



**5G;  
5G System;  
Usage of the Unified Data Repository Service for Policy Data,  
Application Data and Structured Data for Exposure;  
Stage 3  
(3GPP TS 29.519 version 15.9.0 Release 15)**



---

Reference

RTS/TSGC-0329519vf90

---

Keywords

5G

**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2021.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

**3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

**GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

---

# Legal Notice

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

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

---

# Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

# Contents

Intellectual Property Rights .....	2
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	7
1 Scope .....	8
2 References .....	8
3 Definitions and abbreviations.....	9
3.1 Definitions .....	9
3.2 Abbreviations .....	9
4 Overview .....	9
5 Usage of Nudr_DataRepository Service API for Policy Data.....	9
5.1 Introduction .....	9
5.2 Resources .....	9
5.2.1 Overview .....	9
5.2.2 Resource Structure .....	10
5.2.3 Resource: AccessAndMobilityPolicyData.....	11
5.2.3.1 Description .....	11
5.2.3.2 Resource definition .....	12
5.2.3.3 Resource Standard Methods.....	12
5.2.3.3.1 GET .....	12
5.2.4 Resource: UEPolicySet.....	12
5.2.4.1 Description .....	12
5.2.4.2 Resource definition .....	12
5.2.4.3 Resource Standard Methods.....	13
5.2.4.3.1 PUT .....	13
5.2.4.3.2 PATCH.....	13
5.2.4.3.3 GET .....	14
5.2.5 Resource: SessionManagementPolicyData.....	14
5.2.5.1 Description .....	14
5.2.5.2 Resource definition .....	14
5.2.5.3 Resource Standard Methods.....	15
5.2.5.3.1 GET .....	15
5.2.5.3.2 PATCH.....	15
5.2.6 Resource: UsageMonitoringInformation .....	16
5.2.6.1 Description .....	16
5.2.6.2 Resource definition .....	16
5.2.6.3 Resource Standard Methods.....	16
5.2.6.3.1 PUT .....	16
5.2.6.3.2 DELETE.....	16
5.2.6.3.3 GET .....	17
5.2.7 Resource: SponsorConnectivityData .....	17
5.2.7.1 Description .....	17
5.2.7.2 Resource definition .....	18
5.2.7.3 Resource Standard Methods.....	18
5.2.7.3.1 GET .....	18
5.2.8 Resource: BdtData .....	18
5.2.8.1 Description .....	18
5.2.8.2 Resource definition .....	18
5.2.8.3 Resource Standard Methods.....	19
5.2.8.3.1 GET .....	19
5.2.9 Resource: IndividualBdtData.....	19
5.2.9.1 Description .....	19
5.2.9.2 Resource definition .....	19

5.2.9.3	Resource Standard Methods.....	20
5.2.9.3.1	GET .....	20
5.2.9.3.2	PUT .....	20
5.2.9.3.3	DELETE .....	21
5.2.10	Resource: PolicyDataSubscriptions .....	21
5.2.10.1	Description .....	21
5.2.10.2	Resource definition .....	21
5.2.10.3	Resource Standard Methods.....	21
5.2.10.3.1	POST .....	21
5.2.11	Resource: IndividualPolicyDataSubscription .....	22
5.2.11.1	Description .....	22
5.2.11.2	Resource definition .....	22
5.2.11.3	Resource Standard Methods.....	22
5.2.11.3.1	PUT .....	22
5.2.11.3.2	DELETE .....	23
5.2.12	Resource: OperatorSpecificData .....	23
5.2.12.1	Description .....	23
5.2.12.2	Resource Definition .....	23
5.2.12.3	Resource Standard Methods.....	24
5.2.12.3.1	GET .....	24
5.2.12.3.2	PATCH .....	24
5.2.12.3.3	PUT .....	25
5.2.13	Resource: PlmnUePolicySet .....	25
5.2.13.1	Description .....	25
5.2.13.2	Resource definition .....	26
5.2.13.3	Resource Standard Methods.....	26
5.2.13.3.1	GET .....	26
5.3	Notifications .....	26
5.3.1	General.....	26
5.3.2	Policy Data Change Notification .....	26
5.4	Data Model.....	27
5.4.1	General.....	27
5.4.2	Structured data types.....	29
5.4.2.1	Introduction .....	29
5.4.2.2	Type AmPolicyData .....	29
5.4.2.3	Type UePolicySection.....	30
5.4.2.4	Type UePolicySet .....	30
5.4.2.5	Type SmPolicyData .....	30
5.4.2.6	Type UsageMonDataLimit.....	31
5.4.2.7	Type UsageMonData .....	31
5.4.2.8	Type SponsorConnectivityData .....	32
5.4.2.9	Type BdtData .....	32
5.4.2.10	Type PolicyDataSubscription.....	32
5.4.2.11	Type PolicyDataChangeNotification .....	33
5.4.2.12	Type TimePeriod.....	35
5.4.2.13	Type UsageMonDataScope.....	35
5.4.2.14	Type SmPolicySnssaiData .....	35
5.4.2.15	Type SmPolicyDnnData.....	36
5.4.2.16	Type LimitIdToMonitoringKey .....	37
5.4.2.17	Type UePolicySetPatch.....	37
5.4.2.18	Type PlmnRouteSelectionDescriptor .....	37
5.4.2.19	Type SnssaiRouteSelectionDescriptor .....	37
5.4.2.20	Type DnnRouteSelectionDescriptor.....	37
5.4.3	Simple data types and enumerations .....	38
5.4.3.1	Introduction .....	38
5.4.3.2	Simple data types .....	38
5.4.3.3	Enumeration: UsageMonLevel .....	38
5.4.3.4	Enumeration: Periodicity .....	38
5.5	Error handling .....	38
5.5.1	General.....	38
5.5.2	Protocol Errors.....	39
5.5.3	Application Errors .....	39

