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5G System;  
Session management services for Non-IP Data Delivery (NIDD);  
Stage 3  
(3GPP TS 29.542 version 19.3.0 Release 19)**



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- cannot** indicates that something is impossible

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- will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

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**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

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# 1 Scope

The present document specifies the stage 3 protocol and data model for the Nsmf Service Based Interfaces for Non-IP Data Delivery (NIDD). It provides stage 3 protocol definitions and message flows, and specifies the API for the service offered by the SMF.

The 5G System stage 2 architecture and procedures are specified in 3GPP TS 23.501 [2] and 3GPP TS 23.502 [3].

The Technical Realization of the Service Based Architecture and the Principles and Guidelines for Services Definition are specified in 3GPP TS 29.500 [4] and 3GPP TS 29.501 [5].

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# 2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".
- [3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".
- [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] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.
- [7] 3GPP TR 21.900: "Technical Specification Group working methods".
- [8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".
- [9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".
- [10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".
- [11] IETF RFC 9113: "Hypertext Transfer Protocol Version 2 (HTTP/2)".
- [12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".
- [13] IETF RFC 9457: "Problem Details for HTTP APIs".
- [14] 3GPP TS 29.541: "5G System (5GS); Network Exposure (NE) function services for Non-IP Data Delivery (NIDD) and Short Message Services (SMS); Stage 3".
- [15] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

## 3 Definitions, symbols and abbreviations

### 3.1 Terms

Void.

### 3.2 Symbols

Void.

### 3.3 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].

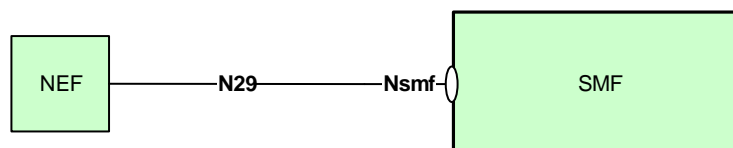
|       |   |
|-------|---|
| 5GC   | 5G Core Network                         |
| AMF   | Access and Mobility Management Function |
| H-SMF | Home SMF                                |
| I-SMF | Intermediate SMF                        |
| NEF   | Network Exposure Function               |
| NIDD  | Non-IP Data Delivery                    |
| MT    | Mobile Terminated                       |
| SMF   | Session Management Function             |
| V-SMF | Visited SMF                             |

## 4 Overview

### 4.1 Introduction

Within the 5GC, the SMF offers services to the NF service consumers via the Nsmf service based interface (see 3GPP TS 23.501 [2] and 3GPP TS 23.502 [3]).

Figure 4.1-1 provides the reference model (in service based interface representation and in reference point representation), with focus on the services specified within the present specification.



**Figure 4.1-1: Reference model – SMF**

N29 is the reference point between the (H-)SMF and the NEF.

The functionalities supported by the SMF are listed in clause 6.2.2 of 3GPP TS 23.501 [2].

## 5 Services offered by the SMF for NIDD

### 5.1 Introduction

The SMF supports the following service(s) for NIDD.

**Table 5.1-1: NF Service(s) provided by SMF for NIDD**

| Service Name | Description   | Example Consumer |
|--------------|---|------------------|
| Nsmf_NIDD    | This service allows the NF consumer NF to deliver NIDD MT data to PDU sessions. | NEF              |

Table 5.1-2 summarizes the corresponding APIs defined for this specification.

**Table 5.1-2: API Descriptions**

| Service Name | Clause | Description       | OpenAPI Specification File | apiName   | Annex |
|--------------|--------|-------------------|----------------------------|-----------|-------|
| Nsmf_NIDD    | 6.1    | Nsmf NIDD Service | TS29542_Nsmf_NIDD.yaml     | nsmf-nidd | A.2   |

## 5.2 Nsmf\_NIDD Service

### 5.2.1 Service Description

The Nsmf\_NIDD service operates on the PDU Sessions. The service operations exposed by this service allow an NF consumer (i.e. NEF) to deliver NEF anchored Mobile Terminated (MT) data for a given PDU session of a UE towards the SMF.

