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Contents

Foreword

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

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In the present document, modal verbs have the following meanings:

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shall not indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

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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

In addition:

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.

1 Scope

The present document specifies the stage 3 protocol and data model for the Niwmsc Service Based Interface. It provides stage 3 protocol definitions and message flows, and specifies the API for each service offered by the SMS-IWMSC.

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].

Stage 2 requirements for the Niwmsc services are specified in 3GPP TS 23.540 [14].

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 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[13] IETF RFC 7807: "Problem Details for HTTP APIs".

[14] 3GPP TS 23.540: "Technical realization of Service Based Short Message Service; Stage 2".

[15] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3".

[16] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[17] 3GPP TS 29.577: "5G System; IP Short Message Gateway and SMS Router For Short Message Service; Stage 3".

[18] 3GPP TS 24.011: " Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

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].

Niwmsc: Service-based interface exhibited by the SMS-IWMSC

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].

SM MO Short Message Mobile Originated

4 Overview

The SMS-IWMSC offers services to the SMSF via the Niwmsc service based interface (see 3GPP TS 23.501 [2], 3GPP TS 23.502 [3], and 3GPP TS 23.540 [14]).

Figure 4.1-1 provides the reference model (in service based interface representation and in reference point representation), with focus on the SMS-IWMSC.

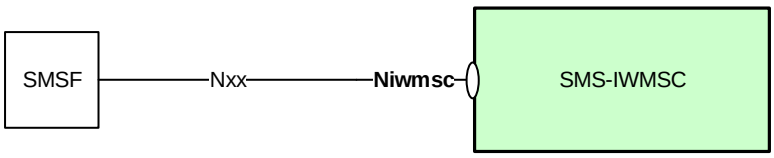

Figure 4.1-1: Reference model – SMS-IWMSC

The functionalities supported by the SMS-IWMSC are listed in clause 6.3 of 3GPP TS 23.540 [14].

5 Services offered by the SMS-IWMSC

5.1 Introduction

The SMS-IWMSC offers the following services via the Niwmsc interface:

- Niwmsc_SMService Service

Table 5.1-1 summarizes the corresponding APIs defined for this specification.

Table 5.1-1: API Descriptions

Service Name	Clause	Description	OpenAPI Specification File	apiName	Annex
Niwmsc_SMService	6.1	SMS-IWMSC short message service	TS29579_Niwmsc_SMService.yaml	niwmsc-smservice	A.2

5.2 Niwmsc_SMService Service

5.2.1 Service Description

See 3GPP TS 23.540 [14] clause 6.3.1

5.2.2 Service Operations

5.2.2.1 Introduction

For the Niwmsc_SMService service the following service operations are defined:

- MoForwardSm

The Niwmsc_SMService Service is used by Consumer NFs (SMSF) to transfer MO short message by means of the MoForwardSm service operation.

5.2.2.2 MoForwardSm

5.2.2.2.1 General

This clause provides a general description of the MoForwardSm service operation.

5.2.2.2.2 SBI-based MO SM transfer

The MoForwardSm service operation shall be used to transmit uplink SMS message via SMS-IWMSC.

It is used in the following procedures:

- Successful Mobile Originated short message transfer via SMS-IWMSC (see clause 5.2.2 of 3GPP TS 23.540 [14]).
- Unsuccessful Mobile Originated short message transfer via SMS-IWMSC (see clause 5.2.3 of 3GPP TS 23.540 [14]).

The NF Service Consumer (e.g. SMSF) shall transmit uplink SMS message to the SMS-IWMSC by using the HTTP POST method as shown in Figure 5.2.2.2.1-1.

