      in: query
      description: Each element identifies a DNN.
      required: false
      schema:
        type: array
        items:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        minItems: 1
    - name: snssais
      in: query
      description: Each element identifies a slice.
      required: false
      content:
        application/json:
          schema:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
            minItems: 1
    - name: internal-Group-Ids
      in: query
      description: Each element identifies a group of users.
      required: false
      schema:
        type: array
        items:
          type: string
        minItems: 1
    - name: supis
      in: query
      description: Each element identifies the user.
      required: false
      schema:
        type: array
        items:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
        minItems: 1
    - name: supp-feat
      in: query
      description: Supported Features
      schema:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  responses:
    '200':
      description: The Traffic Influence Data stored in the UDR are returned.
      content:
        application/json:
          schema:
            type: array
            items:
              $ref: '#/components/schemas/TrafficInfluData'
    '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'
    '414':
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            $ref: 'TS29571_CommonData.yaml#/components/responses/414'
          '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'
  /application-data/influenceData/{influenceId}:
    put:
      summary: Create or update an individual Influence Data resource
      operationId: CreateOrReplaceIndividualInfluenceData
      tags:
        - Individual Influence Data (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/TrafficInfluData'
      parameters:
        - name: influenceId
          in: path
          description: The Identifier of an Individual Influence Data to be created or updated. It
shall apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '201':
          description: The creation of an Individual Traffic Influence Data resource is confirmed
and a representation of that resource is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/TrafficInfluData'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource, according to the
structure: {apiRoot}/nudr-dr/{apiVersion}/application-data/influenceData/{influenceId}'
              required: true
              schema:
                type: string
        '200':
          description: The update of an Individual Traffic Influence Data resource is confirmed and
a response body containing Traffic Influence Data shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/TrafficInfluData'
        '204':
          description: 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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
```

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      summary: Modify part of the properties of an individual Influence Data resource
      operationId: UpdateIndividualInfluenceData
      tags:
        - Individual Influence Data (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/TrafficInfluDataPatch'
      parameters:
        - name: influenceId
          in: path
          description: The Identifier of an Individual Influence Data to be updated. It shall apply
the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '200':
          description: The update of an Individual Traffic Influence Data resource is confirmed and
a response body containing Traffic Influence Data shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/TrafficInfluData'
        '204':
          description: 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'
    delete:
      summary: Delete an individual Influence Data resource
      operationId: DeleteIndividualInfluenceData
      tags:
        - Individual Influence Data (Document)
      parameters:
        - name: influenceId
          in: path
          description: The Identifier of an Individual Influence Data to be updated. It shall apply
the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '204':
          description: The Individual Influence Data was deleted successfully.
        '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'
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              '503':
                $ref: 'TS29571_CommonData.yaml#/components/responses/503'
              default:
                $ref: 'TS29571_CommonData.yaml#/components/responses/default'
  /application-data/influenceData/subs-to-notify:
    post:
      summary: Create a new Individual Influence Data Subscription resource
      operationId: CreateIndividualInfluenceDataSubscription
      tags:
        - Influence Data Subscriptions (Collection)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/TrafficInfluSub'
      responses:
        '201':
          description: The subscription was created successfully.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/TrafficInfluSub'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource'
              required: true
              schema:
                type: string
        '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:
          $ref: 'TS29571_CommonData.yaml#/components/responses/default'
      callbacks:
        trafficInfluenceDataChangeNotification:
          '{$request.body#/notificationUri}':
            post:
              requestBody:
                required: true
                content:
                  application/json:
                    schema:
                      type: array
                      items:
                        $ref: '#/components/schemas/TrafficInfluData'
                      minItems: 1
              responses:
                '204':
                  description: No Content, Notification was successful
                '400':
                  $ref: 'TS29571_CommonData.yaml#/components/responses/400'
                '403':
                  $ref: 'TS29122_CommonData.yaml#/components/responses/403'
                '404':
                  $ref: 'TS29122_CommonData.yaml#/components/responses/404'
                '411':
                  $ref: 'TS29571_CommonData.yaml#/components/responses/411'
                '413':
                  $ref: 'TS29571_CommonData.yaml#/components/responses/413'
                '415':
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                  $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:
      summary: Read Influence Data Subscriptions
      operationId: ReadInfluenceDataSubscriptions
      tags:
        - Influence Data Subscriptions (Collection)
      parameters:
        - name: dnn
          in: query
          description: Identifies a DNN.
          required: false
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        - name: snssai
          in: query
          description: Identifies a slice.
          required: false
          content:
            application/json:
              schema:
                $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        - name: internal-Group-Id
          in: query
          description: Identifies a group of users.
          required: false
          schema:
            $ref: 'TS29122_CommonData.yaml#/components/schemas/ExternalGroupId'
        - name: supi
          in: query
          description: Identifies a user.
          required: false
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
      responses:
        '200':
          description: The subscription information as request in the request URI query parameter(s)
are returned.
          content:
            application/json:
              schema:
                type: array
                items:
                  $ref: '#/components/schemas/TrafficInfluSub'
                minItems: 0
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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'
  /application-data/influenceData/subs-to-notify/{subscriptionId}:
    get:
      summary: Get an existing individual Influence Data Subscription resource
      operationId: ReadIndividualInfluenceDataSubscription
      tags:
        - Individual Influence Data Subscription (Document)
```

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      parameters:
        - name: subscriptionId
          in: path
          description: String identifying a subscription to the Individual Influence Data
Subscription
          required: true
          schema:
            type: string
      responses:
        '200':
          description: The subscription information is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/TrafficInfluSub'
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
      summary: Modify an existing individual Influence Data Subscription resource
      operationId: ReplaceIndividualInfluenceDataSubscription
      tags:
        - Individual Influence Data Subscription (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/TrafficInfluSub'
      parameters:
        - name: subscriptionId
          in: path
          description: String identifying a subscription to the Individual Influence Data
Subscription
          required: true
          schema:
            type: string
      responses:
        '200':
          description: The subscription was updated successfully.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/TrafficInfluSub'
        '204':
          description: 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':
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                  $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:
        summary: Delete an individual Influence Data Subscription resource
        operationId: DeleteIndividualInfluenceDataSubscription
        tags:
          - Individual Influence Data Subscription (Document)
        parameters:
          - name: subscriptionId
            in: path
            description: String identifying a subscription to the Individual Influence Data
Subscription
            required: true
            schema:
              type: string
        responses:
          '204':
              description: The subscription was terminated successfully.