The Nsmf\_NIDD service supports the following service operations:

**Table 5.2.1-1: Service operations supported by the Nsmf\_NIDD service**

| Service Operations | Description   | Operation Semantics | Example Consumer(s) |
|--------------------|---|---------------------|---------------------|
| Delivery           | Deliver MT NIDD user data to the PDU session of the UE. | Request/Response    | NEF                 |

### 5.2.2 Service Operations

#### 5.2.2.1 Introduction

See Table 5.2.1-1 for an overview of the service operations supported by the Nsmf\_NIDD service.

#### 5.2.2.2 Delivery

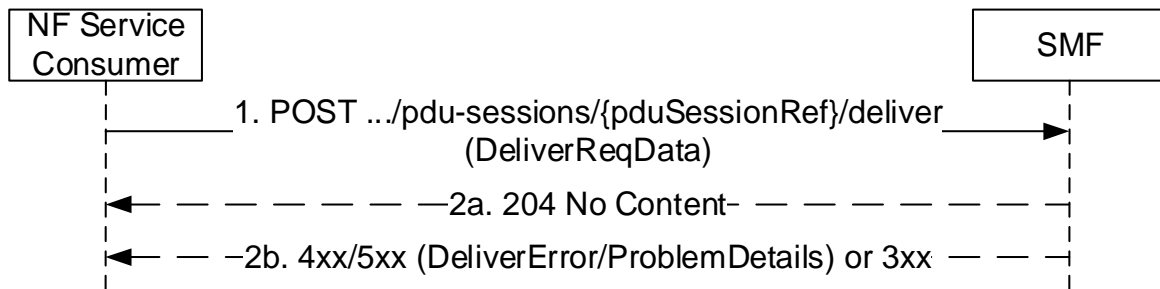
##### 5.2.2.2.1 General

The Delivery service operation shall be used to transfer NEF anchored MT data for a given PDU session.

It is used in the following procedures:

- NEF anchored Mobile Terminated Data Transport (see clause 4.25.5 of 3GPP TS 23.502 [3]).

The NF Service Consumer (i.e. NEF) shall deliver MT data to the SMF by using the HTTP POST method ("deliver" custom operation) as shown in Figure 5.2.2.2.1-1.



**Figure 5.2.2.2.1-1: Transfer MT Data**

1. The NF Service Consumer shall send a POST request to the URI of "deliver" custom operation on an Individual PDU session resource in the SMF. The content of the POST request shall contain the MT data to be delivered.

NOTE: The URI of the individual PDU session resource is provided by SMF to the NEF during SMF-NEF connection creation (see clause 5.2.2.2.1 of 3GPP TS 29.541 [14]).

2a. On success, "204 No Content" shall be returned.

2b. On failure or redirection, one of the HTTP status code listed in Table 6.1.3.2.4.2.2-2 shall be returned. For a 4xx/5xx response, the message body may contain a DeliverError or ProblemDetails object, with the "cause" attribute indicating the cause of the failure. If Estimated Maximum Waiting Time is received from AMF, the SMF shall include it in the message body.

## 6 API Definitions

### 6.1 Nsmf\_NIDD Service API

#### 6.1.1 Introduction

The Nsmf\_NIDD service shall use the Nsmf\_NIDD API.

The API URI of the Nsmf\_NIDD API shall be:

**{apiRoot}/<apiName>/<apiVersion>/**

The request URI used in HTTP request from the NF service consumer towards the NF service producer shall have the Resource URI structure defined in clause 4.4.1 of 3GPP TS 29.501 [5], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificResourceUriPart>**

with the following components:

- The {apiRoot} shall be set as described in 3GPP TS 29.501 [5].
- The <apiName> shall be "nsmf-nidd".
- The <apiVersion> shall be "v1".
- The <apiSpecificResourceUriPart> shall be set as described in clause 6.1.3.