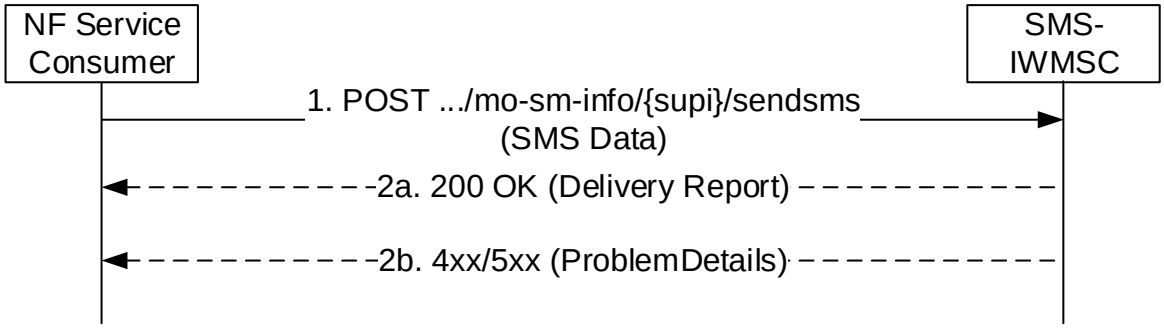

Figure 5.2.2.2.2-1: SBI-based MO SM transfer

1. The NF Service Consumer shall send a POST request to the resource representing the UE's Mobile Originated Short Message Information resource (i.e. …/mo-sm-info/{supi}/sendsms) of the SMS-IWMSC. The payload body of the POST request shall contain the SMS message to be sent.

2a. On success, "200 OK" shall be returned with "SmsDeliveryData" object contains the MO SMS Delivery Report in the response body.

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.

6 API Definitions

6.1 Niwmsc_SMService Service API

6.1.1 Introduction

The Niwmsc_SMService shall use the Niwmsc_SMService API.

The API URI of the Niwmsc_SMService API shall be:

{apiRoot}/<apiName>/<apiVersion>

The request URIs used in HTTP requests 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 "niwmsc-smservice".
- 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 7540 [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 Niwmsc_SMService API is contained in Annex A.

6.1.2.2 HTTP standard headers

6.1.2.2.1 General

See clause 5.2.2 of 3GPP TS 29.500 [4] for the usage of HTTP standard headers.

6.1.2.2.2 Content type

JSON, IETF RFC 8259 [12], shall be used as content type of the HTTP bodies specified in the present specification as specified in clause 5.4 of 3GPP TS 29.500 [4]. The use of the JSON format shall be signalled by the content type "application/json".

"Problem Details" JSON object shall be used to indicate additional details of the error in a HTTP response body and shall be signalled by the content type "application/problem+json", as defined in IETF RFC 7807 [13].

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 binary body part 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.sms	Binary encoded payload, encoding SMS payload, as specified in 3GPP TS 23.040 [16] and 3GPP TS 24.011 [17].
NOTE: Using 3GPP vendor content subtypes allows to describe the nature of the opaque payload (e.g. SMS payload) without having to rely on metadata in the JSON payload.	

See clause 6.1.2.4 for the binary payloads supported in the binary body part of multipart messages.

6.1.2.3 HTTP custom headers

The mandatory HTTP custom header fields specified in clause 5.2.3.2 of 3GPP TS 29.500 [4] shall be supported, and the optional HTTP custom header fields specified in clause 5.2.3.3 of 3GPP TS 29.500 [4] may be supported.

6.1.2.4 HTTP multipart messages

HTTP multipart messages shall be supported, to transfer opaque SMS payload (e.g. SMS message, CP Ack, etc.), in the following service operations (and HTTP messages):

- MoForwardSm service operation;

HTTP multipart messages shall include one JSON body part and one binary body part comprising content of SMS payload content (see clause 6.1.6.5).

The JSON body part shall be the "root" body part of the multipart message. It shall be encoded as the first body part of the multipart message. The "Start" parameter does not need to be included.

The multipart message shall include a "type" parameter (see IETF RFC 2387 [18]) specifying the media type of the root body part, i.e. "application/json".

NOTE: The "root" body part (or "root" object) is the first body part the application processes when receiving a multipart/related message, see IETF RFC 2387 [18]. The default root is the first body within the multipart/related message. The "Start" parameter indicates the root body part, e.g. when this is not the first body part in the message.