          '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'
  /application-data/bdtPolicyData:
    get:
      summary: Retrieve applied BDT Policy Data
      operationId: ReadBdtPolicyData
      tags:
        - BdtPolicy Data (Store)
      parameters:
        - name: bdt-policy-ids
          in: query
          description: Each element identifies a service.
          required: false
          schema:
            type: array
            items:
              type: string
            minItems: 1
        - name: internal-group-ids
          in: query
          description: Each element identifies a group of users.
          required: false
          schema:
            type: array
            items:
              type: string
            minItems: 1
        - name: supis
          in: query
          description: Each element identifies the user.
          required: false
          schema:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
            minItems: 1
      responses:
        '200':
          description: The applied BDT policy Data stored in the UDR are returned.
          content:
            application/json:
```

```
                        schema:
                          type: array
                          items:
                            $ref: '#/components/schemas/BdtPolicyData'
                '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'
                '414':
                  $ref: 'TS29571_CommonData.yaml#/components/responses/414'
                '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'
  /application-data/bdtPolicyData/{bdtPolicyId}:
    put:
      summary: Create an individual applied BDT Policy Data resource
      operationId: CreateIndividualAppliedBdtPolicyData
      tags:
        - Individual BDT Policy Data (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/BdtPolicyData'
      parameters:
        - name: bdtPolicyId
          in: path
          description: The Identifier of an Individual Applied BDT Policy Data to be created or
updated. It shall apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '201':
          description: The creation of an Individual Applied BDT Policy Data resource is confirmed
and a representation of that resource is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/BdtPolicyData'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource, according to the
structure: {apiRoot}/nudr-dr/{apiVersion}/application-data/bdtPolicyData/{bdtPolicyId}'
              required: true
              schema:
                type: string
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
      summary: Modify part of the properties of an individual Applied BDT Policy Data resource
      operationId: UpdateIndividualAppliedBdtPolicyData
      tags:
        - Individual Applied BDT Policy Data (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/BdtPolicyDataPatch'
      parameters:
        - name: bdtPolicyId
          in: path
          description: The Identifier of an Individual Applied BDT Policy Data to be updated. It
shall apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '200':
          description: The update of an Individual Applied BDT Policy Data resource is confirmed and
a response body containing Applied BDT Policy Data shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/BdtPolicyData'
        '204':
          description: 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'
    delete:
      summary: Delete an individual Applied BDT Policy Data resource
      operationId: DeleteIndividualAppliedBdtPolicyData
      tags:
        - Individual Applied BDT Policy Data (Document)
      parameters:
        - name: bdtPolicyId
          in: path
          description: The Identifier of an Individual Applied BDT Policy Data to be updated. It
shall apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '204':
          description: The Individual Applied BDT Policy Data was deleted successfully.
        '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'

  /application-data/iptvConfigData:
    get:
      summary: Retrieve IPTV configuration Data
      operationId: ReadIPTVCongifurationData
      tags:
        - IPTV Configuration Data (Store)
      parameters:
        - name: config-ids
          in: query
          description: Each element identifies a configuration.
          required: false
          schema:
            type: array
            items:
              type: string
            minItems: 1
        - name: dnns
          in: query
          description: Each element identifies a DNN.
          required: false
          schema:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
            minItems: 1
        - name: snssais
          in: query
          description: Each element identifies a slice.
          required: false
          content:
            application/json:
              schema:
                type: array
                items:
                  $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
                minItems: 1
        - name: supis
          in: query
          description: Each element identifies the user.
          required: false
          schema:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
            minItems: 1
        - name: inter-group-ids
          in: query
          description: Each element identifies a group of users.
          required: false
          schema:
            type: array
            items:
              type: string
            minItems: 1
      responses:
        '200':
          description: The IPTV configuration data stored in the UDR are returned.
          content:
            application/json:
              schema:
                type: array
                items:
                  $ref: '#/components/schemas/IptvConfigData'
        '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'
            '414':
              $ref: 'TS29571_CommonData.yaml#/components/responses/414'
            '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'
  /application-data/iptvConfigData/{configurationId}:
    put:
      summary: Create or update an individual IPTV configuration resource
      operationId: CreateOrReplaceIndividualIPTVConfigurationData
      tags:
        - Individual IPTV Configuration Data (Document)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/IptvConfigData'
      parameters:
        - name: configurationId
          in: path
          description: The Identifier of an Individual IPTV Configuration Data to be created or
updated. It shall apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '201':
          description: The creation of an Individual IPTV Configuration Data resource is confirmed
and a representation of that resource is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/IptvConfigData'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource'
              required: true
              schema:
                type: string
        '200':
          description: The update of an Individual IPTV configuration resource.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/IptvConfigData'
        '204':
          description: 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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
      summary: Partial update an individual IPTV configuration resource
      operationId: PartialReplaceIndividualIPTVConfigurationData
      tags:
        - Individual IPTV Configuration Data
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/IptvConfigDataPatch'
      parameters:
        - name: configurationId
          in: path
          description: The Identifier of an Individual IPTV Configuration Data to be updated. It
shall apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '200':
          description: The update of an Individual IPTV configuration resource.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/IptvConfigData'
        '204':
          description: 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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
      summary: Delete an individual IPTV configuration resource
      operationId: DeleteIndividualIPTVConfigurationData
      tags:
        - Individual IPTV Configuration Data (Document)
      parameters:
        - name: configurationId
          in: path
          description: The Identifier of an Individual IPTV Configuration to be updated. It shall
apply the format of Data type string.
          required: true
          schema:
            type: string
      responses:
        '204':
          description: The resource was deleted successfully.