## 6.1.2 Usage of HTTP

### 6.1.2.1 General

HTTP/2, IETF RFC 9113 [11], shall be used as specified in clause 5 of 3GPP TS 29.500 [4].

HTTP/2 shall be transported as specified in clause 5.3 of 3GPP TS 29.500 [4].

The OpenAPI [6] specification of HTTP messages and content bodies for the Nsmf\_NIDD API is contained in Annex A.

### 6.1.2.2 HTTP standard headers

#### 6.1.2.2.1 General

The usage of HTTP standard headers shall be supported as specified in clause 5.2.2 of 3GPP TS 29.500 [4].

#### 6.1.2.2.2 Content type

The following content types shall be supported:

- the JSON format (IETF RFC 8259 [12]). The use of the JSON format shall be signalled by the content type "application/json". See also clause 5.4 of 3GPP TS 29.500 [4].
- the Problem Details JSON Object (IETF RFC 9457 [13]). The use of the Problem Details JSON object in a HTTP response body shall be signalled by the content type "application/problem+json".

NOTE: "application/json" is used in a response that includes a content containing an application-specific data structure, see clause 4.8 of 3GPP TS 29.501 [5].

Multipart messages shall also be supported (see clause 6.1.2.4) using the content type "multipart/related", comprising:

- one JSON body part with the "application/json" content type; and
- one or two binary body parts with 3gpp vendor specific content subtypes.

The 3gpp vendor specific content subtypes defined in Table 6.1.2.2.2-1 shall be supported.

**Table 6.1.2.2.2-1: 3GPP vendor specific content subtypes**

| content subtype | Description   |
|-----------------|---|
| vnd.3gpp.5gnas  | Binary encoded content, encoding a 5GS NAS message or 5G NAS IEs, as specified in 3GPP TS 24.501 [7]. |

See clause 6.1.6.5 for the binary contents supported in the binary body part of multipart messages.

### 6.1.2.3 HTTP custom headers

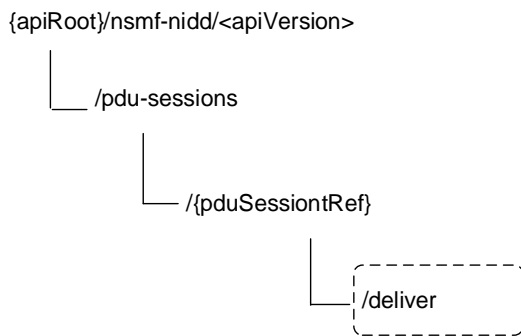
In this release of the specification, no specific custom headers are defined for the Nsmf\_NIDD service.

For 3GPP specific HTTP custom headers used across all service based interfaces, see clause 5.2.3 of 3GPP TS 29.500 [4].

## 6.1.3 Resources

### 6.1.3.1 Overview

Figure 6.1.3.1-1 describes the resource URI structure of the Nsmf\_NIDD API.



**Figure 6.1.3.1-1: Resource URI structure of the Nsmf\_NIDD API**

Table 6.1.3.1-1 provides an overview of the resources and applicable HTTP methods.

**Table 6.1.3.1-1: Resources and methods overview**

| Resource name          | Resource URI                          | HTTP method or custom operation | Description                |
|------------------------|---------------------------------------|---------------------------------|----------------------------|
| Individual PDU session | /pdu-sessions/{pduSessionRef}/deliver | deliver (POST)                  | Delivery Service Operation |

6.1.3.2 Resource: Individual PDU session

6.1.3.2.1 Description

This resource represents an individual PDU session created in SMF for NIDD.

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

6.1.3.2.2 Resource Definition

Resource URI: {apiRoot}/nsmf-nidd/<apiVersion>/pdu-sessions/{pduSessionRef}

This resource shall support the resource URI variables defined in table 6.1.3.2.2-1.

