



UCC 5G AMF API Reference, Release 2026.02

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About this Guide



Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. While any existing biased terms are being substituted, exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

This preface describes the *Ultra Cloud Core 5G Access and Mobility Management Function - API Reference*, the document conventions, and the customer support details.

- [Conventions Used, on page ix](#)
- [Contacting Customer Support, on page x](#)

Conventions Used

The following tables describe the conventions used throughout this documentation.

Notice Type	Description
Information Note	Provides information about important features or instructions.
Caution	Alerts you of potential damage to a program, device, or system.
Warning	Alerts you of potential personal injury or fatality. May also alert you of potential electrical hazards.

Typeface Conventions	Description
Text represented as a screen display	This typeface represents displays that appear on your terminal screen, for example: Login:

Typeface Conventions	Description
Text represented as commands	This typeface represents commands that you enter, for example: show ip access-list This document always gives the full form of a command in lowercase letters. Commands are not case sensitive.
Text represented as a command variable	This typeface represents a variable that is part of a command, for example: show card slot_number <i>slot_number</i> is a variable representing the applicable chassis slot number.
Text represented as menu or sub-menu names	This typeface represents menus and sub-menus that you access within a software application, for example: Click the File menu, then click New

Contacting Customer Support

Use the information in this section to contact customer support.

Refer to the support area of <http://www.cisco.com> for up-to-date product documentation or to submit a service request. A valid username and password are required to access this site. Please contact your Cisco sales or service representative for additional information.



CHAPTER

1

Equipment Identity Register

EIR allows the AMF to interact with EIR to validate the UE identity during the UE registration procedure.

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- [Servers, on page 2](#)
- [Security, on page 2](#)
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OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.1.1'

Title: '5G-EIR Equipment Identity Check'

Description: |

5G-EIR Equipment Identity Check Service.

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Servers

URL: '{apiRoot}/n5g-eir-eic/v1'

Variables:

API Root:

Default: https://example.com

Description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501

Security

```
- {}  
- oAuth2ClientCredentials:  
  - n5g-eir-eic
```

Paths

equipment-status

get:

Summary: Retrieves the status of the UE

Operation ID: GetEquipmentStatus

Tags:

- Equipment Status (Document)

Parameters:

- **Name:** pei

In: query

Description: PEI of the UE

Required/Optional: true

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'

- **Name:** supi

In: query

Description: SUPI of the UE

Required/Optional: false

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

- **Name:** gpsi

In: query

Description: GPSI of the UE

Required/Optional: false

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

- **Name:** supported-features

In: query

Description: supported features of the NF consumer

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

Responses:

'200':

Description: Expected response to a valid request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/EirResponseData'

'307':

Description: temporary redirect

Headers:**Location:**

Description: 'An alternative URI of the resource located on an alternative service instance within the same 5G-EIR or 5G-EIR (service) set '

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: 'Identifier of target 5G-EIR (service) instance towards which the request is redirected'

Schema:

Type: string

'308':

Description: permanent redirect

Headers:**Location:**

Description: 'An alternative URI of the resource located on an alternative service instance within the same 5G-EIR or 5G-EIR (service) set '

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: 'Identifier of target 5G-EIR (service) instance towards which the request is redirected'

Schema:

Type: string

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'401':

Reference: 'TS29571_CommonData.yaml#/components/responses/401'

'404':

Description: PEI Not Found

Content:

application/problem+json:

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

'414':

Reference: 'TS29571_CommonData.yaml#/components/responses/414'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Description: Unexpected error

Components

securitySchemes:

oAuth2ClientCredentials:

Type: oauth2

Flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

n5g-eir-eic: Access to the N5g-eir_EquipmentIdentityCheck API

schemas:

EirResponseData:**Type:** object**Required:**

- status

Properties:**status:****Reference:** '#/components/schemas/EquipmentStatus'**EquipmentStatus:****Type:** string**enum:**

- WHITELISTED
- BLACKLISTED
- GREYLISTED

External Docs

Description: 3GPP TS 29.511 V16.4.0; 5G System; Equipment Identity Register Services; Stage 3**URL:** 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.511/'



CHAPTER 2

Namf_Communication

This service enables an NF to communicate with the UE through N1 NAS messages or with the AN (both UE and non UE specific). The service operations defined below allow the NF to communicate with the UE and the AN. The following are the key functionalities of this NF service.

- Provide service operations for transporting N1 messages to the UE;
- Allow NFs to subscribe and unsubscribe for notifications of specific N1 messages from the UE;
- Allow NFs to subscribe and unsubscribe for notifications about specific information from AN;
- Provide service operations for initiating N2 messages towards the AN;
- Security Context Management; and
- UE information management and transfer (including its security context).

Reference: 3GPP TS 29.518 [14]

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- [Components, on page 26](#)
- [External Docs, on page 45](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: 1.0.0

Title: Namf_Communication

Description: AMF Communication Service

Servers

URL: '{apiRoot}/namf-comm/v1'

Variables:

API Root:

Default: https://example.com

Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2Clientcredentials:
  - namf-comm
```

Paths

/ue-contexts/{ueContextId}

put:

Summary: Namf_Communication CreateUEContext service Operation

Tags:

- Individual ueContext (Document)

Operation ID: CreateUEContext

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:

Type: string

pattern:

'^(5g-guti-[0-9]{5,6}[0-9a-fA-F]{14}|imsi-[0-9]{5,15}|nai-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|.+)\$'

Request Body:

Content:

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/UeContextCreateData'

binaryDataN1Message:

Type: string

```
    Format: binary
    binaryDataN2Information:
      Type: string
      Format: binary
    binaryDataN2InformationExt1:
      Type: string
      Format: binary
  Encoding:
    JSON Data:
      Content Type: application/json
    binaryDataN1Message:
      Content Type: application/vnd.3gpp.5gnas
    Headers:
      Content ID:
        Schema:
          Type: string
    binaryDataN2Information:
      Content Type: application/vnd.3gpp.ngap
    Headers:
      Content ID:
        Schema:
          Type: string
    binaryDataN2InformationExt1:
      Content Type: application/vnd.3gpp.ngap
    Headers:
      Content ID:
        Schema:
          Type: string
  Required/Optional: true

Responses:
  '201':
    Description: UE context successfully created.
    Headers:
      Location:
        description: 'Contains the URI of the newly created resource,
according to the structure: {apiRoot}/namf-comm/v1/ue-contexts/{ueContextId}'
        Required/Optional: true
        Schema:
          Type: string
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/UeContextCreatedData'
      Multipart/Related: # message with binary body part(s)
        Schema:
          Type: object
          Properties: # Request parts
            JSON Data:
              Reference: '#/components/schemas/UeContextCreatedData'
            binaryDataN1Message:
              Type: string
```

```

        Format: binary
        binaryDataN2Information:
          Type: string
          Format: binary
      Encoding:
        JSON Data:
          Content Type: application/json
        binaryDataN1Message:
          Content Type: application/vnd.3gpp.5gnas
      Headers:
        Content ID:
          Schema:
            Type: string
        binaryDataN2Information:
          Content Type: application/vnd.3gpp.ngap
      Headers:
        Content ID:
          Schema:
            Type: string
'400':
  Description: Bad Request
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/UeContextCreateError'
'403':
  Description: Forbidden
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/UeContextCreateError'
'411':
  Reference: 'TS29571_CommonData.yaml#/components/responses/411'
'413':
  Reference: 'TS29571_CommonData.yaml#/components/responses/413'
'415':
  Reference: 'TS29571_CommonData.yaml#/components/responses/415'
'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Description: Internal Server Error
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/UeContextCreateError'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Description: Unexpected error

```

/ue-contexts/{ueContextId}/release

Method: Post

Summary: Namf_Communication ReleaseUEContext service Operation

Tags:

- Individual ueContext (Document)

Operation ID: ReleaseUEContext

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:

Type: string

pattern:

'^(5g-guti-[0-9]{5,6}[0-9a-fA-F]{14}|imsi-[0-9]{5,15}|nai-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|.+)\$'

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/UEContextRelease'

Required/Optional: true

Responses:

'204':

Description: UE Context successfully released

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Description: Unexpected error

/ue-contexts/{ueContextId}/assign-ebi

Method: Post

Summary: Namf_Communication EBI Assignment service Operation

Tags:

- Individual ueContext (Document)

Operation ID: EBIAssignment

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:

Type: string

pattern:

'^(5g-guti-[0-9]{5,6}[0-9a-fA-F]{14}|imsi-[0-9]{5,15}|nai-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|.+)\$'

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AssignEbiData'

Required/Optional: true

Responses:

'200':

Description: EBI Assignment successfully performed.

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AssignedEbiData'

'400':

Description: Bad Request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AssignEbiError'

'403':

Description: Forbidden

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AssignEbiError'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Description: Internal Server Error

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AssignEbiError'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Description: Unexpected error

/ue-contexts/{ueContextId}/transfer

Method: Post

Summary: Namf_Communication UEContextTransfer service Operation

Tags:

- Individual ueContext (Document)

Operation ID: UEContextTransfer

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:

Type: string

pattern:

'^(5g-guti-[0-9]{5,6}[0-9a-fA-F]{14}|imsi-[0-9]{5,15}|nai-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|.+)\$'

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/UeContextTransferReqData'

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/UeContextTransferReqData'

binaryDataN1Message:

Type: string

Format: binary

Encoding:

JSON Data:

Content Type: application/json

binaryDataN1Message:

Content Type: application/vnd.3gpp.5gnas

Headers:

Content ID:
Schema:
Type: string
Required/Optional: true

Responses:

'200':
Description: UE context transfer successfully initiated.
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/UeContextTransferRspData'
Multipart/Related: # message with binary body part(s)
Schema:
Type: object
Properties: # Request parts
JSON Data:
Reference: '#/components/schemas/UeContextTransferRspData'
binaryDataN2Information:
Type: string
Format: binary
Encoding:
JSON Data:
Content Type: application/json
binaryDataN2Information:
Content Type: application/vnd.3gpp.ngap
Headers:
Content ID:
Schema:
Type: string

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'411':
Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':
Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':
Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':
Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:
Description: Unexpected error

/ue-contexts/{ueContextId}/transfer-update

Method: Post

Summary: Namf_Communication RegistrationStatusUpdate service Operation

Tags:

- Individual ueContext (Document)

Operation ID: RegistrationStatusUpdate

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:

Type: string

pattern:

'^(5g-guti-[0-9]{5,6}[0-9a-fA-F]{14}|imsi-[0-9]{5,15}|nai-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|.+)\$'

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/UeRegStatusUpdateReqData'

Required/Optional: true

Responses:

'200':

Description: UE context transfer status successfully updated.

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/UeRegStatusUpdateRspData'

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Reference: 'TS29571_CommonData.yaml#/components/responses/default'

/ue-contexts/{ueContextId}/n1-n2-messages

Method: Post

Summary: Namf_Communication N1N2 Message Transfer (UE Specific) service Operation

Tags:

- n1N2Message collection (Document)

Operation ID: N1N2MessageTransfer

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:

Type: string

pattern:

'^(imsi-[0-9]{5,15}|nai-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|cid-.{1,255}|.+)\$'

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/N1N2MessageTransferReqData'

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/N1N2MessageTransferReqData'

binaryDataN1Message:

Type: string

Format: binary

binaryDataN2Information:

Type: string

Format: binary

Encoding:

JSON Data:

Content Type: application/json

binaryDataN1Message:

Content Type: application/vnd.3gpp.5gnas

Headers:

Content ID:

Schema:

Type: string

binaryDataN2Information:

Content Type: application/vnd.3gpp.ngap

Headers:

Content ID:

Schema:
Type: string
Required/Optional: true

Responses:

'202':
Description: N1N2 Message Transfer accepted.
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/N1N2MessageTransferRspData'

'200':
Description: N1N2 Message Transfer successfully initiated.
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/N1N2MessageTransferRspData'

'307':
Description: Temporary Redirect
Content:
application/problem+json:
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'409':
Description: Conflicts
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/N1N2MessageTransferError'

'411':
Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':
Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':
Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':
Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

'504':
Description: Gateway Timeout
Content:
Application/JSON:
Schema:

Reference: '#/components/schemas/N1N2MessageTransferError'

Default:

Description: Unexpected error

Callbacks:

onN1N2TransferFailure:

'{\$request.body#/n1n2FailureTxnfNotifURI}':

Method: Post

Summary: Namf_Communication N1N2Transfer Failure Notification service Operation

Tags:

- N1N2 Transfer Failure Notification

Operation ID: N1N2TransferFailureNotification

Request Body:

Description: N1N2Transfer Failure Notification

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/N1N2MsgTxfrFailureNotification'

Responses:

'204':

Description: Expected response to a successful callback processing

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

/non-ue-n2-messages/transfer

Method: Post

Summary: Namf_Communication Non UE N2 Message Transfer service Operation

Tags:

- Non UE N2Messages collection (Document)

Operation ID: NonUeN2MessageTransfer

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/N2InformationTransferReqData'

Multipart/Related: # message with binary body part(s)

Schema:

- Type:** object
- Properties:** # Request parts
 - JSON Data:**
 - Reference:** '#/components/schemas/N2InformationTransferReqData'
 - binaryDataN2Information:**
 - Type:** string
 - Format:** binary
 - Encoding:**
 - JSON Data:**
 - Content Type:** application/json
 - binaryDataN2Information:**
 - Content Type:** application/vnd.3gpp.ngap
 - Headers:**
 - Content ID:**
 - Schema:**
 - Type:** string

- Required/Optional:** true

Responses:

'200':

- Description:** Non UE N2 Message Transfer successfully initiated.
- Content:**
 - Application/JSON:**
 - Schema:**
 - Reference:** '#/components/schemas/N2InformationTransferRspData'

'400':

- Description:** Bad Request
- Content:**
 - Application/JSON:**
 - Schema:**
 - Reference:** '#/components/schemas/N2InformationTransferError'

'403':

- Description:** Forbidden
- Content:**
 - Application/JSON:**
 - Schema:**
 - Reference:** '#/components/schemas/N2InformationTransferError'

'404':

- Description:** Not Found
- Content:**
 - Application/JSON:**
 - Schema:**
 - Reference:** '#/components/schemas/N2InformationTransferError'

'411':

- Reference:** 'TS29571_CommonData.yaml#/components/responses/411'

'413':

- Reference:** 'TS29571_CommonData.yaml#/components/responses/413'

'415':

- Reference:** 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Description: Internal Server Error

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/N2InformationTransferError'

'503':

Description: Service Unavailable

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/N2InformationTransferError'

Default:

Description: Unexpected error

/non-ue-n2-messages/subscriptions

Method: Post

Summary: Namf_Communication Non UE N2 Info Subscribe service Operation

Tags:

- Non UE N2Messages Subscriptions collection (Document)

Operation ID: NonUeN2InfoSubscribe

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/NonUeN2InfoSubscriptionCreateData'

Required/Optional: true

Responses:

'201':

Description: Non UE N2 Info Subscription successfully created.

Headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure:

{apiRoot}/namf-comm/v1/non-ue-n2-messages/subscriptions/{n2NotifySubscriptionId}'

Required/Optional: true

Schema:

Type: string

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/NonUeN2InfoSubscriptionCreatedData'

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'
'413':
Reference: 'TS29571_CommonData.yaml#/components/responses/413'
'415':
Reference: 'TS29571_CommonData.yaml#/components/responses/415'
'429':
Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
Description: Unexpected error
Callbacks:
onN2InfoNotify:
'{\$request.body#/n2NotifyCallbackUri}':
Method: Post
Summary: Namf_Communication Non UE N2 Info Notify service Operation

Tags:
- Non UE N2 Info Notify
Operation ID: NonUeN2InfoNotify
Request Body:
Description: Non UE N2 Informaiton Notification
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/N2InformationNotification'
Multipart/Related: # message with binary body part(s)
Schema:
Type: object
Properties: # Request parts
JSON Data:
Reference: '#/components/schemas/N2InformationNotification'
binaryDataN2Information:
Type: string
Format: binary
Encoding:
JSON Data:
Content Type: application/json
binaryDataN2Information:
Content Type: application/vnd.3gpp.ngap
Headers:
Content ID:
Schema:
Type: string

Responses:
'204':
Description: Expected response to a successful callback processing
'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

/non-ue-n2-messages/subscriptions/{n2NotifySubscriptionId}