A binary body part shall include a Content-ID header (see IETF RFC 2045 [19]), and the JSON body part shall make a reference to the binary body part using the Content-ID header field.

Examples of multipart/related messages can be found in Annex B.

6.1.3 Resources

6.1.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 6.1.3.1-1 depicts the resource URIs structure for the Niwmsc_SMService API.

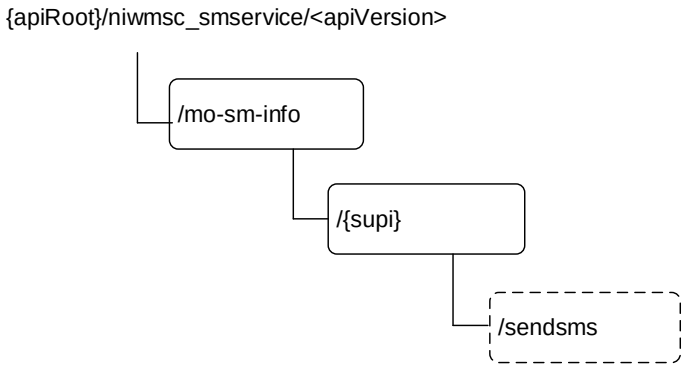

Figure 6.1.3.1-1: Resource URI structure of the Niwmsc_SMService API

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 purpose/name	Resource URI (relative path after API URI)	HTTP method or custom operation	Description (service operation)
SMService	/mo-sm-info/{supi}/sendsms	sendsms (POST)	MO short message transfer

6.1.3.2 Resource: MoSmInfo

6.1.3.2.1 Description

This resource represents the collection of Mobile Originated Short Message Information in SMS-IWMSC.

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}/<apiName>/<apiVersion>/mo-sm-info{supi}**

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	Data type	Definition
apiRoot	string	See clause 6.1.1
supi	Supi	Represents the Subscription Permanent Identifier (see 3GPP TS 23.501 [2] clause 5.9.2) pattern: See pattern of type Supi in 3GPP TS 29.571 [15]

6.1.3.2.3 Resource Standard Methods

No HTTP method has been defined for the Mobile Originated Short Message Information collection resource.

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

Operation name	Custom operaration URI	Mapped HTTP method	Description
sendsms	/mo-sm-infos/{supi}/sendsms	POST	Send MO SMS message or the related Delivery Report.

6.1.3.2.4.2 Operation: sendsms

6.1.3.2.4.2.1 Description

This custom operation is used for NF Service Consumers to send SMS message in uplink direction.

6.1.3.2.4.2.2 Operation Definition

This custom operation is used to send a SMS payload to an UE's Mobile Originated Short Message Information resource in the SMS-IWMSC.

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 sendsms Request Body on this resource

Data type	P	Cardinality	Description
SmsData	M	1	Representation of the MO SMS message to be sent.

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

Data type	P	Cardinality	Response codes	Description
SmsDeliveryData	M	1	200 OK	This case represents the successful of sending SMS message in uplink direction, with necessary response data on the received delivery report.
ProblemDetails	O	0..1	400 Bad Request	This case represents an unsuccessful delivery of SMS message. The "cause" attribute may be used to indicate one of the following application errors: - SMS_PAYLOAD_MISSING, if the expected SMS payload content is missing; - SMS_PAYLOAD_ERROR, if error exists in the SMS payload content.
ProblemDetails	O	0..1	403 Forbidden	This case represents an unsuccessful delivery of SMS message. The "cause" attribute may be used to indicate one of the following application errors: - UNKNOWN_SERVICE_CENTRE_ADDRESS, if the SMS-SC was unknown; - SERVICE_CENTRE_CONGESTION, if the SMS-SC was in congestion; - USER_NOT_SERVICE_CENTER, if the user didn't belongs to the SMS-SC; - FACILITY_NOT_SUPPORTED, if the facility not supported; - INVALID_SME_ADDRESS, if the SME address is invalid..
ProblemDetails	O	0..1	504 Gateway Timeout	This case represents an unsuccessful delivery of SMS message. The "cause" attribute may be used to indicate one of the following application errors: - UNREACHABLE_SMS_SC, if the response is timeout.
NOTE: The manadatory HTTP error status code for the <e.g. POST> method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.				