**Table 6.1.3.2.2-1: Resource URI variables for this resource**

| Name          | Definition  |
|---------------|---|
| apiRoot       | See clause 6.1.1  |
| apiVersion    | See clause 6.1.1  |
| pduSessionRef | PDU session reference assigned by the SMF during SMF-NEF Connection creation. |

6.1.3.2.3 Resource Standard Methods

None.

## 6.1.3.2.4 Resource Custom Operations

## 6.1.3.2.4.1 Overview

**Table 6.1.3.2.4.1-1: Custom operations**

| Custom operation URI  | Mapped HTTP method | Description                 |
|-----------------------|--------------------|-----------------------------|
| {resourceUri}/deliver | POST               | Delivery service operation. |
|                       |                    |                             |

## 6.1.3.2.4.2 Operation: deliver

## 6.1.3.2.4.2.1 Description

This custom operation enables to deliver NEF anchored MT data for a given PDU session towards the SMF.

## 6.1.3.2.4.2.2 Operation Definition

This operation shall support the request data structures specified in table 6.1.3.2.4.2.2-1 and the response data structure and response codes specified in table 6.1.3.2.4.2.2-2.

**Table 6.1.3.2.4.2.2-1: Data structures supported by the POST Request Body on this resource**

| Data type      | P | Cardinality | Description  |
|----------------|---|-------------|--|
| DeliverReqData | M | 1           | Representation of the content of a Deliver Request |

**Table 6.1.3.2.4.2.2-2: Data structures supported by the POST Response Body on this resource**

| Data type   | P | Cardinality | Response codes         | Description  |
|---|---|-------------|------------------------|--|
| n/a   |   |             | 204 No Content         | Successful delivery of MT data.  |
| RedirectResponse  | O | 0..1        | 307 Temporary Redirect | Temporary redirection. (NOTE 2)  |
| RedirectResponse  | O | 0..1        | 308 Permanent Redirect | Permanent redirection. (NOTE 2)  |
| DeliverError  | O | 0..1        | 504 Gateway Timeout    | The "cause" attribute may be used to indicate the following application errors:<br>- UE_NOT_REACHABLE, if the UE is not reachable to deliver the mobile terminated data; if Estimated Maximum Waiting Time shall be included if available;<br><br>See table 6.1.7.3-1 for the description of these errors. |
| NOTE 1: The mandatory HTTP error status codes for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] other than those specified in the table above also apply, with a ProblemDetails data type when needed (see clause 5.2.7 of 3GPP TS 29.500 [4]). |   |             |                        |  |
| NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4].  |   |             |                        |  |

**Table 6.1.3.2.4.2-3: Headers supported by the 307 Response Code on this resource**

| Name                  | Data type | P | Cardinality | Description  |
|-----------------------|-----------|---|-------------|--|
| Location              | string    | M | 1           | An alternative URI of the resource located on an alternative service instance within the same SMF or SMF (service) set. For the case, when a request is redirected to the same target resource via a different SCP, see clause 6.10.9.1 in 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string    | O | 0..1        | Identifier of the target NF (service) instance ID towards which the request is redirected  |

**Table 6.1.3.2.4.2-4: Headers supported by the 308 Response Code on this resource**

| Name                  | Data type | P | Cardinality | Description  |
|-----------------------|-----------|---|-------------|--|
| Location              | string    | M | 1           | An alternative URI of the resource located on an alternative service instance within the same SMF or SMF (service) set. For the case, when a request is redirected to the same target resource via a different SCP, see clause 6.10.9.1 in 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string    | O | 0..1        | Identifier of the target NF (service) instance ID towards which the request is redirected  |

## 6.1.4 Custom Operations without associated resources

None

## 6.1.5 Notifications

None.

## 6.1.6 Data Model

### 6.1.6.1 General

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

Table 6.1.6.1-1 specifies the data types defined for the Nsmf\_NIDD service based interface protocol.