```

'411':
  Reference: 'TS29571_CommonData.yaml#/components/responses/411'
'413':
  Reference: 'TS29571_CommonData.yaml#/components/responses/413'
'415':
  Reference: 'TS29571_CommonData.yaml#/components/responses/415'
'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'

```

/non-ue-n2-messages/subscriptions/{n2NotifySubscriptionId}

delete:

Summary: Namf_Communication Non UE N2 Info UnSubscribe service Operation

Tags:

- Non UE N2 Message Notification Individual Subscription (Document)

Operation ID: NonUeN2InfoUnSubscribe

Parameters:

- **Name:** n2NotifySubscriptionId
In: path
Description: N2 info Subscription Identifier
Required/Optional: true
Schema:
Type: string

Responses:

```

'204':
  Description: Non UE N2 INfo Subscription successfully removed.
'400':
  Reference: 'TS29571_CommonData.yaml#/components/responses/400'
'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'

```

/subscriptions

Method: Post

Summary: Namf_Communication AMF Status Change Subscribe service Operation

Tags:

- subscriptions collection (Document)

Operation ID: AMFStatusChangeSubscribe

Request Body:**Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/SubscriptionData'**Required/Optional:** true**Responses:****'201':****Description:** N1N2 Message Subscription successfully created.**Headers:****Location:****description:** 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/namf-comm/v1/subscriptions/{subscriptionId}'**Required/Optional:** true**Schema:****Type:** string**Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/SubscriptionData'**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'403':****Reference:** 'TS29571_CommonData.yaml#/components/responses/403'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'**'503':****Reference:** 'TS29571_CommonData.yaml#/components/responses/503'**Default:****Description:** Unexpected error**Callbacks:****onAmfStatusChange:****'{\$request.body#/amfStatusUri}':****Method:** Post**Summary:** Amf Status Change Notify service Operation**Tags:**

- Amf Status Change Notify

Operation ID: AmfStatusChangeNotify**Request Body:****Description:** Amf Status Change Notification**Content:****Application/JSON:**

Schema:**Reference:** '#/components/schemas/AmfStatusChangeNotification'**Responses:****'204':****Description:** Expected response to a successful callback processing**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'404':****Reference:** 'TS29571_CommonData.yaml#/components/responses/404'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'**'503':****Reference:** 'TS29571_CommonData.yaml#/components/responses/503'

/subscriptions/{subscriptionId}

delete:**Summary:** Namf_Communication AMF Status Change UnSubscribe service Operation**Tags:**

- individual subscription (Document)

Operation ID: AMFStatusChangeUnSubscribe**Parameters:**- **Name:** subscriptionId**In:** path**Description:** AMF Status Change Subscription Identifier**Required/Optional:** true**Schema:****Type:** string**Responses:****'204':****Description:** N1N2 Message Subscription successfully removed.**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'404':****Reference:** 'TS29571_CommonData.yaml#/components/responses/404'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'

```
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
  Default:
    Description: Unexpected error
put:
  Summary: Namf_Communication AMF Status Change Subscribe Modify service Operation

  Tags:
    - individual subscription (Document)
  Operation ID: AMFStatusChangeSubscribeModify

  Parameters:
    - Name: subscriptionId
      In: path
      Description: AMF Status Change Subscription Identifier
      Required/Optional: true
      Schema:
        Type: string
  Request Body:
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/SubscriptionData'
        Required/Optional: true

  Responses:
    '202':
      Description: N1N2 Message Subscription successfully updated.
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/SubscriptionData'
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '411':
      Reference: 'TS29571_CommonData.yaml#/components/responses/411'
    '413':
      Reference: 'TS29571_CommonData.yaml#/components/responses/413'
    '415':
      Reference: 'TS29571_CommonData.yaml#/components/responses/415'
    '429':
      Reference: 'TS29571_CommonData.yaml#/components/responses/429'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'
  Default:
    Description: Unexpected error
  Callbacks:
    OnAmfStatusChange:
```

```

    '{$request.body#/amfStatusUri}':
      Method: Post
      Summary: Amf Status Change Notify service Operation

      Tags:
        - Amf Status Change Notify
      Operation ID: AmfStatusChangeNOtify
      Request Body:
        Description: Amf Status Change Notification
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/AmfStatusChangeNotification'

      Responses:
        '204':
          Description: Expected response to a successful callback processing
        '400':
          Reference: 'TS29571_CommonData.yaml#/components/responses/400'
        '403':
          Reference: 'TS29571_CommonData.yaml#/components/responses/403'
        '411':
          Reference: 'TS29571_CommonData.yaml#/components/responses/411'
        '413':
          Reference: 'TS29571_CommonData.yaml#/components/responses/413'
        '415':
          Reference: 'TS29571_CommonData.yaml#/components/responses/415'
        '429':
          Reference: 'TS29571_CommonData.yaml#/components/responses/429'
        '500':
          Reference: 'TS29571_CommonData.yaml#/components/responses/500'
        '503':
          Reference: 'TS29571_CommonData.yaml#/components/responses/503'

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          namf-comm: Access to the Namf_Communication API

schemas:
  # STRUCTURED DATA TYPES
  SubscriptionData:
    Type: object
    Properties:

```

```
    amfStatusUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    guamiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    Required:
      - amfStatusUri
  AmfStatusChangeNotification:
    Type: object
    Properties:
      amfStatusInfoList:
        Type: array
        Items:
          Reference: '#/components/schemas/AmfStatusInfo'
        minItems: 1
      Required:
        - amfStatusInfo
  AmfStatusInfo:
    Type: object
    Properties:
      guamiList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
        minItems: 1
      statusChange:
        Reference: '#/components/schemas/StatusChange'
      targetAmfRemoval:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AmfName'
      targetAmfFailure:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AmfName'
    Required:
      - guamis
      - statusChange
  AssignEbiData:
    Type: object
    Properties:
      pduSessionId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
      arpList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
        minItems: 1
      releasedEbiList:
        Type: array
        Items:
          Reference: '#/components/schemas/EpsBearerId'
        minItems: 1
    Required:
```

```

    - pduSessionId
AssignedEbiData:
  Type: object
  Properties:
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    assignedEbiList:
      Type: array
      Items:
        Reference: 'TS29502_Nsmf_PDUSession.yaml#/components/schemas/EbiArpMapping'
      minItems: 0
    failedArpList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
      minItems: 1
    releasedEbiList:
      Type: array
      Items:
        Reference: '#/components/schemas/EpsBearerId'
      minItems: 1
  Required:
    - pduSessionId
    - assignedEbis
AssignEbiFailed:
  Type: object
  Properties:
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    failedArpList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
      minItems: 1
  Required:
    - pduSessionId
UEContextRelease:
  Type: object
  Properties:
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
    unauthenticatedSupi:
      Type: boolean
      Default: false
    ngapCause:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NgapCause'
  Required:
    - ngapCause
N2InformationTransferReqData:
  Type: object
  Properties:
    tailList:

```

```
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
    minItems: 1
  ratSelector:
    Reference: '#/components/schemas/RatSelector'
  ecgiList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ecgi'
    minItems: 1
  ncgiList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ncgi'
    minItems: 1
  globalRanNodeList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/GlobalRanNodeId'
    minItems: 1
  n2Information:
    Reference: '#/components/schemas/N2InfoContainer'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  Required:
    - n2Information
NonUeN2InfoSubscriptionCreateData:
  Type: object
  Properties:
    globalRanNodeList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/GlobalRanNodeId'
      minItems: 1
    anTypeList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
      minItems: 1
    n2InformationClass:
      Reference: '#/components/schemas/N2InformationClass'
    n2NotifyCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    nfId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  Required:
    - n2InformationClass
    - n2NotifyCallbackUri
NonUeN2InfoSubscriptionCreatedData:
```