5.6	Feature negotiation .....	39
6	Usage of Nudr_DataRepository Service API for Application Data .....	39
6.1	Introduction .....	39
6.2	Resources .....	39
6.2.1	Overview .....	39
6.2.2	Resource Structure .....	40
6.2.3	Resource: PFD Data .....	41
6.2.3.1	Description .....	41
6.2.3.2	Resource definition .....	41
6.2.3.3	Resource Standard Methods .....	42
6.2.3.3.1	GET .....	42
6.2.4	Resource: Individual PFD Data .....	42
6.2.4.1	Description .....	42
6.2.4.2	Resource definition .....	42
6.2.4.3	Resource Standard Methods .....	42
6.2.4.3.1	GET .....	42
6.2.4.3.2	DELETE .....	43
6.2.4.3.3	PUT .....	43
6.2.5	Resource: Influence Data .....	44
6.2.5.1	Description .....	44
6.2.5.2	Resource definition .....	44
6.2.5.3	Resource Standard Methods .....	44
6.2.5.3.1	GET .....	44
6.2.6	Resource: Individual Influence Data .....	45
6.2.6.1	Description .....	45
6.2.6.2	Resource definition .....	45
6.2.6.3	Resource Standard Methods .....	45
6.2.6.3.1	PUT .....	45
6.2.6.3.2	PATCH .....	46
6.2.6.3.3	DELETE .....	46
6.2.7	Resource: Influence Data Subscription .....	47
6.2.7.1	Description .....	47
6.2.7.2	Resource definition .....	47
6.2.7.3	Resource Standard Methods .....	47
6.2.7.3.1	POST .....	47
6.2.7.3.2	GET .....	47
6.2.8	Resource: Individual Influence Data Subscription .....	48
6.2.8.1	Description .....	48
6.2.8.2	Resource definition .....	48
6.2.8.3	Resource Standard Methods .....	48
6.2.8.3.1	GET .....	48
6.2.8.3.2	PUT .....	49
6.2.8.3.3	DELETE .....	49
6.3	Notifications .....	50
6.3.1	General .....	50
6.3.2	Void .....	50
6.3.3	Influence Data Update Notification .....	50
6.3.3.1	Description .....	50
6.3.3.2	Operation Definition .....	50
6.4	Data Model .....	51
6.4.1	General .....	51
6.4.2	Structured data types .....	52
6.4.2.1	Introduction .....	52
6.4.2.2	Type TrafficInfluData .....	52
6.4.2.5	Void .....	54
6.5	Error handling .....	54
6.5.1	General .....	54
6.5.2	Protocol Errors .....	54
6.5.3	Application Errors .....	55
6.6	Feature negotiation .....	55