**Table 6.1.6.1-1: Nsmf\_NIDD specific Data Types**

| Data type      | Clause defined | Description                                   | Applicability |
|----------------|----------------|---|---------------|
| DeliverReqData | 6.1.6.2.2      | Information within Deliver Request            |               |
| DeliverAddInfo | 6.1.6.2.3      | Deliver Error Response Additional Information |               |
| DeliverError   | 6.1.6.4.1      | Deliver Error Response                        |               |

Table 6.1.6.1-2 specifies data types re-used by the N<sub><NF></sub> 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 N<sub><NF></sub> service based interface.

**Table 6.1.6.1-2: Nsmf\_NIDD re-used Data Types**

| Data type        | Reference           | Comments   | Applicability |
|------------------|---------------------|--|---------------|
| RefToBinaryData  | 3GPP TS 29.571 [15] | Cross-Reference to binary data encoded within a binary body part in an HTTP multipart message. |               |
| ProblemDetails   | 3GPP TS 29.571 [15] | Error description  |               |
| DurationSec      | 3GPP TS 29.571 [15] | Duration in units of seconds   |               |
| RedirectResponse | 3GPP TS 29.571 [15] | Redirect Response  |               |

## 6.1.6.2 Structured data types

### 6.1.6.2.1 Introduction

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

#### 6.1.6.2.2 Type: DeliverReqData

**Table 6.1.6.2.2-1: Definition of type DeliverReqData**

| Attribute name | Data type       | P | Cardinality | Description  | Applicability |
|----------------|-----------------|---|-------------|--|---------------|
| mtData         | RefToBinaryData | M | 1           | This IE shall reference the Mobile Terminated Data (see clause 6.1.6.5.1). |               |

#### 6.1.6.2.3 Type: DeliverAddInfo

**Table 6.1.6.2.3-1: Definition of type DeliverAddInfo**

| Attribute name | Data type   | P | Cardinality | Description  | Applicability |
|----------------|-------------|---|-------------|--|---------------|
| maxWaitingTime | DurationSec | C | 0..1        | This IE shall be present when the estimated maximum wait time is received from the AMF.<br><br>When present, this IE shall contain the estimated maximum wait time (see clause 4.25.5 of 3GPP 23.502 [3]). |               |

## 6.1.6.3 Simple data types and enumerations

### 6.1.6.3.1 Introduction

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

#### 6.1.6.3.2 Simple data types

The simple data types defined in table 6.1.6.3.2-1 shall be supported.

**Table 6.1.6.3.2-1: Simple data types**

| Type Name | Type Definition | Description | Applicability |
|-----------|-----------------|-------------|---------------|
|           |                 |             |               |

## 6.1.6.4 Data types describing alternative data types or combinations of data types

### 6.1.6.4.1 Type: DeliverError

**Table 6.1.6.4.1-1: Definition of type DeliverError as a list of "to be combined data types"**

| Data type      | Cardinality | Description  | Applicability |
|----------------|-------------|--|---------------|
| ProblemDetails | 1           | Detail information of the problem                        |               |
| DeliverAddInfo | 1           | Additional information to be returned in error response. |               |

## 6.1.6.5 Binary data

### 6.1.6.5.1 Mobile Terminated Data

Mobile Terminated Data shall encode the Data Contents of the Payload Container specified in 3GPP TS 24.501 [7], using the vnd.3gpp.5gnas content-type, as summarized in Table 6.1.6.5.1-1.

**Table 6.1.6.5.1-1: Mobile Terminated Data**

| Mobile Terminated Data                      | Reference<br>(3GPP TS 24.501 [7]) | Related NAS SM message |
|---|-----------------------------------|------------------------|
| Payload container contents in octets 4 to n | 9.11.3.39                         | DL NAS Transport       |

## 6.1.7 Error Handling

### 6.1.7.1 General

For the Nsmf\_NIDD API, HTTP error responses shall be supported as specified in clause 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 clauses are applicable for the Nsmf\_NIDD API.