```

Type: object
Properties:
  n2NotifySubscriptionId:
    Type: string
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
Required:
  - n2NotifySubscriptionId
UeN1N2InfoSubscriptionCreateData:
Type: object
Properties:
  n2InformationClass:
    Reference: '#/components/schemas/N2InformationClass'
  n2NotifyCallbackUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  n1MessageClass:
    Reference: '#/components/schemas/N1MessageClass'
  n1NotifyCallbackUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  nfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
UeN1N2InfoSubscriptionCreatedData:
Type: object
Properties:
  n1n2NotifySubscriptionId:
    Type: string
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
Required:
  - n1n2NotifySubscriptionId
N2InformationNotification:
Type: object
Properties:
  n2NotifySubscriptionId:
    Type: string
  n2InfoContainer:
    Reference: '#/components/schemas/N2InfoContainer'
  toReleaseSessionList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    minItems: 1
  lcsCorrelationId:
    Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/CorrelationID'
  notifyReason:
    Reference: '#/components/schemas/N2InfoNotifyReason'
Required:
  - n2NotifySubscriptionId
N2InfoContainer:
Type: object

```

```
Properties:
  n2InformationClass:
    Reference: '#/components/schemas/N2InformationClass'
  smInfo:
    Reference: '#/components/schemas/N2SmInformation'
  ranInfo:
    Reference: '#/components/schemas/N2RanInformation'
  nrppaInfo:
    Reference: '#/components/schemas/NrppaInformation'
  pwsInfo:
    Reference: '#/components/schemas/PwsInformation'
Required:
  - n2InformationClass
N1MessageNotification:
  Type: object
  Properties:
    n1NotifySubscriptionId:
      Type: string
    n1MessageContainer:
      Reference: '#/components/schemas/N1MessageContainer'
    lcsCorrelationId:
      Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/CorrelationID'
    registrationCtxContainer:
      Reference: '#/components/schemas/RegistrationContextContainer'
  Required:
    - n1MessageContainer
N1MessageContainer:
  Type: object
  Properties:
    n1MessageClass:
      Reference: '#/components/schemas/N1MessageClass'
    n1MessageContent:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    nfId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  Required:
    - n1MessageClass
    - n1MessageContent
N1N2MessageTransferReqData:
  Type: object
  Properties:
    n1MessageContainer:
      Reference: '#/components/schemas/N1MessageContainer'
    n2InfoContainer:
      Reference: '#/components/schemas/N2InfoContainer'
    skipInd:
      Type: boolean
      Default: false
    lastMsgIndication:
      Type: boolean
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
```

```

lcsCorrelationId:
  Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/CorrelationID'
ppi:
  Reference: '#/components/schemas/Ppi'
arp:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
5qi:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/5Qi'
nln2FailureTxfNotifURI:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
smfReallocationInd:
  Type: boolean
  Default: false
areaOfValidity:
  Reference: '#/components/schemas/AreaOfValidity'
supportedFeatures:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
N1N2MessageTransferRspData:
Type: object
Properties:
  cause:
    Reference: '#/components/schemas/N1N2MessageTransferCause'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
Required:
  - cause
RegistrationContextContainer:
Type: object
Properties:
  ueContext:
    Reference: '#/components/schemas/UeContext'
  localTimeZone:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
  anType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
  anN2ApId:
    Type: integer
  ranNodeId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/GlobalRanNodeId'
  initialAmfName:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AmfName'
  userLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
  rrcEstCause:
    Type: string
    Pattern: '^ [0-9a-fA-F]+ $'
  ueContextRequest:
    Type: boolean
    Default: false
  anN2IPv4Addr:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
  anN2IPv6Addr:

```

```
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
  allowedNssai:
    Reference: 'TS29531_Nnssf_NSSelection.yaml#/components/schemas/AllowedNssai'
  configuredNssai:
    Type: array
    Items:
      Reference: 'TS29531_Nnssf_NSSelection.yaml#/components/schemas/ConfiguredSnssai'

    minItems: 1
  rejectedNssaiInPlmn:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    minItems: 1
  rejectedNssaiInTa:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    minItems: 1
  Required:
  - ueContext
  - anType
  - anN2ApId
  - ranNodeId
  - initialAmfName
  - userLocation
  AreaOfValidity:
    Type: object
    Properties:
      taiList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
        minItems: 0
    Required:
    - taiList
  UeContextTransferReqData:
    Type: object
    Properties:
      reason:
        Reference: '#/components/schemas/TransferReason'
      accessType:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
      plmnId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
      regRequest:
        Reference: '#/components/schemas/N1MessageContainer'
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    Required:
    - reason
    - accessType
  UeContextTransferRspData:
```

```

Type: object
Properties:
  ueContext:
    Reference: '#/components/schemas/UeContext'
  ueRadioCapability:
    Reference: '#/components/schemas/N2InfoContent'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
Required:
  - ueContext
UeContext:
Type: object
Properties:
  supi:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
  supiUnauthInd:
    Type: boolean
  gpsiList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
    minItems: 1
  pei:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
  udmGroupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  ausfGroupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  routingIndicator:
    Type: string
  groupList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
    minItems: 1
  drxParameter:
    Reference: '#/components/schemas/DrxParameter'
  subRfsp:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RfspIndex'
  usedRfsp:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RfspIndex'
  subUeAmbr:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ambr'
  smsSupport:
    Reference: '#/components/schemas/SmsSupport'
  smsfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  seafData:
    Reference: '#/components/schemas/SeafData'
  5gMmCapability:
    Reference: '#/components/schemas/5GMmCapability'
  pcfId:

```

```

    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  pcfAmPolicyUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  amPolicyReqTriggerList:
    Type: array
    Items:
      Reference: '#/components/schemas/AMPolicyReqTrigger'
    minItems: 1
  hpcfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  restrictedRatList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
    minItems: 1
  forbiddenAreaList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Area'
    minItems: 1
  serviceAreaRestriction:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/ServiceAreaRestriction'
  restrictedCoreNwTypeList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/CoreNetworkType'
    minItems: 1
  eventSubscriptionList:
    Type: array
    Items:
      Reference:
'TS29518_Namf_EventExposure.yaml#/components/schemas/AmfEventSubscription'
    minItems: 1
  mmContextList:
    Type: array
    Items:
      Reference: '#/components/schemas/MmContext'
    minItems: 1
    maxItems: 2
  sessionContextList:
    Type: array
    Items:
      Reference: '#/components/schemas/PduSessionContext'
    minItems: 1
  traceData:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
N2SmInformation:
  Type: object
  Properties:
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    n2InfoContent:

```

```

    Reference: '#/components/schemas/N2InfoContent'
  sNssai:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  subjectToHo:
    Type: boolean
  Required:
    - pduSessionId
N2InfoContent:
  Type: object
  Properties:
    ngapMessageType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UInteger'
    ngapIeType:
      Reference: '#/components/schemas/NgapIeType'
    ngapData:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
  Required:
    - ngapIeType
    - ngapData
NrppaInformation:
  Type: object
  Properties:
    nfId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    nrppaPdu:
      Reference: '#/components/schemas/N2InfoContent'
  Required:
    - nfId
    - nrppaPdu
PwsInformation:
  Type: object
  Properties:
    messageIdentifier:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uint16'
    serialNumber:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uint16'
    pwsContainer:
      Reference: '#/components/schemas/N2InfoContent'
    sendRanResponse:
      Type: boolean
      Default: false
    omcId:
      Reference: '#/components/schemas/OmcIdentifier'
  Required:
    - messageIdentifier
    - serialNumber
    - pwsContainer
N1N2MsgTxfrFailureNotification:
  Type: object
  Properties:
    cause:
      Reference: '#/components/schemas/N1N2MessageTransferCause'
    n1n2MsgDataUri:

```

```
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  Required:
    - cause
    - n1n2MsgDataUri
N1N2MessageTransferError:
  Type: object
  Properties:
    error:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    errInfo:
      Reference: '#/components/schemas/N1N2MsgTxfrErrDetail'
  Required:
    - error
N1N2MsgTxfrErrDetail:
  Type: object
  Properties:
    retryAfter:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UInteger'
    highestPrioArp:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
N2InformationTransferRspData:
  Type: object
  Properties:
    result:
      Reference: '#/components/schemas/N2InformationTransferResult'
    pwsRspData:
      Reference: '#/components/schemas/PWSResponseData'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  Required:
    - result
MmContext:
  Type: object
  Properties:
    accessType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
    nasSecurityMode:
      Reference: '#/components/schemas/NasSecurityMode'
    nasDownlinkCount:
      Reference: '#/components/schemas/NasCount'
    nasUplinkCount:
      Reference: '#/components/schemas/NasCount'
    ueSecurityCapability:
      Reference: '#/components/schemas/UeSecurityCapability'
    s1UeNetworkCapability:
      Reference: '#/components/schemas/S1UeNetworkCapability'
    allowedNssai:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      minItems: 1
    nssaiMappingList:
```

```

    Type: array
    Items:
      Reference: '#/components/schemas/NssaiMapping'
    minItems: 1
  nsInstanceList:
    Type: array
    Items:
      Reference: 'TS29531_Nnssf_NSSelection.yaml#/components/schemas/NsiId'
    minItems: 1
  expectedUEbehavior:
    Reference: '#/components/schemas/ExpectedUeBehavior'
  Required:
    - accessType
  SeafData:
    Type: object
    Properties:
      ngKsi:
        Reference: '#/components/schemas/NgKsi'
      keyAmf:
        Reference: '#/components/schemas/KeyAmf'
      nh:
        Type: string
        Pattern: '^[A-Za-f0-9]+$'
      ncc:
        Type: integer
        Minimum: 0
        Maximum: 7
      keyAmfChangeInd:
        Type: boolean
      keyAmfHDERivationInd:
        Type: boolean
    Required:
      - ngKsi
      - keyAmf
  NasSecurityMode:
    Type: object
    Properties:
      integrityAlgorithm:
        Reference: '#/components/schemas/IntegrityAlgorithm'
      cipheringAlgorithm:
        Reference: '#/components/schemas/CipheringAlgorithm'
    Required:
      - integrityAlgorithm
      - cipheringAlgorithm
  PduSessionContext:
    Type: object
    Properties:
      pduSessionId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
      smContextRef:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
      sNssai:

```

```

    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
dnn:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
accessType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
allocatedEbiList:
    Type: array
    Items:
        Reference: 'TS29502_Nsmf_PDUSession.yaml#/components/schemas/EbiArpMapping'
    minItems: 1
hsmfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
vsmfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
nsInstance:
    Reference: 'TS29531_Nnssf_NSSelection.yaml#/components/schemas/NsiId'
Required:
- pduSessionId
- smContextRef
- sNssai
- dnn
- accessType
- allocatedEbiList
NssaiMapping:
    Type: object
    Properties:
        mappedSnssai:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
        hSnssai:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    Required:
- mappedSnssai
- hSnssai
UeRegStatusUpdateReqData:
    Type: object
    Properties:
        transferStatus:
            Reference: '#/components/schemas/UeContextTransferStatus'
        toReleaseSessionList:
            Type: array
            Items:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
            minItems: 1
        pcfReselectedInd:
            Type: boolean
    Required:
- transferStatus
UeRegStatusUpdateRspData:
    Type: object
    Properties:
        regStatusTransferComplete:
            Type: boolean
    Required:

```

```

    - regStatusTransferComplete
AssignEbiError:
  Type: object
  Properties:
    error:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    failureDetails:
      Reference: '#/components/schemas/AssignEbiFailed'
  Required:
    - error
    - failureDetails
UeContextCreateData:
  Type: object
  Properties:
    ueContext:
      Reference: '#/components/schemas/UeContext'
    targetId:
      Reference: '#/components/schemas/NgRanTargetId'
    sourceToTargetData:
      Reference: '#/components/schemas/N2InfoContent'
    pduSessionList:
      Type: array
      Items:
        Reference: '#/components/schemas/N2SmInformation'
      minItems: 1
    n2NotifyUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    ueRadioCapability:
      Reference: '#/components/schemas/N2InfoContent'
    ngapCause:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  Required:
    - ueContext
    - targetId
    - sourceToTargetData
    - pduSessions
UeContextCreatedData:
  Type: object
  Properties:
    ueContext:
      Reference: '#/components/schemas/UeContext'
    targetToSourceData:
      Reference: '#/components/schemas/N2InfoContent'
    pduSessionList:
      Type: array
      Items:
        Reference: '#/components/schemas/N2SmInformation'
      minItems: 1
    ngapCause:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'
    failedSessionList:

```