7	Usage of Nudr_DataRepository Service API for Structured Data for Exposure.....	55
7.1	Introduction .....	55
7.2	Resources .....	55
7.2.1	Overview .....	55
7.2.2	Resource Structure .....	56
7.2.3	Resource: AccessAndMobilityData .....	57
7.2.3.1	Description .....	57
7.2.3.2	Resource definition .....	57
7.2.3.3	Resource Standard Methods.....	57
7.2.3.3.1	PUT .....	57
7.2.3.3.2	GET .....	58
7.2.3.3.3	DELETE.....	58
7.2.4	Resource: PduSessionManagementData .....	58
7.2.4.1	Description .....	58
7.2.4.2	Resource definition .....	59
7.2.4.3	Resource Standard Methods.....	59
7.2.4.3.1	PUT .....	59
7.2.4.3.2	GET .....	59
7.2.4.3.3	DELETE.....	60
7.2.5	Resource: ExposureDataSubscriptions .....	61
7.2.5.1	Description .....	61
7.2.5.2	Resource Definition .....	61
7.2.5.3	Resource Standard Methods.....	61
7.2.5.3.1	POST .....	61
7.2.6	Resource: IndividualExposureDataSubscription .....	61
7.2.6.1	Description .....	61
7.2.6.2	Resource Definition .....	62
7.2.6.3	Resource Standard Methods.....	62
7.2.6.3.1	PUT .....	62
7.2.6.3.2	DELETE.....	62
7.3	Data Model.....	63
7.3.1	General.....	63
7.3.2	Structured data types.....	64
7.3.2.1	Introduction .....	64
7.3.2.2	Type AccessAndMobilityData .....	65
7.3.2.3	Type PduSessionManagementData .....	66
7.3.2.4	Type ExposureDataSubscription .....	66
7.3.2.5	Type ExposureDataChangeNotification.....	67
7.3.3	Simple data types and enumerations .....	67
7.3.3.1	Introduction.....	67
7.3.3.2	Simple data types .....	67
7.3.3.3	Enumeration: PduSessionStatus .....	67
7.4	Error handling .....	67
7.4.1	General.....	67
7.4.2	Protocol Errors.....	68
7.4.3	Application Errors .....	68
7.5	Feature negotiation .....	68
7.6	Notifications .....	68
7.6.1	General.....	68
7.6.2	Exposure Data Change Notification .....	68
<b>Annex A (normative):</b>	<b>OpenAPI specification.....</b>	<b>70</b>
A.1	General .....	70
A.2	Nudr_DataRepository API for Policy Data.....	70
A.3	Nudr_DataRepository API for Application Data .....	87
A.4	Nudr_DataRepository API for Exposure Data .....	98
<b>Annex B (informative):</b>	<b>Change history .....</b>	<b>108</b>
History .....		113

---

# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> 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;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- 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