### 6.1.7.2 Protocol Errors

No specific procedures for the Nsmf\_NIDD service are specified.

### 6.1.7.3 Application Errors

The common application errors defined in Table 5.2.7.2-1 of 3GPP TS 29.500 [4] may be used for the Nsmf\_NIDD service.

The application errors defined for the Nsmf\_NIDD service are listed in Table 6.1.7.3-1.

**Table 6.1.7.3-1: Application errors**

| Application Error | HTTP status code    | Description                              |
|-------------------|---------------------|--|
| UE_NOT_REACHABLE  | 504 Gateway Timeout | The UE is not reachable for the service. |

## 6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the Nsmf\_NIDD API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

**Table 6.1.8-1: Supported Features**

| Feature number | Feature Name | Description |
|----------------|--------------|-------------|
|                |              |             |

## 6.1.9 Security

As indicated in 3GPP TS 33.501 [8] and 3GPP TS 29.500 [4], the access to the Nsmf\_NIDD API may be authorized by means of the OAuth2 protocol (see IETF RFC 6749 [9]), based on local configuration, using the "Client Credentials" authorization grant, where the NRF (see 3GPP TS 29.510 [10]) plays the role of the authorization server.

If OAuth2 is used, an NF Service Consumer, prior to consuming services offered by the Nsmf\_NIDD API, shall obtain a "token" from the authorization server, by invoking the Access Token Request service, as described in 3GPP TS 29.510 [10], clause 5.4.2.2.

NOTE: When multiple NRFs are deployed in a network, the NRF used as authorization server is the same NRF that the NF Service Consumer used for discovering the Nsmf\_NIDD service.

The Nsmf\_NIDD API defines scopes for OAuth2 authorization as specified in 3GPP TS 33.501 [15]; it defines a single scope consisting on the name of the service (i.e., "nsmf-nidd"), and it does not define any additional scopes at resource or operation level.

## 6.1.10 HTTP redirection

An HTTP request may be redirected to a different SMF service instance, within the same SMF or a different SMF of an SMF set, e.g. when an SMF service instance is part of an SMF (service) set or when using indirect communications (see 3GPP TS 29.500 [4]).

An SCP that reselects a different SMF producer instance will return the NF Instance ID of the new SMF producer instance in the 3gpp-Sbi-Producer-Id header, as specified in clause 6.10.3.4 of 3GPP TS 29.500 [4].

If an SMF within an SMF set redirects a service request to a different SMF of the set using an 307 Temporary Redirect or 308 Permanent Redirect status code, the identity of the new SMF towards which the service request is redirected shall be indicated in the 3gpp-Sbi-Target-Nf-Id header of the 307 Temporary Redirect or 308 Permanent Redirect response as specified in clause 6.10.9.1 of 3GPP TS 29.500 [4].

---

# Annex A (normative): OpenAPI specification

## A.1 General

This Annex specifies the formal definition of the Nsmf\_NIDD Service API. It consists of OpenAPI 3.0.0 specifications, in YAML format.

This Annex takes precedence when being discrepant to other parts of the specification with respect to the encoding of information elements and methods within the API(s).

**NOTE:** 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 a Git-based repository, that uses the GitLab software version control system (see 3GPP TS 29.501 [5] clause 5.3.1 and 3GPP TR 21.900 [7] clause 5B).