```
    Type: array
    Items:
      Reference: '#/components/schemas/N2SmInformation'
    minItems: 1
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  pcfReselectedInd:
    Type: boolean
  Required:
    - ueContext
    - targetToSourceData
    - pduSessions
  UeContextCreateError:
    Type: object
    Properties:
      error:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
      ngapCause:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NgapCause'
    Required:
      - error
  NgRanTargetId:
    Type: object
    Properties:
      ranNodeId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/GlobalRanNodeId'
      tai:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
    Required:
      - ranNodeId
      - tai
  PWSResponseData:
    Type: object
    Properties:
      ngapMessageType:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/UInteger'
      serialNumber:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Uint16'
      messageIdentifier:
        Type: integer
      unknownTailList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
        minItems: 1
    Required:
      - ngapMessageType
      - serialNumber
      - messageIdentifier
  PWSErrorData:
    Type: object
    Properties:
      namfCause:
```

```

        Type: integer
    Required:
        - namfCause
N2InformationTransferError:
    Type: object
    Properties:
        error:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
        pwdErrorInfo:
            Reference: '#/components/schemas/PWSErrorData'
    Required:
        - error
NgKsi:
    Type: object
    Properties:
        tsc:
            Reference: '#/components/schemas/ScType'
        ksi:
            Type: integer
            Minimum: 0
            Maximum: 6
    Required:
        - tsc
        - ksi
KeyAmf:
    Type: object
    Properties:
        keyType:
            Reference: '#/components/schemas/KeyAmfType'
        keyVal:
            Type: string
    Required:
        - keyType
        - keyVal
ExpectedUeBehavior:
    Type: object
    Properties:
        expMoveTrajectory:
            Type: array
            Items:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
            minItems: 1
        validityTime:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    Required:
        - expMoveTrajectory
        - validityTime
N2RanInformation:
    Type: object
    Properties:
        n2InfoContent:
            Reference: '#/components/schemas/N2InfoContent'
    Required:

```

```

        - n2InfoContent
# SIMPLE DATA TYPES
EpsBearerId:
  Type: integer
  Minimum: 0
  Maximum: 15
Ppi:
  Type: integer
  Minimum: 0
  Maximum: 7
NasCount:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Uinteger'
5GMMCapability:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
UeSecurityCapability:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
S1UeNetworkCapability:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
DrxParameter:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
OmcIdentifier:
  Type: string
# ENUMERATIONS
StatusChange:
  anyOf:
    - type: string
      enum:
        - AMF_UNAVAILABLE
        - AMF_AVAILABLE
    - type: string
N2InformationClass:
  anyOf:
    - type: string
      enum:
        - SM
        - NRPPa
        - PWS
        - PWS-BCAL
        - PWS-RF
        - RAN
    - type: string
N1MessageClass:
  anyOf:
    - type: string
      enum:
        - 5GMM
        - SM
        - LPP
        - SMS
        - UPDP
    - type: string
N1N2MessageTransferCause:
  anyOf:
    - type: string
      enum:
        - ATTEMPTING_TO_REACH_UE

```

```

        - N1_N2_TRANSFER_INITIATED
        - WAITING_FOR_ASYNCHRONOUS_TRANSFER
        - UE_NOT_RESPONDING
        - N1_MSG_NOT_TRANSFERRED
        - UE_NOT_REACHABLE_FOR_SESSION
    - type: string
UeContextTransferStatus:
  anyOf:
    - type: string
    enum:
      - TRANSFERRED
      - NOT_TRANSFERRED
    - type: string
N2InformationTransferResult:
  anyOf:
    - type: string
    enum:
      - N2_INFO_TRANSFER_INITIATED
    - type: string
CipheringAlgorithm:
  anyOf:
    - type: string
    enum:
      - NEA0
      - NEA1
      - NEA2
      - NEA3
    - type: string
IntegrityAlgorithm:
  anyOf:
    - type: string
    enum:
      - NIA0
      - NIA1
      - NIA2
      - NIA3
    - type: string
SmsSupport:
  anyOf:
    - type: string
    enum:
      - 3GPP
      - NON_3GPP
      - BOTH
      - NONE
    - type: string
ScType:
  anyOf:
    - type: string
    enum:
      - NATIVE
      - MAPPED
    - type: string
KeyAmfType:
  anyOf:
    - type: string
    enum:
      - KAMF
      - KPRIMEAMF

```

```

- type: string
TransferReason:
  anyOf:
    - type: string
      enum:
        - INIT_REG
        - MOBI_REG
        - MOBI_REG_UE_VALIDATED
    - type: string
AMPolicyReqTrigger:
  anyOf:
    - type: string
      enum:
        - LOCATION_CHANGE
        - PRA_CHANGE
        - SARI_CHANGE
        - RFSP_INDEX_CHANGE
    - type: string
RatSelector:
  anyOf:
    - type: string
      enum:
        - E-UTRA
        - NR
    - type: string
NgapIeType:
  anyOf:
    - type: string
      enum:
        - PDU_RES_SETUP_REQ
        - PDU_RES_REL_CMD
        - PDU_RES_MOD_REQ
        - HANDOVER_CMD
        - HANDOVER_REQUIRED
        - HANDOVER_PREP_FAIL
        - SRC_TO_TAR_CONTAINER
        - TAR_TO_SRC_CONTAINER
        - RAN_STATUS_TRANS_CONTAINER
        - SON_CONFIG_TRANSFER
        - NRPPA_PDU
        - UE_RADIO_CAPABILITY
    - type: string
N2InfoNotifyReason:
  anyOf:
    - type: string
      enum:
        - HANDOVER_COMPLETED
    - type: string

```

External Docs

Description: 3GPP TS 29.518 V15.2.0; 5G System; Access and Mobility Management Services

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.518/'



CHAPTER 3

Namf_EventExposure

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OpenAPI

OpenAPI Version: 3.0.0

Info

Version: 1.1.2

Title: Namf_EventExposure

Description: |

AMF Event Exposure Service

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Servers

URL: '{apiRoot}/namf-evts/v1'

Variables:

API Root:**Default:** https://example.com**Description:** apiRoot as defined in clause 4.4 of 3GPP TS 29.501

Security

```

- {}
- oAuth2ClientCredentials:
  - namf-evts

```

Paths

/subscriptions:

Method: Post**Summary:** Namf_EventExposure Subscribe service Operation**Tags:**

- Subscriptions collection (Document)

Operation ID: CreateSubscription**Request Body:****Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/AmfCreateEventSubscription'**Required/Optional:** true**Responses:****'201':****Description:** Subscription Created**Headers:****Location:**

description: 'Contains the URI of the newly created resource, according to the structure:
{apiRoot}/namf-evts/apiVersion/subscriptions/{subscriptionId}'

Required/Optional: true

Schema:

Type: string

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AmfCreatedEventSubscription'

'307':

Description: temporary redirect

Content:

application/problem+json:

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Headers:

Location:

Description: 'An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set'

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

Schema:

Type: string

'308':

Description: permanent redirect

Content:**application/problem+json:****Schema:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'**Headers:****Location:****Description:** 'An alternative URI of the resource located on an alternative service instance within the same AMF or AMF (service) set'**Required/Optional:** true**Schema:****Type:** string**3gpp-Sbi-Target-Nf-Id:****Description:** 'Identifier of the target NF (service) instance ID towards which the request is redirected'**Schema:****Type:** string**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'403':****Reference:** 'TS29571_CommonData.yaml#/components/responses/403'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Description: Unexpected error

Callbacks:

onEventReport:

'{\$request.body#/subscription/eventNotifyUri}':

Method: Post

Summary: Event Notificaiton Delivery

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AmfEventNotification'

Required/Optional: true

Responses:

'204':

Description: Successful acknowledgement

'307':

Description: temporary redirect

Content:

application/problem+json:

Schema:

Reference:

'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Headers:

Location:

Description: 'An alternative URI of the NF service consumer to which the notification should be sent'

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

Schema:

Type: string

'308':

Description: permanent redirect

Content:

application/problem+json:

Schema:

Reference:

'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Headers:

Location:

Description: 'An alternative URI of the NF service consumer to which the notification should be sent'

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

Schema:

Type: string

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Description: Unexpected error

onSubscriptionIdChangeEvtReport:

'{\$request.body#/subscription/subsChangeNotifyUri}':

Method: Post

Summary: Event Notificaiton Delivery For Subscription Id Change

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AmfEventNotification'

Required/Optional: true

Responses:

'204':

Description: Successful acknowledgement

'307':

Description: temporary redirect

Content:

application/problem+json:

/subscriptions:

Schema:**Reference:**

'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Headers:**Location:**

Description: 'An alternative URI of the NF service consumer to which the notification should be sent'

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

Schema:

Type: string

'308':

Description: permanent redirect

Content:

application/problem+json:

Schema:**Reference:**

'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Headers:**Location:**

Description: 'An alternative URI of the NF service consumer to which the notification should be sent'

Required/Optional: true

Schema:

Type: string

3gpp-Sbi-Target-Nf-Id:

Description: ' Identifier of the target NF (service) instance ID towards which the request is redirected'

```

    Schema:

    Type: string

    '400':

    Reference: 'TS29571_CommonData.yaml#/components/responses/400'

    '411':

    Reference: 'TS29571_CommonData.yaml#/components/responses/411'

    '413':

    Reference: 'TS29571_CommonData.yaml#/components/responses/413'

    '415':

    Reference: 'TS29571_CommonData.yaml#/components/responses/415'

    '429':

    Reference: 'TS29571_CommonData.yaml#/components/responses/429'

    '500':

    Reference: 'TS29571_CommonData.yaml#/components/responses/500'

    '503':

    Reference: 'TS29571_CommonData.yaml#/components/responses/503'

    Default:

    Description: Unexpected error

```

Components

```

securitySchemes:

  oAuth2ClientCredentials:

    Type: oauth2

    Flows:

      clientCredentials:

        tokenUrl: '{nrfApiRoot}/oauth2/token'

        scopes:

```

namf-evts: Access to the Namf_EventExposure API

schemas:

AmfEventSubscription:

Type: object

Properties:

eventList:

Type: array

Items:

Reference: '#/components/schemas/AmfEvent'

minItems: 1

eventNotifyUri:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

notifyCorrelationId:

Type: string

nfId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

subsChangeNotifyUri:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

subsChangeNotifyCorrelationId:

Type: string

supi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

groupId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/GroupId'

gpsi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

pei:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'

anyUE:

Type: boolean

options:

Reference: '#/components/schemas/AmfEventMode'

Required:

- eventList
- eventNotifyUri
- notifyCorrelationId
- nfId

AmfEvent:

Type: object

Properties:

Type:

Reference: '#/components/schemas/AmfEventType'

immediateFlag:

Type: boolean

Default: false

areaList:

Type: array

Items:

Reference: '#/components/schemas/AmfEventArea'

minItems: 1

locationFilterList:

Type: array

Items:

Reference: '#/components/schemas/LocationFilter'

minItems: 1

refId:

Reference: 'TS29503_Nudm_EE.yaml#/components/schemas/ReferenceId'

trafficDescriptorList:

```
    Type: array

    Items:

        Reference: '#/components/schemas/TrafficDescriptor'

    minItems: 1

    reportUeReachable:

        Type: boolean

        Default: false

    reachabilityFilter:

        Reference: '#/components/schemas/ReachabilityFilter'

    maxReports:

        Type: integer

    Required:

        - type

    AmfEventNotification:

        Type: object

    Properties:

        notifyCorrelationId:

            Type: string

        subsChangeNotifyCorrelationId:

            Type: string

        reportList:

            Type: array

            Items:

                Reference: '#/components/schemas/AmfEventReport'

            minItems: 1

        eventSubsSyncInfo:

            Reference: '#/components/schemas/AmfEventSubsSyncInfo'