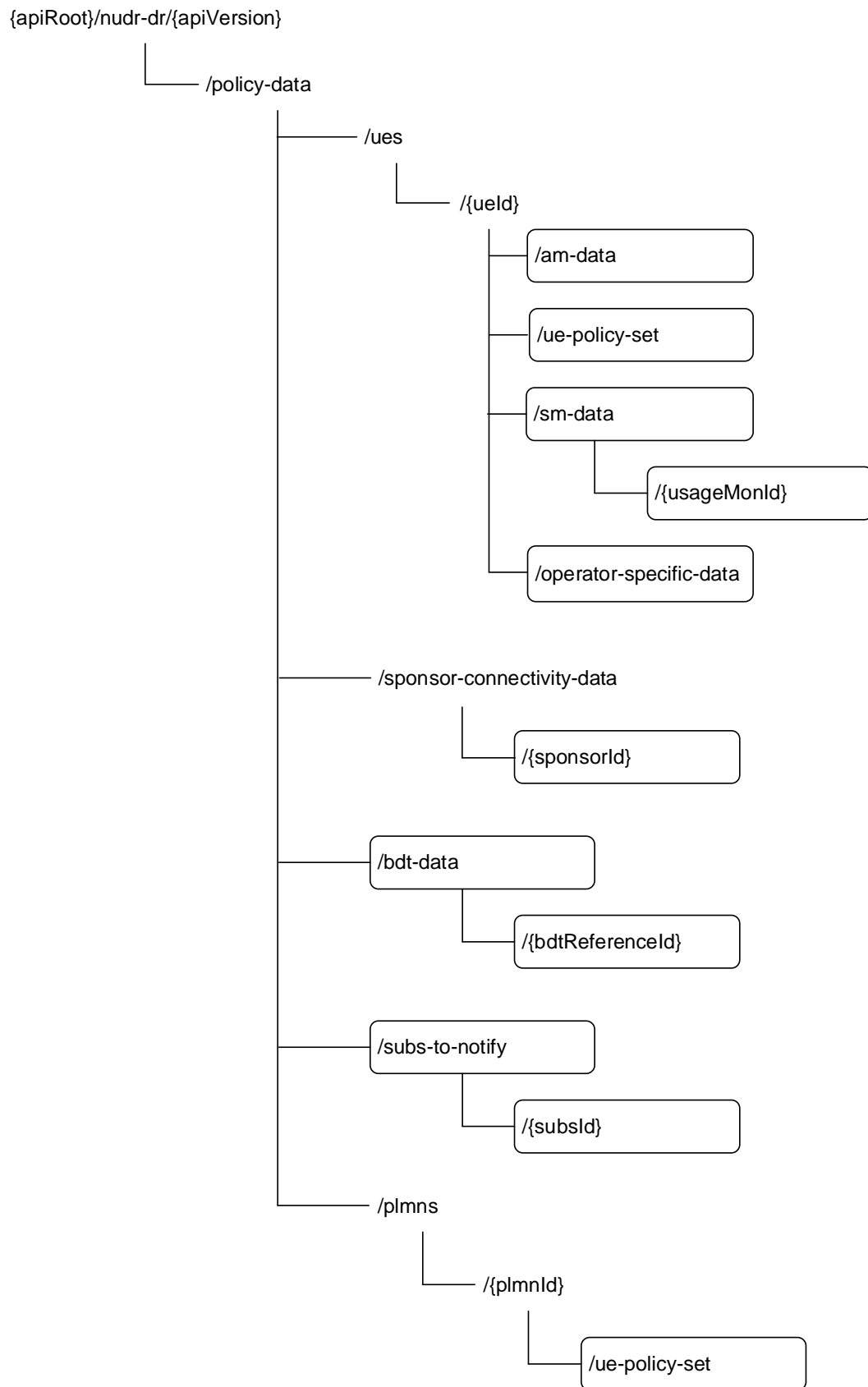


Figure 5.2.2-1: Resource URI structure of the Nudr\_DataRepository API for policy data

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.
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/{subId}	PUT	Modify a subscription to receive notification of policy data changes.
		DELETE	Delete the subscription identified by {subId}.
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.
ueld	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeld 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.
ueld	Represents the Subscription Identifier SUPI or GPSI, see the data type VarUeld 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.

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

Void.



## 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
n/a				

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	String that represents the transfer policy of background data transfer for provided ASP 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 bdtReferenceld.

**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 "UPDATE_NOT_ALLOWED" as defined in subclause 5.5.3.				

### 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.

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.
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 "UPDATE_NOT_ALLOWED" as defined in subclause 5.5.3.
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.				

### 5.2.12.3.3 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 new representation of 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(OperatorSpecificData Container)	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 "UPDATE_NOT_ALLOWED" as defined in subclause 5.5.3.
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**

<b>Data type</b>	<b>Section defined</b>	<b>Description</b>	<b>Applicability</b>
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 and S-NSSAI.	
SmPolicyDnnData	5.4.2.15	Contains SM policy data for a DNN and S-NSSAI.	
SmPolicySnssaiData	5.4.2.14	Contains SM policy data for a S-NSSAI.	
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
BitRate	3GPP TS 29.571 [7]	String representing a bit rate that shall be formatted as follows: pattern: " $\wedge d+(\wedge d+)?$ (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	
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
pralInfos	map(PresenceInfo)	O	1..N	Presence reporting area information. Each PresenceInfo element shall include the Presence Reporting Area Identifier within the "prald" attribute and, for a UE-dedicated presence reporting area, may also include the list of elements composing the presence reporting area. A "prald" may indicate a Presence Reporting Area Set. The "prald" 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
pralInfos	map(PresenceInfo)	O	1..N	Presence reporting area information. Each PresenceInfo element shall include the Presence Reporting Area Identifier within the "prald" attribute and, for a UE-dedicated presence reporting area, may also include the list of elements composing the presence reporting area. A "prald" may indicate a Presence Reporting Area Set. The "prald" 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.
andsplnd	boolean	O	0..1	Indication of UE supporting ANDSP. Default value is false.
pei	Pei	O	0..1	Personal Equipment Identifier.
oslds	array(Osld)	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(UsageMonitoringDataLimit)	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(UsageMonitoringData)	O	1..N	Contains the remaining allowed usage data associated with the subscriber. The limit identifier is used as the key in the map.	