---

## A.2 Nsmf\_NIDD API

```
openapi: 3.0.0

info:
  version: '1.3.0'
  title: 'Nsmf_NIDD'
  description: |
    SMF NIDD Service.
    © 2025, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.

externalDocs:
  description: 3GPP TS 29.542 V19.3.0; 5G System; Session Management Services for Non-IP Data
  Delivery (NIDD); Stage 3
  url: https://www.3gpp.org/ftp/Specs/archive/29_series/29.542/

servers:
  - url: '{apiRoot}/nsmf-nidd/v1'
    variables:
      apiRoot:
        default: https://example.com
        description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501.

security:
  - {}
  - oAuth2ClientCredentials:
    - nsmf-nidd

paths:
  '/pdu-sessions/{pduSessionRef}/deliver':
    post:
      summary: Delivery Service Operation
      tags:
        - Individual PDU session
      operationId: Deliver
      parameters:
        - name: pduSessionRef
          in: path
          description: PDU session reference
          required: true
          schema:
            type: string
      requestBody:
        description: representation of the content of Deliver Request
        required: true
        content:
          multipart/related: # message with a binary body part
```

```

    schema:
      type: object
      properties:
        jsonData:
          $ref: '#/components/schemas/DeliverReqData'
        binaryMtData:
          type: string
          format: binary
      encoding:
        jsonData:
          contentType: application/json
        binaryMtData:
          contentType: application/vnd.3gpp.5gnas
      headers:
        Content-Id:
          schema:
            type: string
responses:
  '204':
    description: successful transferring of Delivery
  '307':
    $ref: 'TS29571_CommonData.yaml#/components/responses/307'
  '308':
    $ref: 'TS29571_CommonData.yaml#/components/responses/308'
  '400':
    $ref: 'TS29571_CommonData.yaml#/components/responses/400'
  '401':
    $ref: 'TS29571_CommonData.yaml#/components/responses/401'
  '403':
    $ref: 'TS29571_CommonData.yaml#/components/responses/403'
  '404':
    $ref: 'TS29571_CommonData.yaml#/components/responses/404'
  '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'
  '502':
    $ref: 'TS29571_CommonData.yaml#/components/responses/502'
  '503':
    $ref: 'TS29571_CommonData.yaml#/components/responses/503'
  '504':
    description: unsuccessful delivery of mobile terminated data - gateway timeout
    content:
      application/json:
        schema:
          $ref: '#/components/schemas/DeliverError'
  default:
    $ref: 'TS29571_CommonData.yaml#/components/responses/default'

components:
  securitySchemes:
    oAuth2ClientCredentials:
      type: oauth2
      flows:
        clientCredentials:
          tokenUrl: '{nrfApiRoot}/oauth2/token'
          scopes:
            nsmf-nidd: Access to the nsmf-nidd API

  schemas:
    #
    # STRUCTURED DATA TYPES
    #
    DeliverReqData:
      description: Representation of the payload of a Deliver Request.
      type: object
      properties:
        mtData:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
      required:
        - mtData

```

```
DeliverAddInfo:
  description: Additional information in an error response to a Deliver Request.
  type: object
  properties:
    maxWaitingTime:
      $ref: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
```

```
#
# DATA TYPES DESCRIBING ALTERNATIVE OR COMBINATION OF DATA TYPES
#
```

```
DeliverError:
  description: Representation of the payload in an error response to a Deliver Request.
  allOf:
    - $ref: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    - $ref: '#/components/schemas/DeliverAddInfo'
```