        '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'
  /application-data/subs-to-notify:
    post:
      summary: Create a subscription to receive notification of application data changes
      operationId: CreateIndividualApplicationDataSubscription
      tags:
        - ApplicationDataSubscriptions (Collection)
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/ApplicationDataSubs'
      responses:
        '201':
          description: Upon success, a response body containing a representation of each Individual
subscription resource shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ApplicationDataSubs'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource'
              required: true
              schema:
                type: string
        '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:
          $ref: 'TS29571_CommonData.yaml#/components/responses/default'
      callbacks:
        applicationDataChangeNotif:
          '{$request.body#/notificationUri}':
            post:
              requestBody:
                required: true
                content:
                  application/json:
                    schema:
                      type: array
                      items:
                        $ref: '#/components/schemas/ApplicationDataChangeNotif'
                      minItems: 1
              responses:
                '204':
                  description: No Content, Notification was successful
                '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:
          summary: Read Application Data change Subscriptions
          operationId: ReadApplicationDataChangeSubscriptions
          tags:
            - ApplicationDataSubscriptions (Collection)
          parameters:
            - name: dnn
              in: query
              description: Identifies a DNN.
              required: false
              schema:
                $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
            - name: snssai
              in: query
              description: Identifies a slice.
              required: false
              content:
                application/json:
                  schema:
                    $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
            - name: internal-group-id
              in: query
              description: Identifies a group of users.
              required: false
              schema:
                $ref: 'TS29122_CommonData.yaml#/components/schemas/ExternalGroupId'
            - name: supi
              in: query
              description: Identifies a user.
              required: false
              schema:
                $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
            - name: data-inds
              in: query
              required: false
              schema:
                type: array
                items:
                  $ref: '#/components/schemas/DataInd'
          responses:
            '200':
              description: The subscription information as request in the request URI query parameter(s)
    are returned.
              content:
                application/json:
                  schema:
                    type: array
                    items:
                      $ref: '#/components/schemas/ApplicationDataSubs'
                    minItems: 0
            '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'
            '414':
```

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                $ref: 'TS29571_CommonData.yaml#/components/responses/414'
            '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'

  /application-data/subs-to-notify/{subsId}:
    parameters:
      - name: subsId
        in: path
        required: true
        schema:
          type: string
    put:
      summary: Modify a subscription to receive notification of application data changes
      operationId: ReplaceIndividualApplicationDataSubscription
      tags:
        - IndividualApplicationDataSubscription (Document)
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/ApplicationDataSubs'
      responses:
        '200':
          description: The individual subscription resource was updated successfully.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ApplicationDataSubs'
        '204':
          description: The individual subscription resource was updated successfully and no
additional content is to be sent in the response message.
        '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:
      summary: Delete the individual Application Data subscription
      operationId: DeleteIndividualApplicationDataSubscription
      tags:
        - IndividualApplicationDataSubscription (Document)
      responses:
        '204':
          description: Upon success, an empty response body shall be returned.
        '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':
```

```yaml
              $ref: 'TS29571_CommonData.yaml#/components/responses/500'
            '503':
              $ref: 'TS29571_CommonData.yaml#/components/responses/503'
            default:
              $ref: 'TS29571_CommonData.yaml#/components/responses/default'
    get:
      summary: Get an existing individual Application Data Subscription resource
      operationId: ReadIndividualApplicationDataSubscription
      tags:
        - IndividualApplicationDataSubscription (Document)
      parameters:
        - name: subsId
          in: path
          description: String identifying a subscription to the Individual Application Data
Subscription
          required: true
          schema:
            type: string
      responses:
        '200':
          description: The subscription information is returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ApplicationDataSubs'
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
  schemas:
    TrafficInfluData:
      type: object
      properties:
        upPathChgNotifCorreId:
          type: string
          description: Contains the Notification Correlation Id allocated by the NEF for the UP path
change notification.
        appReloInd:
          type: boolean
          description: Identifies whether an application can be relocated once a location of the
application has been selected.
        afAppId:
          type: string
          description: Identifies an application.
        dnn:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        ethTrafficFilters:
          type: array
          items:
            $ref: 'TS29514_Npcf_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'
          minItems: 1
          description: Identifies Ethernet packet filters. Either "trafficFilters" or
"ethTrafficFilters" shall be included if applicable.