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).	
scopes	map(UsageMonDataScope)	O	1..N	Identifies the SNSSAI and DNN combinations to which the remaining usage monitoring data applies. The S-NSSAI is the key of the map.	
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	string	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.
monitoredResourceUris	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.	
sponsorConnectivityData	SponsorConnectivityData	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	OperatorSpecificDataContainer	O	0..1	Operator Specific Data, if changed and notification was requested. It may only be used when the receiver of the notification is able to univocally identify the changed operator specific data. (NOTE 3)	
opSpecDataMap	map(OperatorSpecificDataContainer)	O	1..N	Operator Specific Data resource data, if changed and notification was requested. The key of the map is operator specific data element name and the value is the operator specific data of the UE.	OpSpecDataMapNotification
ueld	VarUeld	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	string	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)	ResourceRemovalNotificationPolicyData

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.
NOTE 3:	This attribute should not be used if the receiver of the notification is not able to univocally identify the changed operator specific data, and "opSpecDataMap" should be used instead.

#### 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	
gbrUI	BitRate	O	0..1	Maximum aggregate UL bitrate that can be provided across all GBR QoS Flows in the DNN	
gbrDI	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".	
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	
pralInfos	map(PresenceInfo)	O	1..N	<p>Presence reporting area information. Each PresenceInfo element shall include the Presence Reporting Area Identifier within the "prald" attribute and, for a UE-dedicated presence reporting area, may also include the list of elements composing the presence reporting area.</p> <p>A "prald" may indicate a Presence Reporting Area Set.</p> <p>The "prald" attribute within the PresenceInfo data type shall also be the key of the map. The attribute "presenceState" shall not be present.</p>	

## 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: Definon 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.
andsplnd	boolean	O	0..1	Indication of UE supporting ANDSP.
pei	Pei	O	0..1	Personal Equipment Identifier.
oslds	array(Osld)	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.

### 5.4.3 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
UPDATE_NOT_ALLOWED	403 Forbidden	Indicates that the resource is not allowed to be updated.