## Annex B (informative): Change history

| Change history |          |           |      |     |     |   |             |
|----------------|----------|-----------|------|-----|-----|---|-------------|
| Date           | Meeting  | TDoc      | CR   | Rev | Cat | Subject/Comment   | New version |
| 2020-03        | CT4#96-e | C4-201267 |      |     |     | Initial Draft.  | 0.1.0       |
| 2020-03        | CT#87e   | CP-200093 |      |     |     | Presented for information and approval                    | 1.0.0       |
| 2020-03        | CT#87e   |           |      |     |     | Approved at CT#87e  | 16.0.0      |
| 2020-06        | CT#88e   | CP-201071 | 0001 | 2   | F   | Storage of YAML files in ETSI Forge                       | 16.1.0      |
| 2020-06        | CT#88e   | CP-201046 | 0003 |     | F   | Miscellaneous Corrections                                 | 16.1.0      |
| 2020-06        | CT#88e   | CP-201073 | 0004 |     | F   | 29.542 Rel-16 API version and External doc update         | 16.1.0      |
| 2020-09        | CT#89e   | CP-202105 | 0005 |     | F   | Optionality of DeliverError                               | 16.2.0      |
| 2020-12        | CT#90e   | CP-203032 | 0007 |     | F   | YAML files in 3GPP Forge                                  | 16.3.0      |
| 2021-03        | CT#91e   | CP-210037 | 0010 | 1   | F   | HTTP 3xx redirection                                      | 17.0.0      |
| 2021-03        | CT#91e   | CP-210034 | 0011 | 1   | F   | OpenAPI Reference   | 17.0.0      |
| 2021-03        | CT#91e   | CP-210054 | 0013 | -   | F   | 29.542 Rel-16 API version and External doc update         | 17.0.0      |
| 2021-06        | CT#92e   | CP-210050 | 0014 | 1   | F   | Resolving Warning in Nsmf_NIDD API                        | 17.1.0      |
| 2021-06        | CT#92e   | CP-210050 | 0017 | 1   | A   | Redirect Response   | 17.1.0      |
| 2021-06        | CT#92e   | CP-210050 | 0018 |     | F   | 29.542 Rel-17 API version and External doc update         | 17.1.0      |
| 2021-09        | CT#93e   | CP-212060 | 0021 | -   | A   | 3xx description correction for SCP                        | 17.2.0      |
| 2022-03        | CT#95e   | CP-220025 | 0025 | 1   | F   | SMF reference model update                                | 17.3.0      |
| 2022-06        | CT#96    | CP-221051 | 0027 |     | F   | 29.542 Rel-17 API version and External doc update         | 17.4.0      |
| 2022-12        | CT#98    | CP-223028 | 0029 | 1   | F   | Missing Mandatory Status Codes in OpenAPI                 | 18.0.0      |
| 2022-12        | CT#98    | CP-223033 | 0030 |     | F   | 29.542 Rel-18 API version and External doc update         | 18.0.0      |
| 2023-06        | CT#100   | CP-231028 | 0031 | 3   | F   | Location header description                               | 18.1.0      |
| 2023-09        | CT#101   | CP-232063 | 0035 | 1   | F   | Update on the references                                  | 18.2.0      |
| 2023-12        | CT#102   | CP-233029 | 0036 | 1   | F   | HTTP RFCs obsoleted by IETF RFC 9110, 9111 and 9113       | 18.3.0      |
| 2023-12        | CT#102   | CP-233030 | 0037 |     | F   | ProblemDetails RFC 7807 obsoleted by 9457                 | 18.3.0      |
| 2024-06        | CT#104   | CP-241052 | 0038 |     | F   | 29.542 Rel-18 API version and External doc update         | 18.4.0      |
| 2024-09        | CT#105   | CP-242030 | 0039 | 1   | F   | The term Payload is replaced with Content due to RFC 9113 | 19.0.0      |
| 2024-09        | CT#105   | CP-242038 | 0040 |     | F   | 29.542 Rel-19 API version and External doc update         | 19.0.0      |
| 2025-06        | CT#108   | CP-251067 | 0041 |     | F   | Missed API Description Table                              | 19.1.0      |
| 2025-06        | CT#108   | CP-251079 | 0042 |     | F   | API version and External doc update                       | 19.1.0      |
| 2025-09        | CT#109   | CP-252176 | 0043 |     | F   | API version and External doc update                       | 19.2.0      |
| 2025-12        | CT#110   | CP-253143 | 0044 |     | F   | Add Condition for Conditional IE                          | 19.3.0      |
| 2025-12        | CT#110   | CP-253167 | 0045 |     | F   | API version and External doc update                       | 19.3.0      |

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## History

| <b>Version</b> | <b>Date</b>   | <b>Status</b> |
|----------------|---------------|---------------|
| V19.3.0        | February 2026 | Publication   |
|                |               |               |
|                |               |               |
|                |               |               |
|                |               |               |