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        interGroupId:
          type: string
          description: Identifies a group of users.
        supi:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
```

```
      trafficFilters:
        type: array
        items:
          $ref: 'TS29122_CommonData.yaml#/components/schemas/FlowInfo'
        minItems: 1
        description: Identifies IP packet filters. Either "trafficFilters" or "ethTrafficFilters"
shall be included if applicable.
      trafficRoutes:
        type: array
        items:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/RouteToLocation'
        minItems: 1
        description: Identifies the N6 traffic routing requirement.
      validStartTime:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
      validEndTime:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
      tempValidities:
        type: array
        items:
          $ref: 'TS29514_Npcf_PolicyAuthorization.yaml#/components/schemas/TemporalValidity'
        minItems: 1
        description: Identifies the temporal validities for the N6 traffic routing requirement.
      nwAreaInfo:
        $ref: 'TS29554_Npcf_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'
      upPathChgNotifUri:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
      subscribedEvents:
        type: array
        items:
          $ref: 'TS29522_TrafficInfluence.yaml#/components/schemas/SubscribedEvent'
        minItems: 1
      dnaiChgType:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/DnaiChangeType'
      afAckInd:
        type: boolean
      addrPreserInd:
        type: boolean
      supportedFeatures:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    allOf:
      - oneOf:
        - required: [afAppId]
        - required: [trafficFilters]
        - required: [ethTrafficFilters]
      - oneOf:
        - required: [supi]
        - required: [interGroupId]
  TrafficInfluDataPatch:
    type: object
    properties:
      upPathChgNotifCorreId:
        type: string
        description: Contains the Notification Correlation Id allocated by the NEF for the UP path
change notification.
      appReloInd:
        type: boolean
        description: Identifies whether an application can be relocated once a location of the
application has been selected.
      dnn:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      ethTrafficFilters:
        type: array
        items:
          $ref: 'TS29514_Npcf_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'
        minItems: 1
        description: Identifies Ethernet packet filters. Either "trafficFilters" or
"ethTrafficFilters" shall be included if applicable.
      snssai:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      internalGroupId:
        type: string
        description: Identifies a group of users.
      supi:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
      trafficFilters:
        type: array
        items:
```

```
              $ref: 'TS29122_CommonData.yaml#/components/schemas/FlowInfo'
            minItems: 1
            description: Identifies IP packet filters. Either "trafficFilters" or "ethTrafficFilters"
shall be included if applicable.
          trafficRoutes:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/RouteToLocation'
            minItems: 1
            description: Identifies the N6 traffic routing requirement.
          validStartTime:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
          validEndTime:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
          tempValidities:
            type: array
            items:
              $ref: 'TS29514_Npcf_PolicyAuthorization.yaml#/components/schemas/TemporalValidity'
            minItems: 1
            nullable: true
            description: Identifies the temporal validities for the N6 traffic routing requirement.
          nwAreaInfo:
            $ref: 'TS29554_Npcf_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'
          upPathChgNotifUri:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
          afAckInd:
            type: boolean
          addrPreserInd:
            type: boolean
    TrafficInfluSub:
      type: object
      properties:
        dnns:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
          minItems: 1
          description: Each element identifies a DNN.
        snssais:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
          minItems: 1
          description: Each element identifies a slice.
        internalGroupIds:
          type: array
          items:
            type: string
          minItems: 1
          description: Each element identifies a group of users.
        supis:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
          minItems: 1
          description: Each element identifies the user.
        notificationUri:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
        expiry:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        supportedFeatures:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      required:
        - notificationUri
      oneOf:
        - required: [dnns]
        - required: [snssais]
        - required: [internalGroupIds]
        - required: [supis]
    PfdDataForAppExt:
      allOf:
        - $ref: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdDataForApp'
        - type: object
          properties:
            suppFeat:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    BdtPolicyData:
      type: object
```

```
      properties:
        interGroupId:
          type: string
          description: Identifies a group of users.
        supi:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
        bdtRefId:
          $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
        dnn:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      required:
       - bdtRefId
    BdtPolicyDataPatch:
      type: object
      properties:
        bdtRefId:
          $ref: 'TS29122_CommonData.yaml#/components/schemas/BdtReferenceId'
      required:
       - bdtRefId
    IptvConfigData:
      type: object
      properties:
        supi:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
        internalGroupId:
          type: string
          description: Identifies a group of users.
        dnn:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        snssai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        afAppId:
          type: string
        multiAccCtrls:
          type: array
          items:
            $ref: 'TS29522_IPTVConfiguration.yaml#/components/schemas/MulticastAccessControl'
      required:
       - dnn
       - snssai
       - afAppId
       - multiAccCtrls
      oneOf:
       - required: [internalGroupId]
       - required: [supi]
    IptvConfigDataPatch:
      type: object
      properties:
        multiAccCtrls:
          type: object
          additionalProperties:
            $ref: 'TS29522_IPTVConfiguration.yaml#/components/schemas/MulticastAccessControl'
          minProperties: 1
    ApplicationDataSubs:
      description: Identifies a subscription to application data change notification.
      type: object
      properties:
        notificationUri:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
        dataFilters:
          type: array
          items:
            $ref: '#/components/schemas/DataFilter'
          minItems: 1
        expiry:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        supportedFeatures:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      required:
       - notificationUri
    ApplicationDataChangeNotif:
      description: Contains changed application data for which notification was requested.
      type: object
      properties:
        iptvConfigData:
          type: string
```

```
          dataFilters:
            $ref: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdChangeNotification'
      DataFilter:
        description: Identifies a data filter.
        type: object
        properties:
          dataInd:
            type: array
            items:
              $ref: '#/components/schemas/DataInd'
            minItems: 1
          dnns:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
            minItems: 1
          snssais:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
            minItems: 1
          internalGroupIds:
            type: array
            items:
              type: string
            minItems: 1
          supis:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Supi'
            minItems: 1
        required:
          - dataInd
        oneOf:
          - required: [dnns]
          - required: [snssais]
          - required: [internalGroupIds]
          - required: [supis]
      DataInd:
        anyOf:
        - type: string
          enum:
            - PFD
            - IPTV
            - BDT
        - 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.
          description: >
            Possible values are
            - PFD
            - IPTV
            - BDT
```

A.4 Nudr_DataRepository API for Exposure Data

For the purpose of referencing entities defined in the Open API file defined in this Annex, it shall be assumed that this Open API file is contained in a physical file termed "TS29519_Exposure_Data.yaml".