## 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.

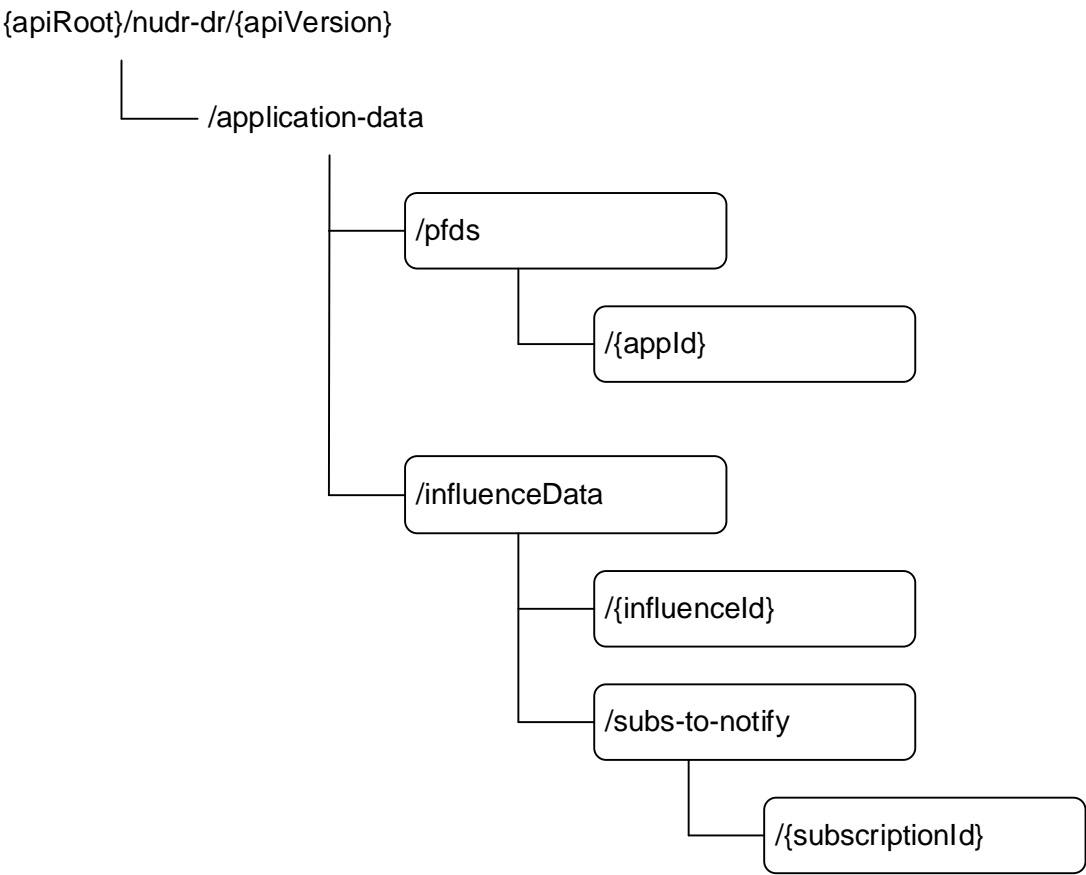
## 6.2 Resources

### 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



**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/{appld}	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}.

## 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
appld	array(ApplicationId)	O	1..N	Contains the information of the application identifier(s) for the querying PFD Data resource. If none appld 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(PfdDataForApp)	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.
appld	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
PfdDataForApp	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
PfdDataForApp	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
PfdDataForApp	M	1	201 Created	The resource has been successfully created and a response body is returned containing a representation of the resource.
PfdDataForApp	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(GroupId)	O	1..N	Each element identifies a group of users.
supis	array(Supi)	O	1..N	Each element identifies a user.
NOTE: At least one of the above 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	GroupId	O	0..1	Identifies a group of users. (NOTE 2)
supi	Supi	O	0..1	Identifies a user.
NOTE 1: At least one of the above attribute shall be provided.				
NOTE 2: For the Traffic Influence Data applies to any UE, the "internal-Group-Id" 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.				

## 6.3 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.				

## 6.4 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
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.	
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.	
FlowInfo	3GPP TS 29.122 [9]	Contains the flow information.	
NetworkAreaInfo	3GPP TS 29.554 [13]	Describes a network area information.	
PfdDataForApp	3GPP TS 29.551 [8]	Identifies the PFDs for one application identifier.	
RouteToLocation	3GPP TS 29.571 [7]	Identifies the N6 traffic routing requirement.	
Snsai	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.	

## 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 eld	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.	
afApplId	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	GroupId	O	0..1	Identifies a group of users. (NOTE 2) (NOTE 3) (NOTE 4)	
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 are start to be applicable.	
validEndTime	DateTime	O	0..1	Identifies when the traffic routings are not applicable.	
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.	
NOTE 1: One of "afApplId", "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 "afApplId", "trafficFilters" or "ethTrafficFilters" that identify the resource shall be included. The rest of attributes shall be omitted.					
NOTE 4: 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
upPathChgNotifCorrId	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	GroupId	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.	
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.	

#### 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(GroupId)	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 "internalGroupIds" needs to have an entry set to "AnyUE".					