    AmfEventReport:
```

Type: object

Properties:

Type:

Reference: '#/components/schemas/AmfEventType'

state:

Reference: '#/components/schemas/AmfEventState'

timeStamp:

Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'

subscriptionId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

anyUe:

Type: boolean

supi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

areaList:

Type: array

Items:

Reference: '#/components/schemas/AmfEventArea'

minItems: 1

refId:

Reference: 'TS29503_Nudm_EE.yaml#/components/schemas/ReferenceId'

gpsi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

pei:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'

location:

Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'

timezone:

Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'

accessTypeList:**Type:** array**Items:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/AccessType'**minItems:** 1**rmInfoList:****Type:** array**Items:****Reference:** '#/components/schemas/RmInfo'**minItems:** 1**cmInfoList:****Type:** array**Items:****Reference:** '#/components/schemas/CmInfo'**minItems:** 1**reachability:****Reference:** '#/components/schemas/UeReachability'**commFailure:****Reference:** '#/components/schemas/CommunicationFailure'**lossOfConnectReason:****Reference:** '#/components/schemas/LossOfConnectivityReason'**numberOfUes:****Type:** integer**5gsUserStateList:****Type:** array**Items:****Reference:** '#/components/schemas/5GsUserStateInfo'**minItems:** 1

typeCode:**Type:** string**Pattern:** '^imeitac-[0-9]{8}\$'**registrationNumber:****Type:** integer**maxAvailabilityTime:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/DateTime'**ueIdExt:****Type:** array**Items:****Reference:** '#/components/schemas/UEIdExt'**minItems:** 1**Required:**

- type
- state
- timeStamp

AmfEventMode:**Type:** object**Properties:****trigger:****Reference:** '#/components/schemas/AmfEventTrigger'**maxReports:****Type:** integer**expiry:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/DateTime'**repPeriod:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/DurationSec'**sampRatio:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/SamplingRatio'

Required:

- trigger

AmfEventState:**Type:** object**Properties:****active:****Type:** boolean**remainReports:****Type:** integer**remainDuration:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/DurationSec'**Required:**

- active

RmInfo:**Type:** object**Properties:****rmState:****Reference:** '#/components/schemas/RmState'**accessType:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/AccessType'**Required:**

- rmState
- accessType

CmInfo:**Type:** object**Properties:****cmState:****Reference:** '#/components/schemas/CmState'**accessType:**

Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'

Required:

- cmState
- accessType

CommunicationFailure:

Type: object

Properties:

nasReleaseCode:

Type: string

ranReleaseCode:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'

AmfCreateEventSubscription:

Type: object

Properties:

subscription:

Reference: '#/components/schemas/AmfEventSubscription'

supportedFeatures:

Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

oldGuami:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'

Required:

- subscription

AmfCreatedEventSubscription:

Type: object

Properties:

subscription:

Reference: '#/components/schemas/AmfEventSubscription'

subscriptionId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

reportList:**Type:** array**Items:****Reference:** '#/components/schemas/AmfEventReport'**minItems:** 1**supportedFeatures:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'**Required:**

- subscription
- subscriptionId

AmfUpdateEventSubscriptionItem:**Type:** array**Items:****Type:** object**Properties:****op:****Type:** string**enum:**

- add
- remove
- replace

path:**Type:** string**Pattern:** '\\eventList\\/[0-]*\$|\\eventList\\/[1-9][0-9]*\$'**value:****Reference:** '#/components/schemas/AmfEvent'**Required:**

- op
- path

minItems: 1

AmfUpdateEventOptionItem:**Type:** object**Properties:****op:****Type:** string**enum:**

- replace

path:**Type:** string**Pattern:** '\\options\\expiry\$'**value:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/DateTime'**Required:**

- op
- path
- value

AmfUpdatedEventSubscription:**Type:** object**Properties:****subscription:****Reference:** '#/components/schemas/AmfEventSubscription'**reportList:****Type:** array**Items:****Reference:** '#/components/schemas/AmfEventReport'**minItems:** 1**Required:**

- subscription

AmfEventArea:

Type: object

Properties:

presenceInfo:

Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'

ladnInfo:

Reference: '#/components/schemas/LadnInfo'

sNssai:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'

nsiId:

Reference: 'TS29531_Nnssf_NSSelection.yaml#/components/schemas/NsiId'

LadnInfo:

Type: object

Properties:

ladn:

Type: string

presence:

Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceState'

Required:

- ladn

5GsUserStateInfo:

Type: object

Properties:

5gsUserState:

Reference: '#/components/schemas/5GsUserState'

accessType:

Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'

Required:

- 5gsUserState

- accessType

TrafficDescriptor:**Type:** object**Properties:****dnn:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Dnn'**sNssai:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Snssai'**dddTrafficDescriptorList:****Type:** array**Items:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/DddTrafficDescriptor'**minItems:** 1**UEIdExt:****Type:** object**Properties:****supi:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Supi'**gpsi:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Gpsi'**AmfEventSubsSyncInfo:****Type:** object**Properties:****subscriptionList:****Type:** array**Items:****Reference:** '#/components/schemas/AmfEventSubscriptionInfo'**minItems:** 1

Required:

- subscriptionList

AmfEventSubscriptionInfo:

Type: object

Properties:**subId:**

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

notifyCorrelationId:

Type: string

refIdList:

Type: array

Items:

Reference: 'TS29503_Nudm_EE.yaml#/components/schemas/ReferenceId'

minItems: 1

oldSubId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

Required:

- subId
- refIdList

AmfEventType:**anyOf:**

- type: string

enum:

- LOCATION_REPORT
- PRESENCE_IN_AOI_REPORT
- TIMEZONE_REPORT
- ACCESS_TYPE_REPORT
- REGISTRATION_STATE_REPORT

- CONNECTIVITY_STATE_REPORT
- REACHABILITY_REPORT
- COMMUNICATION_FAILURE_REPORT
- UES_IN_AREA_REPORT
- SUBSCRIPTION_ID_CHANGE
- SUBSCRIPTION_ID_ADDITION
- LOSS_OF_CONNECTIVITY
- 5GS_USER_STATE_REPORT
- AVAILABILITY_AFTER_DDN_FAILURE
- TYPE_ALLOCATION_CODE_REPORT
- FREQUENT_MOBILITY_REGISTRATION_REPORT

- type: string

AmfEventTrigger:**anyOf:**

- type: string

enum:

- ONE_TIME
- CONTINUOUS
- PERIODIC

- type: string

LocationFilter :

anyOf:

- type: string

enum:

- TAI
- CELL_ID
- N3IWF
- UE_IP
- UDP_PORT
- TNAP_ID
- GLI
- TWAP_ID

- type: string

UeReachability:**anyOf:**

- type: string

enum:

- UNREACHABLE
- REACHABLE
- REGULATORY_ONLY

- type: string

RmState:**anyOf:**

- type: string

enum:

- REGISTERED
- DEREGISTERED

- type: string

CmState:**anyOf:**

- type: string

enum:

- IDLE
- CONNECTED

- type: string

5GsUserState:**anyOf:**

- type: string

enum:

- DEREGISTERED
- REGISTERED_NOT_REACHABLE_FOR_PAGING
- REGISTERED_REACHABLE_FOR_PAGING

- CONNECTED_NOT_REACHABLE_FOR_PAGING
- CONNECTED_REACHABLE_FOR_PAGING
- NOT_PROVIDED_FROM_AMF
- type: string

LossOfConnectivityReason:**anyOf:**

- type: string

enum:

- DEREGISTERED
- MAX_DETECTION_TIME_EXPIRED
- PURGED
- type: string

ReachabilityFilter:**anyOf:**

- type: string

enum:

- UE_REACHABILITY_STATUS_CHANGE
- UE_REACHABLE_DL_TRAFFIC
- type: string

External Docs

Description: 3GPP TS 29.518 V16.6.0; 5G System; Access and Mobility Management Services

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.518/'



CHAPTER 4

Namf_Location

The Namf_Location service enables NF service consumers to request the AMF for initiating positioning requests and providing location information. Additionally, it notifies location change events to the NF service consumers. The key functionalities of this NF service include:

- Allow NFs to request the current geodetic and optionally local and/or civic location of a target UE.
- Allow NFs to be notified of event information related to emergency sessions.
- Allow NFs to request Network Provided Location Information (NPLI) and/or local time zone corresponding to the location of a target UE.
- [OpenAPI, on page 73](#)
- [Info, on page 73](#)
- [Servers, on page 74](#)
- [Security, on page 74](#)
- [Paths, on page 74](#)
- [Components, on page 77](#)
- [External Docs, on page 81](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: 1.1.0

Title: Namf_Location

Description: |

AMF Location Service

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Servers

URL: '{apiRoot}/namf-loc/v1'

Variables:

API Root:

Default: https://example.com

Description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2ClientCredentials:
  - namf-loc
```

Paths

/ueContextId/provide-pos-info:

Method: Post

Summary: Namf_Location ProvidePositioningInfo service Operation

Tags:

- Individual UE context (Document)

Operation ID: ProvidePositioningInfo

Parameters:

- **Name:** ueContextId

In: path

Description: UE Context Identifier

Required/Optional: true

Schema:**Type:** string**pattern:****pattern:** `'^{(imsi-[0-9]{5,15}|nai-.+|gli-.+|gci-.+|imei-[0-9]{15}|imeisv-[0-9]{16}|.+)}$'`**Request Body:****Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/RequestPosInfo'**Required/Optional:** true**Responses:****'200':****Description:** Expected response to a valid request**Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/ProvidePosInfo'**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'403':****Reference:** 'TS29571_CommonData.yaml#/components/responses/403'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'

/{ueContextId}/provide-pos-info:

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

'504':

Reference: 'TS29571_CommonData.yaml#/components/responses/504'

Default:

Description: Unexpected error

Callbacks:

onUELocationNotification:

'{\$request.body#/locationNotificationUri}':

Method: Post

Request Body:

Description: UE Location Event Notification

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/NotifiedPosInfo'

Responses:

'204':

Description: Expected response to a successful callback processing

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

```

      Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

      Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

      Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

      Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

      Reference: 'TS29571_CommonData.yaml#/components/responses/503'

```

Components

securitySchemes:

oAuth2ClientCredentials:

Type: oauth2

Flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

namf-loc: Access to the Namf_Location API

schemas:

RequestPosInfo:

Type: object

Properties:

lcsClientType:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/ExternalClientType'

lcsLocation:

Reference: '#/components/schemas/LocationType'

supi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

gpsi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

priority:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LcsPriority'

lcsQoS:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LocationQoS'

velocityRequested:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/VelocityRequested'

lcsSupportedGADShapes:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/SupportedGADShapes'

additionalLcsSuppGADShapes:

Type: array

Items:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/SupportedGADShapes'

minItems: 1

locationNotificationUri:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

supportedFeatures:

Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

oldGuami:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'

pei:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'

lcsServiceType:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LcsServiceType'

ldrType:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LdrType'

hgmlcCallbackURI:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

ldrReference:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LdrReference'

periodicEventInfo:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/PeriodicEventInfo'

areaEventInfo:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/AreaEventInfo'

motionEventInfo:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/MotionEventInfo'

externalClientIdentification:

Reference:
'TS29515_Ngmlc_Location.yaml#/components/schemas/ExternalClientIdentification'

afID:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

codeWord:

Reference: 'TS29515_Ngmlc_Location.yaml#/components/schemas/CodeWord'

uePrivacyRequirements:

Reference: 'TS29515_Ngmlc_Location.yaml#/components/schemas/UePrivacyRequirements'

Required:

- lcsClientType
- lcsLocation

ProvidePosInfo:

Type: object

Properties:**locationEstimate:**

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'

accuracyFulfilmentIndicator:

Reference:

'TS29572_Nlmf_Location.yaml#/components/schemas/AccuracyFulfilmentIndicator'

ageOfLocationEstimate:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/AgeOfLocationEstimate'

velocityEstimate:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/VelocityEstimate'

positioningDataList:

Type: array

Items:

Reference:

'TS29572_Nlmf_Location.yaml#/components/schemas/PositioningMethodAndUsage'

minItems: 0

maxItems: 9

gnssPositioningDataList:

Type: array

Items:

Reference:

'TS29572_Nlmf_Location.yaml#/components/schemas/GnssPositioningMethodAndUsage'

minItems: 0

maxItems: 9

ecgi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ecgi'

ncgi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ncgi'

targetServingNode:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

civicAddress:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/CivicAddress'

barometricPressure:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/BarometricPressure'

altitude:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/Altitude'

supportedFeatures:

Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

servingLMFIdentification:

Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LMFIdentification'

locationPrivacyVerResult:

Reference: '#/components/schemas/LocationPrivacyVerResult'

External Docs

Description: 3GPP TS 29.518 V16.4.0; 5G System; Access and Mobility Management Services

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.518/'



CHAPTER 5

Namf_MT

Namf_MT service allows a NF to request information related to capabilities to send MT signaling or data to a target UE. The following are the key functionalities of this NF service.