```
openapi: 3.0.0
info:
  version: '-'
  title: Unified Data Repository Service API file for structured data for exposure
  description: |
    The API version is defined in 3GPP TS 29.504
    © 2019, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
externalDocs:
  description: 3GPP TS 29.519 V16.0.0; 5G System; Usage of the Unified Data Repository Service for
Policy Data, Application Data and Structured Data for Exposure.
  url: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.519/'

paths:
```

```
  /exposure-data/{ueId}/access-and-mobility-data:
    put:
      summary: Creates and updates the access and mobility exposure data for a UE
      operationId: CreateOrReplaceAccessAndMobilityData
      tags:
        - AccessAndMobilityData
      parameters:
        - name: ueId
          in: path
          description: UE id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/AccessAndMobilityData'
      responses:
        '201':
          description: Upon success, a response body is returned containing a representation of the
access and mobility data
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/AccessAndMobilityData'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource'
              required: true
              schema:
                type: string
        '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:
      summary: Retrieves the access and mobility exposure data for a UE
      operationId: QueryAccessAndMobilityData
      tags:
        - AccessAndMobilityData
      parameters:
        - name: ueId
          in: path
          description: UE id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
        - name: supp-feat
          in: query
          description: Supported Features
          schema:
             $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      responses:
        '200':
          description: The response body contains the access and mobility data
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/AccessAndMobilityData'
```

```
          '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'
          '414':
            $ref: 'TS29571_CommonData.yaml#/components/responses/414'
          '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:
      summary: Deletes the access and mobility exposure data for a UE
      operationId: DeleteAccessAndMobilityData
      tags:
        - AccessAndMobilityData
      parameters:
        - name: ueId
          in: path
          description: UE id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
      responses:
        '204':
          description: Upon success, an empty response body shall be returned
        '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'
    patch:
      summary: Updates the access and mobility exposure data for a UE
      operationId: UpdateAccessAndMobilityData
      tags:
        - AccessAndMobilityData
      parameters:
        - name: ueId
          in: path
          description: UE id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
      requestBody:
        content:
          application/merge-patch+json:
            schema:
              $ref: '#/components/schemas/AccessAndMobilityData'
      responses:
        '204':
          description: Successful case. The resource has been successfully updated and no additional
content is to be sent in the response message.
        '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'
  /exposure-data/{ueId}/session-management-data/{pduSessionId}:
    put:
      summary: Creates and updates the session management data for a UE and for an individual PDU
session
      operationId: CreateOrReplaceSessionManagementData
      tags:
        - PduSessionManagementData
      parameters:
        - name: ueId
          in: path
          description: UE id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
        - name: pduSessionId
          in: path
          description: PDU session id
          required: true
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
      requestBody:
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/PduSessionManagementData'
      responses:
        '201':
          description: Upon success, a response body is returned containing a representation of the
session management data
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/PduSessionManagementData'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource'
              required: true
              schema:
                type: string
        '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:
```

```
        summary: Retrieves the session management data for a UE and for an individual PDU session
        operationId: QuerySessionManagementData
        tags:
          - PduSessionManagementData
        parameters:
          - name: ueId
            in: path
            description: UE id
            required: true
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
          - name: pduSessionId
            in: path
            description: PDU session id
            required: true
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
          - name: ipv4-addr
            in: query
            description: IPv4 Address of the UE
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
          - name: ipv6-prefix
            in: query
            description: IPv6 Address Prefix of the UE
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
          - name: dnn
            in: query
            description: DNN of the UE
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
          - name: fields
            in: query
            description: attributes to be retrieved
            required: false
            schema:
              type: array
              items:
                type: string
              minItems: 1
          - name: supp-feat
            in: query
            description: Supported Features
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      responses:
        '200':
          description: The response body contains the session management data
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/PduSessionManagementData'
        '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'
        '414':
          $ref: 'TS29571_CommonData.yaml#/components/responses/414'
        '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:
      summary: Deletes the session management data for a UE and for an individual PDU session
      operationId: DeleteSessionManagementData
      tags:
        - PduSessionManagementData
```

```
        parameters:
          - name: ueId
            in: path
            description: UE id
            required: true
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
          - name: pduSessionId
            in: path
            description: PDU session id
            required: true
            schema:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
        responses:
          '204':
            description: Upon success, an empty response body shall be returned
          '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'
  /exposure-data/subs-to-notify:
    post:
      summary: Create a subscription to receive notification of exposure data changes
      operationId: CreateIndividualExposureDataSubscription
      tags:
        - ExposureDataSubscriptions (Collection)
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/ExposureDataSubscription'
      responses:
        '201':
          description: Created
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ExposureDataSubscription'
          headers:
            Location:
              description: 'Contains the URI of the newly created resource'
              required: true
              schema:
                type: string
        '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:
```

```
              $ref: 'TS29571_CommonData.yaml#/components/responses/default'
        callbacks:
          exposureDataChangeNotification:
            '{$request.body#/notificationUri}':
              post:
                requestBody:
                  required: true
                  content:
                    application/json:
                      schema:
                        type: array
                        items:
                          $ref: '#/components/schemas/ExposureDataChangeNotification'
                        minItems: 1
                responses:
                  '204':
                    description: No Content, Notification was successful
                  '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'
  /exposure-data/subs-to-notify/{subId}:
    put:
      summary: updates a subscription to receive notifications of exposure data changes
      operationId: ReplaceIndividualExposureDataSubscription
      tags:
        - IndividualExposureDataSubscription (Document)
      parameters:
        - name: subId
          in: path
          description: Subscription id
          required: true
          schema:
            type: string
      requestBody:
        required: true
        content:
          application/json:
            schema:
              $ref: '#/components/schemas/ExposureDataSubscription'
      responses:
        '200':
          description: Resource was successfully modified and a body with the modified subscription
to notifications about exposure data is returned..