#### 6.4.2.5 Void

### 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

## 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.

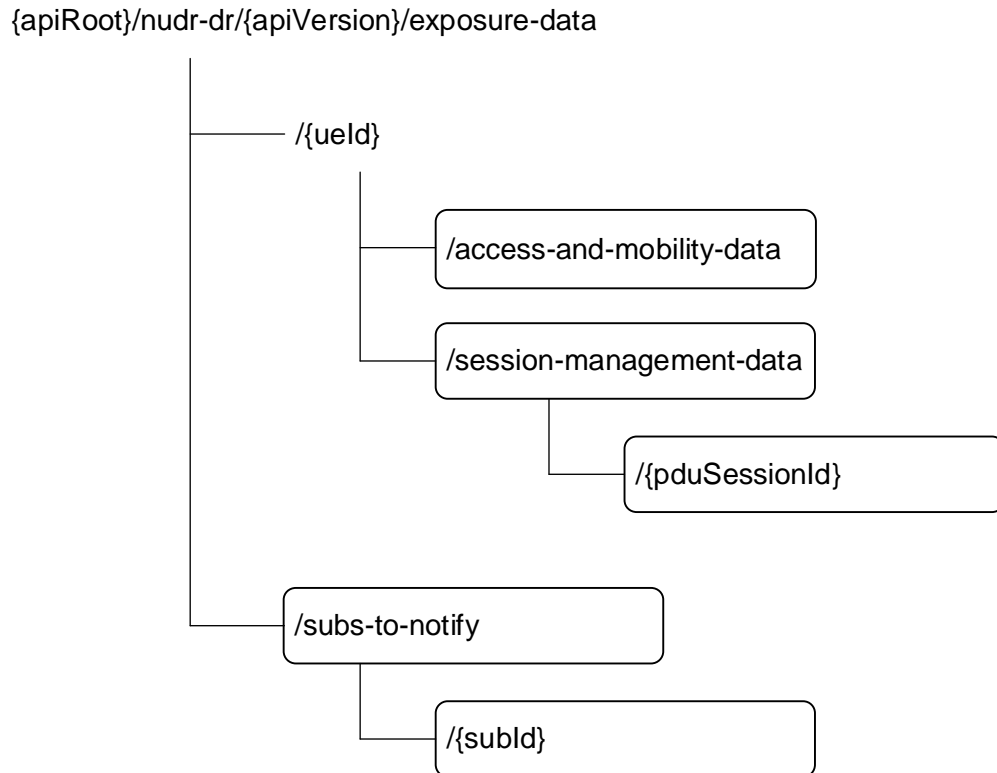
### 7.2 Resources

#### 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



**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/{ueld}/access-and-mobility-data	PUT	Creates and updates 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
PduSessionManagementData	{apiRoot}/nudr-dr/{apiVersion}/exposure-data/{ueld}/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
ExposureDataSubscriptions	{apiRoot}/nudr-dr/{apiVersion}/exposure-data/subs-to-notify	POST	Create a subscription to receive notification of exposure data changes.
IndividualExposureDataSubscription	{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 {subId}.

## 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 or updated.

**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	Successful case. The resource has been successfully created and a response body containing a representation of the access and mobility data shall be returned.
AccessAndMobilityData	M	1	200 OK	Successful case. The resource has been successfully updated and a response body containing a representation of the access and mobility data 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 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.				

## 7.2.4 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 or updated.

**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	Successful case. The resource has been successfully created and a response body containing a representation of the session management data shall be returned.
PduSessionManagementData	M	1	200 OK	Successful case. The resource has been successfully updated and a response body containing a representation of the session management data 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 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
ExposureDataSubscription	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**

<b>Data type</b>	<b>Reference</b>	<b>Comments</b>	<b>Applicability</b>
AccessType	3GPP TS 29.571 [7]	Identifies the access type, i.e. 3GPP access or Non-3GPP access.	
CmlInfo	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.	
PlmnId	3GPP TS 29.571 [7]	Identifies a PLMN.	
PduSessionId	3GPP TS 29.571 [7]	PDU Session Identifier	
RatType	3GPP TS 29.571 [7]	Identifies a RAT type.	
RmlInfo	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.	
VarUeld	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 the smsOverNasStatus 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 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
ueld	VarUeld	O	0..1	User identity of modified data.	
accessAndMobilityData	AccessAndMobilityData	O	0..1	Access and Mobility Data for the UE.	
pduSessionManagementData	array(PduSessionManagementData)	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 "../{ueld}/access-and-mobility-data" the attribute "accessAndMobilityData" shall be omitted, and when the "delResources" attribute includes all the existing "../{ueld}/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

## 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.

**Table 7.6.2-3: 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
    © 2021, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
externalDocs:
  description: 3GPP TS 29.519 V15.9.0; 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
  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'

/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)
    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:
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
  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.
    '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
    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
  imsSignallingPrio:
    type: boolean
  mpsPriorityLevel:
    type: integer
  praInfos:
    type: object
    additionalProperties:
      $ref: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'
    minProperties: 1
  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: '#/components/schemas/TimePeriod'
  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: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    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
  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:
        type: string
      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'
      opSpecDataMap:
        type: object
        additionalProperties:
          $ref: 'TS29505_Subscription_Data.yaml#/components/schemas/OperatorSpecificDataContainer'
        minProperties: 1
      ueId:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
      sponsorId:
        type: string
      bdtRefId:
        type: string
      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: 'TS29571_CommonData.yaml#/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
  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
    © 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.
  externalDocs:
    description: 3GPP TS 29.519 V15.7.0; 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: ReadPFDDData
      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: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdDataForApp'
    '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: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdDataForApp'
      '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: DeleteIndividualPFDDData
    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'
      '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: CreateOrReplaceIndividualPFDDData
    tags:
      - Individual PFD Data (Document)
    requestBody:
      required: true
      content:
        application/json:
          schema:
            $ref: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdDataForApp'
    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: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdDataForApp'
        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: 'TS29551_Nnef_PFDmanagement.yaml#/components/schemas/PfdDataForApp'

```