- Paging UE if UE is in IDLE state and respond other NF after the UE enters CM-CONNECTED state.
- Response to the requester NF if UE is in CONNECTED state.
- Providing the terminating domain selection information for IMS voice to the consumer NF
- [OpenAPI, on page 83](#)
- [Info, on page 83](#)
- [Servers, on page 83](#)
- [Security, on page 84](#)
- [Paths, on page 84](#)
- [Components, on page 86](#)
- [External Docs, on page 88](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: 1.0.2

Title: Namf_MT

Description: |

AMF Mobile Termination Service

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Servers

URL: '{apiRoot}/namf-mt/v1'

Variables:**API Root:****Default:** https://example.com**Description:** apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2ClientCredentials:
  - namf-mt
```

Paths

'/ue-contexts/{ueContextId}':**get:****Summary:** Namf_MT Provide Domain Selection Info service Operation**Tags:**

- ueContext (Document)

Operation ID: Provide Domain Selection Info**Parameters:**- **Name:** ueContextId**In:** path**Description:** UE Context Identifier**Required/Optional:** true**Schema:****Type:** string**pattern:** '^(imsi-[0-9]{5,15}|nai-.+|.+)\${}'- **Name:** info-class**In:** query**Description:** UE Context Information Class**Schema:****Reference:** '#/components/schemas/UeContextInfoClass'- **Name:** supported-features**In:** query**Description:** Supported Features**Schema:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'**Responses:****'200':****Description:** Requested UE Context Information returned**Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/UeContextInfo'**'307':**

Description: Temporary Redirect

Content:
application/problem+json:
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Headers:
Location:
Description: 'The URI of the resource located on the target NF Service Consumer (e.g. AMF) to which the request is redirected'
Required/Optional: true
Schema:
Type: string

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'414':
Reference: 'TS29571_CommonData.yaml#/components/responses/414'

'429':
Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:
Description: Unexpected error

/ue-contexts/{ueContextId}/ue-reachind

put:

Summary: Namf_MT EnableUEReachability service Operation

Tags:
- ueReachInd (Document)

Operation ID: EnableUeReachability

Parameters:
- **Name:** ueContextId
In: path
Description: UE Context Identifier
Required/Optional: true
Schema:
Type: string

Request Body:
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/EnableUeReachabilityReqData'
Required/Optional: true

```

Responses:
  '200':
    Description: UE has become reachable as desired
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/EnableUeReachabilityRspData'
  '307':
    Description: Temporary Redirect
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    Headers:
      Location:
        Description: 'The URI of the resource located on the target NF Service Consumer
(e.g. AMF) to which the request is redirected'
        Required/Optional: true
        Schema:
          Type: string
  '400':
    Reference: 'TS29571_CommonData.yaml#/components/responses/400'
  '403':
    Reference: 'TS29571_CommonData.yaml#/components/responses/403'
  '404':
    Reference: 'TS29571_CommonData.yaml#/components/responses/404'
  '411':
    Reference: 'TS29571_CommonData.yaml#/components/responses/411'
  '413':
    Reference: 'TS29571_CommonData.yaml#/components/responses/413'
  '415':
    Reference: 'TS29571_CommonData.yaml#/components/responses/415'
  '429':
    Reference: 'TS29571_CommonData.yaml#/components/responses/429'
  '500':
    Reference: 'TS29571_CommonData.yaml#/components/responses/500'
  '503':
    Reference: 'TS29571_CommonData.yaml#/components/responses/503'
  '504':
    Reference: 'TS29571_CommonData.yaml#/components/responses/504'
Default:
  Description: Unexpected error

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oAuth2

```

```
Flows:
  clientCredentials:
    tokenUrl: '{nrfApiRoot}/oauth2/token'
    scopes:
      namf-mt: Access to the Namf_MT API

schemas:
  EnableUeReachabilityReqData:
    Type: object
    Properties:
      reachability:
        Reference: 'TS29518_Namf_EventExposure.yaml#/components/schemas/UeReachability'
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    Required:
      - reachability
  EnableUeReachabilityRspData:
    Type: object
    Properties:
      reachability:
        Reference: 'TS29518_Namf_EventExposure.yaml#/components/schemas/UeReachability'
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    Required:
      - reachability
  UeContextInfo:
    Type: object
    Properties:
      supportVoPS:
        Type: boolean
      supportVoPSn3gpp:
        Type: boolean
      lastActTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
      accessType:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
      ratType:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  UeContextInfoClass:
    anyOf:
      - type: string
    enum:
      - TADS
    - type: string
```

External Docs

Description: 3GPP TS 29.518 V15.3.0; 5G System; Access and Mobility Management Services

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.518/'



CHAPTER 6

Nausf_UEAuthentication

The Authentication Server Function (AUSF) acts as NF Service Producer. It provides UE authentication service to the requester NF. The NF Service Consumer is the AMF.

For this service, the following service operations are defined

- Authenticate

This service permits to authenticate the UE and to provide one or more master keys which are used by the AMF to derived subsequent keys.

Reference: 3GPP TS 33.501 v15.5.0

- [OpenAPI, on page 89](#)
- [Info, on page 89](#)
- [Servers, on page 89](#)
- [Security, on page 90](#)
- [Paths, on page 90](#)
- [Components, on page 93](#)
- [External Docs, on page 95](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: 1.0.0

Title: AUSF API

Description: OpenAPI specification for AUSF

Servers

URL: '{apiRoot}/nausf-auth/v1'

Variables:**API Root:****Default:** https://example.com**Description:** apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501.

Security

```
- {}
- oAuth2ClientCredentials:
  - nausf-auth
```

Paths

/ue-authentications

Method: Post**Request Body:****Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/AuthenticationInfo'**Required/Optional:** true**Responses:****'201':****Description:** UEAuthenticationCtx**Content:****application/3gppHal+json:****Schema:****Reference:** '#/components/schemas/UEAuthenticationCtx'**Headers:****Location:****description:** 'Contains the URI of the newly created resource according to the structure: {apiRoot}/nausf-auth/v1/ue-authentications/{authCtxId}'**Required/Optional:** true**Schema:****Type:** string**'400':****Description:** Bad Request from the AMF**Content:****application/problem+json:****Schema:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'**'403':****Description:** Forbidden due to serving network not authorized**Content:**

```

    application/problem+json:
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
  '500':
    Description: Internal Server Error
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

```

/ue-authentications/{authCtxId}/5g-aka-confirmation

put:

```

Parameters:
- Name: authCtxId
  In: path
  Required/Optional: true
  Schema:
    Type: string
Request Body:
Content:
  Application/JSON:
    Schema:
      Reference: '#/components/schemas/ConfirmationData'

Responses:
'200':
  Description: Request processed (EAP success or Failure)
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/ConfirmationDataResponse'
'400':
  Description: Bad Request
  Content:
    application/problem+json:
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
'500':
  Description: Internal Server Error
  Content:
    application/problem+json:
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

```

/ue-authentications/{authCtxId}/eap-session

Method: Post

Operation ID: EapAuthMethod

Parameters:

- **Name:** authCtxId
 - In:** path
 - Required/Optional:** true
 - Schema:**
 - Type:** string

Request Body:

- Content:**
 - Application/JSON:**
 - Schema:**
 - Reference:** '#/components/schemas/EapSession'

Responses:

- '200':
 - Description:** Use to handle or close the EAP session
 - Content:**
 - Application/JSON:**
 - Schema:**
 - Reference:** '#/components/schemas/EapSession'
 - application/3gppHal+json:**
 - Schema:**
 - Type:** object
 - Properties:**
 - eapPayload:**
 - Reference:** '#/components/schemas/EapPayload'
 - _links:**
 - Type:** object
 - description:** 'URI : /{eapSessionUri}'
 - additionalProperties:**
 - Reference:**
 - 'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
 - minProperties:** 1
 - Required/Optional:**
 - eapPayload
 - _links
 - '400':
 - Description:** Bad Request
 - Content:**
 - application/problem+json:**
 - Schema:**
 - Reference:** 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
 - '500':
 - Description:** Internal Server Error
 - Content:**
 - application/problem+json:**
 - Schema:**
 - Reference:** 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          nausf-auth: Access to Nausf_UEAuthentication API

schemas:
  AuthenticationInfo:
    Type: object
    Properties:
      supiOrSuci:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/SupiOrSuci'
      servingNetworkName:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/ServingNetworkName'
      resynchronizationInfo:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/ResynchronizationInfo'
      traceData:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
    Required:
      - supiOrSuci
      - servingNetworkName
  UEAuthenticationCtx:
    Type: object
    Properties:
      authType:
        Reference: '#/components/schemas/AuthType'
      5gAuthData:
        oneOf:
          - $ref: '#/components/schemas/Av5gAka'
          - $ref: '#/components/schemas/EapPayload'
      _links:
        Type: object
        additionalProperties:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
      servingNetworkName:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/ServingNetworkName'
    Required:
      - authType
      - 5gAuthData
      - _links
  Av5gAka:
    Type: object
    Required:
      - rand
      - hxresStar
      - autn

```

```

Properties:
  rand:
    Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/Rand'
  hxresStar:
    Reference: '#/components/schemas/HxresStar'
  autn:
    Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/Autn'
ConfirmationData:
  Type: object
  Required:
    - resStar
  Properties:
    resStar:
      Reference: '#/components/schemas/ResStar'
ConfirmationDataResponse:
  Type: object
  Properties:
    authResult:
      Reference: '#/components/schemas/AuthResult'
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
    kseaf:
      Reference: '#/components/schemas/Kseaf'
  Required:
    - authResult
EapSession:
  Type: object
  Properties:
    eapPayload:
      Reference: '#/components/schemas/EapPayload'
    kSeaf:
      Reference: '#/components/schemas/Kseaf'
    _links:
      Type: object
      additionalProperties:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
    authResult:
      Reference: '#/components/schemas/AuthResult'
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
  Required:
    - eapPayload
AuthResult:
  Type: string
  enum:
    - AUTHENTICATION_SUCCESS
    - AUTHENTICATION_FAILURE
    - AUTHENTICATION ONGOING
EapPayload:
  Type: string
  format: base64
  Description: contains an EAP packet
Kseaf:

```

```
    Type: string
    Pattern: '[A-Fa-f0-9]{64}'
  ResStar:
    Type: string
    Pattern: '[A-Fa-f0-9]{32}'
  HxresStar:
    Type: string
    Pattern: "[A-Fa-f0-9]{32}"
  AuthType:
    anyOf:
      - type: string
        enum:
          - 5G_AKA
          - EAP_AKA_PRIME
          - EAP_TLS
      - type: string
```

External Docs

Description: 3GPP TS 29.509 V15.2.0; 5G System; 3GPP TS Authentication Server services.

URL: http://www.3gpp.org/ftp/Specs/archive/29_series/29.509



CHAPTER 7

Nlmf_Location

The Nlmf_Location service allows an NF to request location determination (including current geodetic and optionally local and/or civic location) for a target UE or to request periodic or triggered location for a target UE.

- [OpenAPI, on page 97](#)
- [Info, on page 97](#)
- [Servers, on page 98](#)
- [Security, on page 98](#)
- [Paths, on page 98](#)
- [Components, on page 102](#)
- [External Docs, on page 134](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.1.1'

Title: 'LMF Location'

Description: |

LMF Location Service.