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/ExposureDataSubscription'
        '204':
          description: The individual subscription resource was successfully modified.
        '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'
```

```yaml
          '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:
      summary: Deletes the individual Exposure Data subscription
      operationId: DeleteIndividualExposureDataSubscription
      tags:
        - IndividualExposureDataSubscription (Document)
      parameters:
        - name: subId
          in: path
          description: Subscription id
          required: true
          schema:
            type: string
      responses:
        '204':
          description: Resource was successfully deleted.
        '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:
  schemas:
    AccessAndMobilityData:
      type: object
      properties:
        location:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
        locationTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        timeZone:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
        timeZoneTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        accessType:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
        regStates:
          type: array
          items:
            $ref: 'TS29518_Namf_EventExposure.yaml#/components/schemas/RmInfo'
        regStatesTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        connStates:
          type: array
          items:
            $ref: 'TS29518_Namf_EventExposure.yaml#/components/schemas/CmInfo'
        connStatesTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        reachabilityStatus:
          $ref: 'TS29518_Namf_EventExposure.yaml#/components/schemas/UeReachability'
        reachabilityStatusTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        smsOverNasStatus:
          $ref: 'TS29518_Namf_Communication.yaml#/components/schemas/SmsSupport'
        smsOverNasStatusTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
```

```
          roamingStatus:
            type: boolean
            description: True  The serving PLMN of the UE is different from the HPLMN of the UE; False
The serving PLMN of the UE is the HPLMN of the UE.
          roamingStatusTs:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
          currentPlmn:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          currentPlmnTs:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
          ratType:
            type: array
            items:
              $ref: 'TS29571_CommonData.yaml#/components/schemas/RatType'
          ratTypesTs:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    PduSessionManagementData:
      type: object
      properties:
        pduSessionStatus:
          $ref: '#/components/schemas/PduSessionStatus'
        pduSessionStatusTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        dnai:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnai'
        dnaiTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        n6TrafficRoutingInfo:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/RouteToLocation'
        n6TrafficRoutingInfoTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        ipv4Addr:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
        ipv6Prefix:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
          minItems: 1
          description: UE IPv6 prefix.
        ipAddrTs:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        dnn:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        pduSessionId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    ExposureDataSubscription:
      type: object
      properties:
        notificationUri:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
        monitoredResourceUris:
          type: array
          items:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
          minItems: 1
        expiry:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        supportedFeatures:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      required:
        - notificationUri
        - monitoredResourceUris
    ExposureDataChangeNotification:
      type: object
      properties:
        ueId:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
        accessAndMobilityData:
          $ref: '#/components/schemas/AccessAndMobilityData'
        pduSessionManagementData:
          type: array
          items:
            $ref: '#/components/schemas/PduSessionManagementData'
          minItems: 1
        delResources:
          type: array
```

```
      items:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
      minItems: 1
PduSessionStatus:
  anyOf:
  - type: string
    enum:
      - "ACTIVE"
      - "RELEASED"
  - 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.
  description: >
    Possible values are
    - "ACTIVE"
    - "RELEASED"
```

Annex B (informative): Change history

Change history							
Date	Meeting #	TSG Doc.	CR	Rev	Cat	Subject/Comment	New