6.1.4 Custom Operations without associated resources

In this release of this specification, no custom operations without associated resources are defined.

6.1.5 Notifications

In this release of this specification, no notification procedures are defined.

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 N_{iwmsc} service based interface protocol.

Table 6.1.6.1-1: N_{iwmsc} specific Data Types

Data type	Clause defined	Description	Applicability
N/A			

Table 6.1.6.1-2 specifies data types re-used by the N_{iwmsc} 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_{iwmsc} service based interface.

Table 6.1.6.1-2: N_{iwmsc} re-used Data Types

Data type	Reference	Comments	Applicability
ProblemDetails	3GPP TS 29.571 [15]	Common Data Type used in response bodies	
RedirectResponse	3GPP TS 29.571 [15]	Redirect Response	
Supi	3GPP TS 29.571 [15]	Subscription Permanent Identifier	
RefToBinaryData	3GPP TS 29.571 [15]	Information for indicating the binary content of SMS payload.	
Ipv4Addr	3GPP TS 29.571 [15]	IPv4 address	
Ipv6Addr	3GPP TS 29.571 [15]	IPv6 address	
SupportedFeatures	3GPP TS 29.571 [15]	Supported Features	
SmsData	3GPP TS 29.577 [17]	Information within request message invoking MoForwardSm service operation, for delivering MO SMS.	
SmsDeliveryData	3GPP TS 29.571 [17]	Information within response message invoking MoForwardSm service operation, for delivering MO SMS Delivery Report.	

6.1.6.2 Structured data types

In this release of this specification, no structure to be used in resource representations is defined.

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
N/A			

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

None.

6.1.6.5 Binary data

6.1.6.5.1 Binary Data Types

Table 6.1.6.5.1-1: Binary Data Types

Name	Clause defined	Content type
SMS Payload Information	6.1.6.4.2	vnd.3gpp.sms

6.1.6.5.2 SMS Payload Information

SMS Payload Information shall encode a SMS payload as specified in 3GPP TS 23.040 [16] and 3GPP TS 24.011 [18], using the vnd.3gpp.sms content-type.

SMS Payload Information may encode e.g. the following content:

- CP-DATA, CP-ACK, CP-ERROR as specified in 3GPP TS 23.040 [16] and 3GPP TS 24.011 [18].

6.1.7 Error Handling

6.1.7.1 General

For the Niwmsc_SMService 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 Niwmsc_SMService API.

6.1.7.2 Protocol Errors

No specific procedures for the Niwmsc_SMService service are specified.

6.1.7.3 Application Errors

The application errors defined for the Niwmsc_SMService service are listed in Table 6.1.7.3-1.

Table 6.1.7.3-1: Application errors

Application Error	HTTP status code	Description
SMS_PAYLOAD_MISSING	400 Bad Request	The expected SMS payload content is missing.
SMS_PAYLOAD_ERROR	400 Bad Request	Errors exist in the format of SMS payload.
SERVICE_CENTRE_CONGESTION	403 Forbidden	The delivery of the MO short message failed because SMS-SC was in congestion.
USER_NOT_SERVICE_CENTER	403 Forbidden	The delivery of the short message failed because the user didn't belongs to the SMS-SC.
FACILITY_NOT_SUPPORTED	403 Forbidden	The delivery of the MO short message failed because of facility not supported.
INVALID_SME_ADDRESS	403 Forbidden	The delivery of the MO short message failed because the SME address is invalid.
UNREACHABLE_SMS_SC	504 Gateway Timeout	The delivery of the MO short message failed because the response is timeout.

6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the Niwmsc_SMService 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
N/A		

6.1.9 Security

As indicated in 3GPP TS 33.501 [8] and 3GPP TS 29.500 [4], the access to the Niwmsc_SMService 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 Niwmsc_SMService 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 Niwmsc_SMService service.