```
'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:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
            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 Traffic Influence Data stored in the UDR are returned.
        content:
          application/json:
            schema:
              type: array
              items:
                $ref: 'TS29571_CommonData.yaml#/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':
        $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: 'TS29571_CommonData.yaml#/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: 'TS29571_CommonData.yaml#/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: 'TS29571_CommonData.yaml#/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:
  summary: Modify part of the properties of an individual Influence Data resource
  operationId: UpdateIndividualInfluenceData
  tags:
    - Individual Influence Data (Document)
  requestBody:
    required: true
    content:
      application/merge-patch+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'
    '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':
          $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: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
      - 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)
  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':
    $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'

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:
  $ref: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
  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'
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'
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:
  $ref: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
  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'
  nwAreaInfo:
    $ref: 'TS29554_Npcf_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'
  upPathChgNotifUri:
    $ref: 'TS29571_CommonData.yaml#/components/schemas/Uri'
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:
        $ref: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
      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]

```

## 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
    © 2021, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.

```

```

externalDocs:
  description: 3GPP TS 29.519 V15.8.0; 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: Successful case. The resource has been successfully created and a response
body containing a representation of the access and mobility data shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/AccessAndMobilityData'
          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 updated and a response
body containing a representation of the access and mobility data shall be returned.
          content:
            application/json:
              schema:
                $ref: '#/components/schemas/AccessAndMobilityData'
        '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'
    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'
/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: 'TS29571_CommonData.yaml#/components/schemas/PduSessionManagementData'
  responses:
    '201':
      description: Successful case. The resource has been successfully created and a response
body containing a representation of the session management data shall be returned.
      content:
        application/json:
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionManagementData'
      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 updated and a response
body containing a representation of the session management data shall be returned.
      content:
        application/json:
          schema:
            $ref: 'TS29571_CommonData.yaml#/components/schemas/PduSessionManagementData'
    '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'
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'
    '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 subscription	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 Alignments 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	VarUeld 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	Ueld 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	0103	4	F	"201 Created" response without body and other HTTP response errors	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	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
2019-09	CP#85	CP-192145	0126	1	F	Missed any UE indication in traffic influence data	15.5.0
2019-09	CP#85	CP-192145	0129	1	F	Remove PFD change notification	15.5.0
2019-12	CT#86	CP-193187	0146	2	F	Correction to SessionManagementPolicyData resource	15.6.0
2019-12	CT#86	CP-193187	0154	2	F	Update of TS version_Rel-15	15.6.0
2019-12	CT#86	CP-193187	0157	-	F	Definition of BdtData in OpenAPI	15.6.0
2020-06	CT#88e	CP-201220	0178	2	F	internalGroupId in Influence Data	15.7.0
2020-06	CT#88e	CP-201220	0186	1	F	Correction to notifications of Operator Specific Data changes	15.7.0
2020-06	CT#88e	CP-201220	0187	-	F	Correct content type in PATCHing traffic influence application data	15.7.0
2020-06	CT#88e	CP-201254	0205	-	F	Update of TS version in externalDocs field	15.7.0
2021-03	CT#91e	CP-210198	0236	-	F	UsageMonData: definition of "scopes" attribute	15.8.0
2021-03	CT#91e	CP-210198	0245	-	F	PUT method for Exposure Data modification	15.8.0
2021-03	CT#91e	CP-210238	0247	-	F	Update of TS version in externalDocs field	15.8.0
2021-09	CT#93e	CP-212190	0267	-	F	Correction of data types of resetPeriod and resetTime in openAPI file	15.9.0
2021-09	CT#93e	CP-212192	0273	-	F	Update of externalDocs field	15.9.0

---

## History

Document history		
V15.0.0	July 2018	Publication
V15.1.0	October 2018	Publication
V15.2.0	April 2019	Publication
V15.3.0	April 2019	Publication
V15.4.0	October 2019	Publication
V15.5.0	October 2019	Publication
V15.6.0	January 2020	Publication
V15.7.0	August 2020	Publication
V15.8.0	April 2021	Publication
V15.9.0	September 2021	Publication