2018-01	CT3#94					TS skeleton of Usage of the Unified Data Repository service for Policy Data and Structured Data for exposure	0.0.0
2018-01	CT3#94					Inclusion of C3-180352, C3-180326, C3-180327	0.1.0
2018-03	CT3#95					Inclusion of C3-181145, C3-181288, C3-181289, C3-181313	0.2.0
2018-04	CT3#96					Inclusion of C3-182402, C3-182476, C3-182456, C3-182404, C3-182457, C3-182458	0.3.0
2018-05	CT3#97					Inclusion of C3-183872, C3-183705, C3-183704, C3-183873, C3-183732, C3-183706 C3-183874, C3-183709, C3-183876, C3-183263, C3-183877, C3-183712, C3-183715 and editorial changes by Rapporteur	0.4.0
2018-06	CT#80	CP-181033				TS sent to plenary for approval	1.0.0
2018-06	CT#80	CP-181033				TS approved by plenary	15.0.0
2018-09	CT#81	CP-182015	0006		F	Scope and Overview	15.1.0
2018-09	CT#81	CP-182015	0007		F	Introduction subclauses 5.1, 6.1 and 7.1	15.1.0
2018-09	CT#81	CP-182015	0008		F	Resource overview subclauses 5.2.1, 6.2.1 and 7.2.1	15.1.0
2018-09	CT#81	CP-182015	0009	3	F	Nudr reused data types	15.1.0
2018-09	CT#81	CP-182015	0010	6	B	AM policy data resource definition	15.1.0
2018-09	CT#81	CP-182015	0011	8	B	SM policy data resource definition	15.1.0
2018-09	CT#81	CP-182015	0012	3	B	Sponsored data connectivity profiles	15.1.0
2018-09	CT#81	CP-182015	0014	5	B	Background Data Transfer data	15.1.0
2018-09	CT#81	CP-182015	0015	4	B	Policy data change subcription	15.1.0
2018-09	CT#81	CP-182015	0016	5	B	Data change notification	15.1.0
2018-09	CT#81	CP-182015	0017	2	F	Error handling subcaluses	15.1.0
2018-09	CT#81	CP-182015	0018	1	F	Feature negotiation	15.1.0
2018-09	CT#81	CP-182015	0019	1	F	Resource PFD Datas and Data types definition	15.1.0
2018-09	CT#81	CP-182015	0020	1	F	OpenAPI schema for Policy Data	15.1.0
2018-09	CT#81	CP-182015	0021	3	F	Stage 2 Allignments for Structured Data for Exposure	15.1.0
2018-09	CT#81	CP-182015	0022	4	B	Subscription for Structured Data for Exposure	15.1.0
2018-09	CT#81	CP-182015	0023	3	F	Get query parameters for structured data for exposure	15.1.0
2018-09	CT#81	CP-182015	0024	5	F	HTTP error responses for structured data for exposure	15.1.0

2018-09	CT#81	CP-182015	0025	1	F	Description of Structured data types	15.1.0
2018-09	CT#81	CP-182032	0026	3	B	Resource Structure for policy data	15.1.0
2018-09	CT#81	CP-182015	0027		F	n6 Traffic Routing Information encoding	15.1.0
2018-09	CT#81	CP-182015	0028	1	F	Removal of ExternalDocs section in OpenApi file for Exposure Data	15.1.0
2018-09	CT#81	CP-182015	0029	1	F	VarUeId used in TS 29.519	15.1.0
2018-09	CT#81	CP-182015	0034	1	F	OpenAPI schema for PolicyData	15.1.0
2018-09	CT#81	CP-182015	0035	3	F	External information stored in UDR for Application Data	15.1.0
2018-09	CT#81	CP-182015	0036		F	Clean up the Editor Note in applicatoin data	15.1.0
2018-09	CT#81	CP-182015	0037	4	F	Correction the data type of application data	15.1.0
2018-09	CT#81	CP-182015	0038	3	B	Introduce the operator policy data	15.1.0
2018-09	CT#81	CP-182015	0039	2	B	OpenAPI of Application data	15.1.0
2018-09	CT#81	CP-182015	0040	1	F	Update of resource structure of application data 29.519	15.1.0
2018-09	CT#81	CP-182015	0041	1	F	Ethernet packet filter for traffic influence data of applicatoin data 29.519	15.1.0
2018-12	CP#82	CP-183205	0042	1	F	DNAI reused data	15.2.0
2018-12	CP#82	CP-183205	0043	1	F	ExternalDocs field	15.2.0
2018-12	CP#82	CP-183205	0044	-	F	PduSessionStatus	15.2.0
2018-12	CP#82	CP-183205	0045	1	F	Query parameters correction on application data	15.2.0
2018-12	CP#82	CP-183205	0046	1	F	PUT operation for Individual Influence Data Subscription	15.2.0
2018-12	CP#82	CP-183205	0047	3	F	Background Data Transfer Data	15.2.0
2018-12	CP#82	CP-183205	0048	1	F	Cardinality for array and map	15.2.0
2018-12	CP#82	CP-183205	0049	1	F	Resource URI for ExposureData	15.2.0
2018-12	CP#82	CP-183205	0050	-	F	UeId definition	15.2.0
2018-12	CP#82	CP-183205	0052	1	F	Error status codes for HTTP responses	15.2.0
2018-12	CP#82	CP-183205	0053	-	F	Service name	15.2.0
2018-12	CP#82	CP-183205	0054	1	F	Reference to the yaml file of Npcf_BDTPolicyControl API	15.2.0
2018-12	CP#82	CP-183205	0055	-	F	Missed GET method on UEPolicySetResource	15.2.0
2018-12	CP#82	CP-183205	0055	2	F	Missed GET method on UEPolicySetResource	15.2.0
2018-12	CP#82	CP-183205	0056	4	F	Corrections on AM Policy and UE Policy data	15.2.0
2018-12	CP#82	CP-183205	0057	6	F	Corrections on SM Policy Data	15.2.0
2018-12	CP#82	CP-183205	0058	1	F	Correct TrafficRoute data type	15.2.0

2018-12	CP#82	CP-183205	0060	4	F	Correct subscription for application data	15.2.0
2018-12	CP#82	CP-183205	0062	3	F	Correction to the AF Influence on traffic steering control	15.2.0
2018-12	CP#82	CP-183205	0063	3	F	PLMN ID as key for UE data sets	15.2.0
2018-12	CP#82	CP-183205	0066	1	F	Supported features	15.2.0
2018-12	CP#82	CP-183205	0067	1	F	Add AF application ID for traffic influence	15.2.0
2018-12	CP#82	CP-183205	0068	-	F	Correct referenced file in openAPI for application data	15.2.0
2018-12	CP#82	CP-183205	0069	-	F	Correct referenced file in openAPI for exposure data	15.2.0
2018-12	CP#82	CP-183205	0070	1	F	Use correct naming convention	15.2.0
2018-12	CP#82	CP-183205	0071	1	F	Correct subscription for Application Data	15.2.0