The Niwmsc_SMService API defines a single scope "niwmsc-smservice" for the entire service, and it does not define any additional scopes at resource or operation level.

Annex A (normative): OpenAPI specification

A.1 General

This Annex specifies the formal definition of the API(s) defined in the present specification. It consists of OpenAPI 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 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 a Git-based repository that uses the GitLab software version control system (see clause 5.3.1 of 3GPP TS 29.501 [5] and clause 5B of 3GPP TR 21.900 [7]).

A.2 Niwmsc_SMService API

```
openapi: 3.0.0
info:
  title: 'Niwmsc_SMService'
  version: '1.0.0'
  description: |
    SMS-IWMSC Short Message Service.
    © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
    All rights reserved.

externalDocs:
  description: 3GPP TS 29.579 V17.0.0; 5G System; SMS Services; Stage 3.
  url: https://www.3gpp.org/ftp/Specs/archive/29_series/29.579/

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

security:
  - oAuth2ClientCredentials:
    - niwmsc-smservice
  - {}

paths:
  /mo-sm-infos/{supi}/sendsms:
    post:
      summary: Send SMS payload for a given UE
      operationId: SendSMS
      tags:
        - Send MO SMS message and the delivery report
      parameters:
        - name: supi
          in: path
          required: true
          description: Subscription Permanent Identifier (SUPI)
          schema:
            type: string
      requestBody:
        content:
          multipart/related:
            schema:
              type: object
              properties:
                jsonData:
```

```
                $ref: '#/components/schemas/SmsData'
              binaryPayload:
                type: string
                format: binary
          encoding:
            jsonData:
              contentType: application/json
            binaryPayload:
              contentType: application/vnd.3gpp.sms
              headers:
                Content-Id:
                  schema:
                    type: string
      required: true
    responses:
      '200':
        description: sending delivery report
        content:
          multipart/related:
            schema:
              $ref: '#/components/schemas/SmsDeliveryData'
      '400':
        $ref: 'TS29571_CommonData.yaml#/components/responses/400'
      '404':
        $ref: 'TS29571_CommonData.yaml#/components/responses/403'
      '503':
        $ref: 'TS29571_CommonData.yaml#/components/responses/504'
      default:
        $ref: 'TS29571_CommonData.yaml#/components/responses/default'

components:

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

  schemas:

    SmsData:
      description: >
        Information within resquest message invoking MoForwardSm service operation,
        for delivering MO SMS.
      type: object
      required:
        - smsPayload
      properties:
        smsPayload:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'

    SmsDeliveryData:
      description: >
        Information within response message invoking MoForwardSm service operation,
        for delivering MO SMS Delivery Report.
      type: object
      required:
        - smsPayload
      properties:
        smsPayload:
          $ref: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'

# COMPLEX TYPES:



# SIMPLE TYPES:



# ENUMS:
```

Annex B (informative): Withdrawn API versions

B.1 General

This Annex lists withdrawn API versions of the APIs defined in the present specification. 3GPP TS 29.501 [5] clause 4.3.1.6 describes the withdrawal of API versions.

B.2 Niwmsc_SMService API

The API versions listed in table B.2-1 are withdrawn for the Niwmsc_SMService API.

Table B.2-1: Withdrawn API versions of the Niwmsc_SMService service

API version number	Remarks

Annex C (informative): Change history

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
2022-04	CT4#109e	C4-222331				C4-222331 as basis	0.1.0
2022-04	CT4#109e	C4-222343				Implementation of C4-222343 in CT4#109e	0.2.0
2022-05	CT4#110e	C4-223452				Implementation of C4-223219 and C4-223224 in CT4#110e	0.3.0
2022-06	CT#96	CP-221080				TS presented for information and approval	1.0.0
2022-06	CT#96	CP-221080				TS approved at CT#95	17.0.0

History

Document history		
V17.0.0	July 2022	Publication