2018-12	CP#82	CP-183205	0072	1	F	Status code update for Application Data	15.2.0
2018-12	CP#82	CP-183205	0073	1	F	Correction on UsageThreshold	15.2.0
2018-12	CP#82	CP-183205	0075	2	F	Status code update for Exposure Data	15.2.0
2018-12	CP#82	CP-183205	0076	2	F	Status code update for Policy Data	15.2.0
2018-12	CP#82	CP-183205	0077	2	F	Incorrect response code of PUT method for individual PFD Data creation	15.2.0
2018-12	CP#82	CP-183205	0078	1	F	corrections on individual Influence Data	15.2.0
2018-12	CP#82	CP-183205	0079	2	F	Adding timestamp for allowed usage storage	15.2.0
2018-12	CP#82	CP-183205	0080	-	F	Missing 201 response body for /policy-data/subs-to-notify	15.2.0
2018-12	CP#82	CP-183205	0081	1	F	Location header	15.2.0
2018-12	CP#82	CP-183205	0083	4	F	Corrections on Usage Monitoring information	15.2.0
2018-12	CP#82	CP-183205	0087	-	F	Correction on PduSessionManagementData	15.2.0
2019-03	CP#83	CP-190115	0090	1	F	Correction on ChargingInformation data type reference in the OpenAPI file	15.3.0
2019-03	CP#83	CP-190115	0091	1	F	Formatting of structured data types in query parameters	15.3.0
2019-03	CP#83	CP-190115	0092	1	F	Correcting resource definitions	15.3.0
2019-03	CP#83	CP-190115	0093	-	F	References to data types	15.3.0
2019-03	CP#83	CP-190115	0095	2	F	Correction on Policy Data change notification	15.3.0
2019-03	CP#83	CP-190115	0096	1	F	Correction on BDT data	15.3.0
2019-03	CP#83	CP-190115	0098	1	F	Support of allowed Route Selection data	15.3.0
2019-03	CP#83	CP-190115	0099	1	F	Support of PEI, OSid and ANDSP support indication in UE Policy Set	15.3.0

2019-03	CP#83	CP-190115	0100	-	F	Support of PRA information	15.3.0
2019-06	CP#84	CP-191077	0101	-	F	Correction of OpenAPI file and main body misalignments for Notification messages	15.4.0
2019-06	CP#84	CP-191077	0102	2	F	Corrections in PolicyDataSubscription and PolicyDataChangeNotification types	15.4.0
2019-06	CP#84	CP-191077	0106	1	F	Precedence of OpenAPI file	15.4.0
2019-06	CP#84	CP-191077	0113	-	F	Correcting the name of URI to receive notifications	15.4.0
2019-06	CP#84	CP-191077	0103	4	F	"201 Created" response without body and other HTTP response errors	15.4.0
2019-06	CP#84	CP-191077	0116	1	F	Expiry time in subscription data types	15.4.0
2019-06	CP#84	CP-191184	0117	3	F	Notification of resource deletion	15.4.0
2019-06	CP#84	CP-191208	0118	3	F	Copyright Note in YAML file	15.4.0
2019-06	CP#84	CP-191077	0119	1	F	Missed Traffic Influence information	15.4.0
2019-06	CP#84	CP-191183	0120	4	F	Notification of resource deletion for Application and Exposure data sets	15.4.0
2019-06	CP#84	CP-191089	0105	2	B	PFD extension for domain name protocol	16.0.0
2019-06	CP#84	CP-191071	0109	3	B	AF acknowledgement to be expected	16.0.0
2019-06	CP#84	CP-191071	0110	2	B	UE IP address preservation indication	16.0.0
2019-06	CP#84	CP-191100	0114	1	B	NEF stored exposure data	16.0.0
2019-09	CT#85	CP-192169	0125	2	F	UDR Application Errors	16.1.0
2019-09	CT#85	CP-192145	0127	2	A	Missed any UE traffic influence data	16.1.0
2019-09	CT#85	CP-192169	0128	1	B	Multiple temporal validity conditions for AF traffic influence	16.1.0
2019-09	CT#85	CP-192244	0130	2	A	Remove PFD change notification	16.1.0
2019-09	CT#85	CP-192156	0131	1	B	Support a set of MAC addresses in traffic filter	16.1.0
2019-09	CT#85	CP-192196	0138	4	B	Application Data update to support xBDT	16.1.0
2019-09	CT#85	CP-192152	0140	3	B	Subscription and Notification of IPTV configuration data change	16.1.0
2019-09	CT#85	CP-192152	0141	2	B	Resource structure of Nudr API for Application Data	16.1.0
2019-09	CT#85	CP-192152	0142	2	B	Storage of IPTV configuration data	16.1.0
2019-09	CT#85	CP-192156	0143	2	F	Subscription/unsubscription for PFDs update notifications and related callback correction	16.1.0
2019-10	CT#85	-	-	-	-	Addition of missing yaml files	16.1.1
2019-12	CT#86	CP-193223	0144	2	B	Retrieval of BDT policy data for a set of BDT reference identifiers	16.2.0
2019-12	CT#86	CP-193181	0145	1	F	Open issue for AddrPreservation feature	16.2.0

2019-12	CT#86	CP-193223	0149	3	B	Support of BDT reference Id within Session Management data	16.2.0
2019-12	CT#86	CP-193191	0151	3	B	Partial update of IPTVConfiguration API	16.2.0
2019-12	CT#86	CP-193210	0152	2	B	Patch Report to Nudr_DataRepository API for Policy data	16.2.0
2019-12	CT#86	CP-193223	0153	-	F	Reference correction to BdtReferenceId	16.2.0
2019-12	CT#86	CP-193212	0155	1	F	Update of TS version_Rel-16	16.2.0
2019-12	CT#86	CP-193197	0156	2	B	MCS Priority Indication	16.2.0
2019-12	CT#86	CP-193187	0158	-	A	Definition of BdtData in OpenAPI	16.2.0
2019-12	CT#86	CP-193197	0159	-	F	Usage of BdtReferenceId data type	16.2.0
2019-12	CT#86	CP-193223	0161	1	B	include S-NSSAI and DNN in Application Data for xBDT	16.2.0
2019-12	CT#86	CP-193223	0162	-	F	remove 204 response on PUT request for AppliedBDTPolicyData	16.2.0
2019-12	CT#86	CP-193210	0164	-	B	Feature Negotiation for OperatorSpecificData resource	16.2.0
2019-12	CT#86	CP-193210	0165	-	B	Feature Negotiation for Influence Data resource	16.2.0
2019-12	CT#86	CP-193126	0166	-	B	URI correction on resource Individual Applied BDT Policy Data	16.2.0