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Servers

URL: '{apiRoot}/nlmf-loc/v1'

Variables:

API Root:

Default: https://example.com

Description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2ClientCredentials:
  - nlmf-loc
```

Paths

/determine-location:

Method: Post

Summary: Determine Location of an UE

Operation ID: DetermineLocation

Tags:

```
- Determine Location
```

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/InputData'

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/InputData'

binaryDataLppMessage:

Type: string

Format: binary

Encoding:

JSON Data:

Content Type: application/json

binaryDataLppMessage:

Content Type: application/vnd.3gpp.lpp

Headers:

Content ID:

Schema:

Type: string

Required/Optional: true

Responses:

'200':

Description: Expected response to a valid request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/LocationData'

'204':

Description: Expected response for MO-LR requesting location assistance data.

/determine-location:

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'401':

Reference: 'TS29571_CommonData.yaml#/components/responses/401'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

'504':

Reference: 'TS29571_CommonData.yaml#/components/responses/504'

Default:

Reference: 'TS29571_CommonData.yaml#/components/responses/default'

Callbacks:

EventNotify:

'{\$request.body#/hgm1cCallbackURI}':

Method: Post

Request Body:

Description: UE Event Notification

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/EventNotifyData'

Responses:

'204':

Description: Expected response to a valid notification

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'401':

Reference: 'TS29571_CommonData.yaml#/components/responses/401'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'429':

Reference: 'TS29571_CommonData.yaml#/components/responses/429'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

'504':

Reference: 'TS29571_CommonData.yaml#/components/responses/504'

Default:

Reference: 'TS29571_CommonData.yaml#/components/responses/default'

Components

securitySchemes:

oAuth2ClientCredentials:

Type: oauth2

Flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

nlmf-loc: Access to the Nlmf_Location API

schemas:

#

COMPLEX TYPES

#

InputData:

Type: object

not:

Required: [ecgi, ncgi]

Properties:

externalClientType:

Reference: '#/components/schemas/ExternalClientType'

correlationID:

Reference: '#/components/schemas/CorrelationID'

amfId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

locationQoS:

Reference: '#/components/schemas/LocationQoS'

supportedGADShapes:

Type: array

Items:

Reference: '#/components/schemas/SupportedGADShapes'

minItems: 1

supi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

pei:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'

gpsi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

ecgi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ecgi'

ecgiOnSecondNode:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ecgi'

ncgi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ncgi'

ncgiOnSecondNode:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ncgi'

priority:

Reference: '#/components/schemas/LcsPriority'

velocityRequested:

Reference: '#/components/schemas/VelocityRequested'

ueLcsCap:

Reference: '#/components/schemas/UeLcsCapability'

lcsServiceType:

Reference: '#/components/schemas/LcsServiceType'

ldrType:

Reference: '#/components/schemas/LdrType'

hgmlcCallbackURI:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

vgmlcAddress:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

ldrReference:

Reference: '#/components/schemas/LdrReference'

periodicEventInfo:

Reference: '#/components/schemas/PeriodicEventInfo'

areaEventInfo:

Reference: '#/components/schemas/AreaEventInfo'

motionEventInfo:

Reference: '#/components/schemas/MotionEventInfo'

reportingAccessTypes:

Reference: '#/components/schemas/ReportingAccessTypes'

ueConnectivityStates:

Reference: '#/components/schemas/UeConnectivityState'

ueLocationServiceInd:

Reference: '#/components/schemas/UeLocationServiceInd'

lppMessage:

Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'

LocationData:

Type: object

Required:

- locationEstimate

Properties:**locationEstimate:**

Reference: '#/components/schemas/GeographicArea'

accuracyFulfilmentIndicator:

Reference: '#/components/schemas/AccuracyFulfilmentIndicator'

ageOfLocationEstimate:

Reference: '#/components/schemas/AgeOfLocationEstimate'

velocityEstimate:

Reference: '#/components/schemas/VelocityEstimate'

civicAddress:

Reference: '#/components/schemas/CivicAddress'

positioningDataList:

Type: array

Items:

Reference: '#/components/schemas/PositioningMethodAndUsage'

minItems: 1

gnssPositioningDataList:

Type: array

Items:

Reference: '#/components/schemas/GnssPositioningMethodAndUsage'

minItems: 1

ecgi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ecgi'

ncgi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ncgi'

altitude:

Reference: '#/components/schemas/Altitude'

barometricPressure:

Reference: '#/components/schemas/BarometricPressure'

servingLMFIdentification:

Reference: '#/components/schemas/LMFIdentification'

GeographicArea:**anyOf:**

- \$ref: '#/components/schemas/Point'
- \$ref: '#/components/schemas/PointUncertaintyCircle'
- \$ref: '#/components/schemas/PointUncertaintyEllipse'
- \$ref: '#/components/schemas/Polygon'
- \$ref: '#/components/schemas/PointAltitude'
- \$ref: '#/components/schemas/PointAltitudeUncertainty'
- \$ref: '#/components/schemas/EllipsoidArc'

GADShape:

Type: object

Required:

- shape

Properties:**shape:**

Reference: '#/components/schemas/SupportedGADShapes'

discriminator:

propertyName: shape

mapping:

POINT: '#/components/schemas/Point'

POINT_UNCERTAINTY_CIRCLE: '#/components/schemas/PointUncertaintyCircle'

POINT_UNCERTAINTY_ELLIPSE: '#/components/schemas/PointUncertaintyEllipse'

POLYGON: '#/components/schemas/Polygon'

POINT_ALTITUDE: '#/components/schemas/PointAltitude'

POINT_ALTITUDE_UNCERTAINTY: '#/components/schemas/PointAltitudeUncertainty'

ELLIPSOID_ARC: '#/components/schemas/EllipsoidArc'

Point:

allOf:

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- point

Properties:**point:**

Reference: '#/components/schemas/GeographicalCoordinates'

PointUncertaintyCircle:**allOf:**

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- point
- uncertainty

Properties:**point:**

Reference: '#/components/schemas/GeographicalCoordinates'

uncertainty:

Reference: '#/components/schemas/Uncertainty'

PointUncertaintyEllipse:**allOf:**

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- point
- uncertaintyEllipse
- confidence

Properties:**point:**

Reference: '#/components/schemas/GeographicalCoordinates'

uncertaintyEllipse:

Reference: '#/components/schemas/UncertaintyEllipse'

confidence:

Reference: '#/components/schemas/Confidence'

Polygon:

allOf:

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- pointList

Properties:

pointList:

Reference: '#/components/schemas/PointList'

PointAltitude:

allOf:

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- point
- altitude

Properties:

point:

Reference: '#/components/schemas/GeographicalCoordinates'

altitude:

Reference: '#/components/schemas/Altitude'

PointAltitudeUncertainty:

allOf:

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- point
- altitude
- uncertaintyEllipse
- uncertaintyAltitude
- confidence

Properties:**point:**

Reference: '#/components/schemas/GeographicalCoordinates'

altitude:

Reference: '#/components/schemas/Altitude'

uncertaintyEllipse:

Reference: '#/components/schemas/UncertaintyEllipse'

uncertaintyAltitude:

Reference: '#/components/schemas/Uncertainty'

confidence:

Reference: '#/components/schemas/Confidence'

EllipsoidArc:**allOf:**

- \$ref: '#/components/schemas/GADShape'
- type: object

Required:

- point
- innerRadius
- uncertaintyRadius
- offsetAngle
- includedAngle
- confidence

Properties:**point:**

Reference: '#/components/schemas/GeographicalCoordinates'

innerRadius:

Reference: '#/components/schemas/InnerRadius'

uncertaintyRadius:

Reference: '#/components/schemas/Uncertainty'

offsetAngle:

Reference: '#/components/schemas/Angle'

includedAngle:

Reference: '#/components/schemas/Angle'

confidence:

Reference: '#/components/schemas/Confidence'

GeographicalCoordinates:

Type: object

Required:

- lon
- lat

Properties:

lon:

Type: number

format: double

Minimum: -180

Maximum: 180

lat:

Type: number

format: double

Minimum: -90

Maximum: 90

UncertaintyEllipse:

Type: object

Required:

- semiMajor
- semiMinor
- orientationMajor

Properties:**semiMajor:**

Reference: '#/components/schemas/Uncertainty'

semiMinor:

Reference: '#/components/schemas/Uncertainty'

orientationMajor:

Reference: '#/components/schemas/Orientation'

PointList:

Type: array

Items:

Reference: '#/components/schemas/GeographicalCoordinates'

minItems: 3

maxItems: 15

LocationQoS:

Type: object

Properties:**hAccuracy:**

Reference: '#/components/schemas/Accuracy'

vAccuracy:

Reference: '#/components/schemas/Accuracy'

verticalRequested:

Type: boolean

responseTime:

Reference: '#/components/schemas/ResponseTime'

lcsQosClass:

Reference: '#/components/schemas/LcsQosClass'

PositioningMethodAndUsage:

Type: object

Required:

- method
- mode
- usage

Properties:

method:

Reference: '#/components/schemas/PositioningMethod'

mode:

Reference: '#/components/schemas/PositioningMode'

usage:

Reference: '#/components/schemas/Usage'

methodCode:

Type: integer

Minimum: 16

Maximum: 31

GnssPositioningMethodAndUsage:

Type: object

Required:

- mode
- gnss
- usage

Properties:

mode:

Reference: '#/components/schemas/PositioningMode'

gnss:

Reference: '#/components/schemas/GnssId'

usage:

Reference: '#/components/schemas/Usage'

CivicAddress:

Type: object

Properties:

country:

Type: string

A1:

Type: string

A2:

Type: string

A3:

Type: string

A4:

Type: string

A5:

Type: string

A6:

Type: string

PRD:

Type: string

POD:

Type: string

STS:

Type: string

HNO:

Type: string

HNS:

Type: string

LMK:

Type: string

LOC:

Type: string

NAM:

Type: string

PC:

Type: string

BLD:

Type: string

UNIT:

Type: string

FLR:

Type: string

ROOM:

Type: string

PLC:

Type: string

PCN:

Type: string

POBOX:

Type: string

ADDCODE:

Type: string

SEAT:

Type: string

RD:

Type: string

RDSEC:

Type: string

RDBR:

Type: string

RDSUBBR:

Type: string

PRM:

Type: string

POM:

Type: string

VelocityEstimate:**oneOf:**

- \$ref: '#/components/schemas/HorizontalVelocity'
- \$ref: '#/components/schemas/HorizontalWithVerticalVelocity'
- \$ref: '#/components/schemas/HorizontalVelocityWithUncertainty'
- \$ref: '#/components/schemas/HorizontalWithVerticalVelocityAndUncertainty'

HorizontalVelocity:

Type: object

Required:

- hSpeed
- bearing

Properties:**hSpeed:**

Reference: '#/components/schemas/HorizontalSpeed'

bearing:

Reference: '#/components/schemas/Angle'

HorizontalWithVerticalVelocity:

Type: object

Required:

- hSpeed

- bearing
- vSpeed
- vDirection

Properties:**hSpeed:**

Reference: '#/components/schemas/HorizontalSpeed'

bearing:

Reference: '#/components/schemas/Angle'

vSpeed:

Reference: '#/components/schemas/VerticalSpeed'

vDirection:

Reference: '#/components/schemas/VerticalDirection'

HorizontalVelocityWithUncertainty:

Type: object

Required:

- hSpeed
- bearing
- hUncertainty

Properties:**hSpeed:**

Reference: '#/components/schemas/HorizontalSpeed'

bearing:

Reference: '#/components/schemas/Angle'

hUncertainty:

Reference: '#/components/schemas/SpeedUncertainty'

HorizontalWithVerticalVelocityAndUncertainty:

Type: object

Required:

- hSpeed

- bearing
- vSpeed
- vDirection
- hUncertainty
- vUncertainty

Properties:**hSpeed:**

Reference: '#/components/schemas/HorizontalSpeed'

bearing:

Reference: '#/components/schemas/Angle'

vSpeed:

Reference: '#/components/schemas/VerticalSpeed'

vDirection:

Reference: '#/components/schemas/VerticalDirection'

hUncertainty:

Reference: '#/components/schemas/SpeedUncertainty'

vUncertainty:

Reference: '#/components/schemas/SpeedUncertainty'

UeLcsCapability:

Type: object

Properties:**lppSupport:**

Type: boolean

Default: true

ciotOptimisation:

Type: boolean

Default: false

PeriodicEventInfo:

Type: object

Required:

- reportingAmount
- reportingInterval

Properties:**reportingAmount:**

Reference: '#/components/schemas/ReportingAmount'

reportingInterval:

Reference: '#/components/schemas/ReportingInterval'

AreaEventInfo:

Type: object

Required:

- areaDefinition

Properties:**areaDefinition:**

Type: array

Items:

Reference: '#/components/schemas/ReportingArea'

minItems: 1

maxItems: 250

occurrenceInfo:

Reference: '#/components/schemas/OccurrenceInfo'

minimumInterval:

Reference: '#/components/schemas/MinimumInterval'

maximumInterval:

Reference: '#/components/schemas/MaximumInterval'

samplingInterval:

Reference: '#/components/schemas/SamplingInterval'

reportingDuration:

Reference: '#/components/schemas/ReportingDuration'

reportingLocationReq:**Type:** boolean**Default:** true**ReportingArea:****Type:** object**Required:**

- areaType

Properties:**areaType:****Reference:** '#/components/schemas/ReportingAreaType'**tai:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Tai'**ecgi:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Ecgi'**ncgi:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Ncgi'**MotionEventInfo:****Type:** object**Required:**

- linearDistance

Properties:**linearDistance:****Reference:** '#/components/schemas/LinearDistance'**occurrenceInfo:****Reference:** '#/components/schemas/OccurrenceInfo'**minimumInterval:****Reference:** '#/components/schemas/MinimumInterval'**maximumInterval:****Reference:** '#/components/schemas/MaximumInterval'

samplingInterval:

Reference: '#/components/schemas/SamplingInterval'

reportingDuration:

Reference: '#/components/schemas/ReportingDuration'

reportingLocationReq:

Type: boolean

Default: true

ReportingAccessTypes:

Type: array

Items:

Reference: '#/components/schemas/ReportingAccessType'

minItems: 1

CancelLocData:

Type: object

Required:

- hgmlcCallbackURI
- ldrReference

Properties:**hgmlcCallbackURI:**

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

ldrReference:

Reference: '#/components/schemas/LdrReference'

LocContextData:

Type: object

Required:

- amfId
- ldrType
- hgmlcCallbackURI
- ldrReference
- eventReportMessage

Properties:**amfId:**

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

locationQoS:

Reference: '#/components/schemas/LocationQoS'

supportedGADShapes:

Type: array

Items:

Reference: '#/components/schemas/SupportedGADShapes'

minItems: 1

supi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

gpsi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

ldrType:

Reference: '#/components/schemas/LdrType'

hgmlcCallbackURI:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

ldrReference:

Reference: '#/components/schemas/LdrReference'

periodicEventInfo:

Reference: '#/components/schemas/PeriodicEventInfo'

areaEventInfo:

Reference: '#/components/schemas/AreaEventInfo'

motionEventInfo:

Reference: '#/components/schemas/MotionEventInfo'

eventReportMessage:

Reference: '#/components/schemas/EventReportMessage'

eventReportingStatus:

Reference: '#/components/schemas/EventReportingStatus'

ueLocationInfo:

Reference: '#/components/schemas/UELocationInfo'

EventReportMessage:

Type: object

Required:

- eventClass
- eventContent

Properties:**eventClass:**

Reference: '#/components/schemas/EventClass'

eventContent:

Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'

EventReportingStatus:

Type: object

Properties:**eventReportCounter:**

Reference: '#/components/schemas/EventReportCounter'

eventReportDuration:

Reference: '#/components/schemas/EventReportDuration'

UELocationInfo:

Type: object

Properties:**locationEstimate:**

Reference: '#/components/schemas/GeographicArea'

ageOfLocationEstimate:

Reference: '#/components/schemas/AgeOfLocationEstimate'

velocityEstimate:

Reference: '#/components/schemas/VelocityEstimate'

ageOfVelocityEstimate:

Reference: '#/components/schemas/AgeOfLocationEstimate'

EventNotifyData:

Type: object

Required:

- reportedEventType
- ldrReference

Properties:

reportedEventType:

Reference: '#/components/schemas/ReportedEventType'

supi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

gpsi:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'

hgmlcCallbackURI:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

ldrReference:

Reference: '#/components/schemas/LdrReference'

locationEstimate:

Reference: '#/components/schemas/GeographicArea'

ageOfLocationEstimate:

Reference: '#/components/schemas/AgeOfLocationEstimate'

civicAddress:

Reference: '#/components/schemas/CivicAddress'

positioningDataList:

Type: array

Items:

```

    Reference: '#/components/schemas/PositioningMethodAndUsage'

    minItems: 1

gnssPositioningDataList:

    Type: array

    Items:

        Reference: '#/components/schemas/GnssPositioningMethodAndUsage'

        minItems: 1

servingLMFidentification:

    Reference: '#/components/schemas/LMFIdentification'

terminationCause:

    Reference: '#/components/schemas/TerminationCause'

velocityEstimate:

    Reference: '#/components/schemas/VelocityEstimate'

altitude:

    Reference: '#/components/schemas/Altitude'

UeConnectivityState:

    Type: object

    Required:

        - accessType

    Properties:

        accessType:

            Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'

        connectivitystate:

            Reference: 'TS29518_Namf_EventExposure.yaml#/components/schemas/CmState'

#
#
# SIMPLE TYPES
#

```

Altitude:**Type:** number**format:** double**Minimum:** -32767**Maximum:** 32767**Angle:****Type:** integer**Minimum:** 0**Maximum:** 360**Uncertainty:****Type:** number**format:** float**Minimum:** 0**Orientation:****Type:** integer**Minimum:** 0**Maximum:** 180**Confidence:****Type:** integer**Minimum:** 0**Maximum:** 100**Accuracy:****Type:** number**format:** float**Minimum:** 0**InnerRadius:****Type:** integer**format:** int32**Minimum:** 0

Maximum: 327675

CorrelationID:

Type: string

minLength: 1

maxLength: 255

AgeOfLocationEstimate:

Type: integer

Minimum: 0

Maximum: 32767

HorizontalSpeed:

Type: number

format: float

Minimum: 0

Maximum: 2047

VerticalSpeed:

Type: number

format: float

Minimum: 0

Maximum: 255

SpeedUncertainty:

Type: number

format: float

Minimum: 0

Maximum: 255

BarometricPressure:

Type: integer

Minimum: 30000

Maximum: 115000

LcsServiceType:**Type:** integer**Minimum:** 0**Maximum:** 127**LdrReference:****Type:** string**minLength:** 2**maxLength:** 510**ReportingAmount:****Type:** integer**Minimum:** 1**Maximum:** 8639999**ReportingInterval:****Type:** integer**Minimum:** 1**Maximum:** 8639999**MinimumInterval:****Type:** integer**Minimum:** 1**Maximum:** 32767**MaximumInterval:****Type:** integer**Minimum:** 1**Maximum:** 86400**SamplingInterval:****Type:** integer**Minimum:** 1**Maximum:** 3600**ReportingDuration:**

Type: integer

Minimum: 1

Maximum: 8640000

LinearDistance:

Type: integer

Minimum: 1

Maximum: 10000

LMFIdentification:

Type: string

EventReportCounter:

Type: integer

Minimum: 1

Maximum: 8640000

EventReportDuration:

Type: integer

Minimum: 1

Maximum: 8640000

#

ENUMS

#

ExternalClientType:

anyOf:

- type: string

enum:

- EMERGENCY_SERVICES
- VALUE_ADDED_SERVICES
- PLMN_OPERATOR_SERVICES
- LAWFUL_INTERCEPT_SERVICES
- PLMN_OPERATOR_BROADCAST_SERVICES

- PLMN_OPERATOR_OM
- PLMN_OPERATOR_ANONYMOUS_STATISTICS
- PLMN_OPERATOR_TARGET_MS_SERVICE_SUPPORT
- type: string

SupportedGADShapes:**anyOf:**

- type: string
- enum:**
 - POINT
 - POINT_UNCERTAINTY_CIRCLE
 - POINT_UNCERTAINTY_ELLIPSE
 - POLYGON
 - POINT_ALTITUDE
 - POINT_ALTITUDE_UNCERTAINTY
 - ELLIPSOID_ARC
- type: string

ResponseTime:**anyOf:**

- type: string
- enum:**
 - LOW_DELAY
 - DELAY_TOLERANT
 - NO_DELAY
- type: string

PositioningMethod:**anyOf:**

- type: string
- enum:**
 - CELLID
 - ECID
 - OTDOA

- BAROMETRIC_PRESSURE
- WLAN
- BLUETOOTH
- MBS
- MOTION_SENSOR
- DL_TDOA
- DL_AOD
- MULTI-RTT
- NR_ECID
- UL_TDOA
- UL_AOA
- NETWORK_SPECIFIC

- type: string

PositioningMode:

anyOf:

- type: string

enum:

- UE_BASED
- UE_ASSISTED
- CONVENTIONAL

- type: string

GnssId:

anyOf:

- type: string

enum:

- GPS
- GALILEO
- SBAS
- MODERNIZED_GPS
- QZSS
- GLONASS
- BDS

- NAVIC
- type: string

Usage:**anyOf:**

- type: string

enum:

- UNSUCCESS
- SUCCESS_RESULTS_NOT_USED
- SUCCESS_RESULTS_USED_TO_VERIFY_LOCATION
- SUCCESS_RESULTS_USED_TO_GENERATE_LOCATION
- SUCCESS_METHOD_NOT_DETERMINED
- type: string

LcsPriority:**anyOf:**

- type: string

enum:

- HIGHEST_PRIORITY
- NORMAL_PRIORITY
- type: string

VelocityRequested:**anyOf:**

- type: string

enum:

- VELOCITY_IS_NOT_REQUESTED
- VELOCITY_IS_REQUESTED
- type: string

AccuracyFulfilmentIndicator:**anyOf:**

- type: string

enum:

- REQUESTED_ACCURACY_FULFILLED
- REQUESTED_ACCURACY_NOT_FULFILLED
- type: string

VerticalDirection:

Type: string

enum:

- UPWARD
- DOWNWARD

LdrType:**anyOf:**

- type: string
- enum:**
 - UE_AVAILABLE
 - PERIODIC
 - ENTERING_INTO_AREA
 - LEAVING_FROM_AREA
 - BEING_INSIDE_AREA
 - MOTION
- type: string

ReportingAreaType:**anyOf:**

- type: string
- enum:**
 - EPS_TRACKING_AREA_IDENTITY
 - E-UTRAN_CELL_GLOBAL_IDENTIFICATION
 - 5GS_TRACKING_AREA_IDENTITY
 - NR_CELL_GLOBAL_IDENTITY
- type: string

OccurrenceInfo:**anyOf:**

- type: string

enum:

- ONE_TIME_EVENT
- MULTIPLE_TIME_EVENT
- type: string

ReportingAccessType:**anyOf:**

- type: string

enum:

- NR
- EUTRA_CONNECTED_TO_5GC
- NON_3GPP_CONNECTED_TO_5GC
- type: string

EventClass:**anyOf:**

- type: string

enum:

- SUPPLEMENTARY_SERVICES
- type: string

ReportedEventType:**anyOf:**

- type: string

enum:

- PERIODIC_EVENT
- ENTERING_AREA_EVENT
- LEAVING_AREA_EVENT
- BEING_INSIDE_AREA_EVENT
- MOTION_EVENT
- MAXIMUM_INTERVAL_EXPIRATION_EVENT
- LOCATION_CANCELLATION_EVENT
- type: string

TerminationCause:

anyOf:

- type: string

enum:

- TERMINATION_BY_UE
- TERMINATION_BY_NETWORK
- NORMAL_TERMINATION

- type: string

LcsQosClass:**anyOf:**

- type: string

enum:

- BEST_EFFORT
- ASSURED

- type: string

UeLocationServiceInd:**anyOf:**

- type: string

enum:

- LOCATION_ESTIMATE
- LOCATION_ASSISTANCE_DATA

- type: string

External Docs

Description: 3GPP TS 29.572 V16.4.0; 5G System; Location Management Services; Stage 3

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.572/'



CHAPTER 8

Nnrf_AccessToken

The NRF offers an Nnrf_AccessToken service (used for OAuth2 authorization, see IETF RFC 6749 [16]), following the "Client Credentials" authorization grant, as specified in 3GPP TS 33.501 [15]. It exposes a "Token Endpoint" where the Access Token Request service can be requested by NF Service Consumers.

Reference: 3GPP TS 33.501 [15]

- [OpenAPI, on page 135](#)
- [Info, on page 135](#)
- [External Documents, on page 135](#)
- [Paths, on page 136](#)
- [Components, on page 137](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.0.0'

Title: 'NRF OAuth2'

Description: 'NRF OAuth2 Authorization'

External Documents

Description: 3GPP TS 29.510 V15.2.0; 5G System; Network Function Repository Services; Stage 3

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.510/'

Paths

/oauth2/token

Method: Post

Summary: Access Token Request

Operation ID: AccessTokenRequest

Tags:

- Access Token Request

Request Body:

Content:

application/x-www-form-urlencoded:

Schema:

Reference: '#/components/schemas/AccessTokenReq'

Required/Optional: true

Responses:

'200' Successful Access Token Request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AccessTokenRsp'

Headers:

Cache-Control:

Reference: '#/components/headers/cache-control'

Pragma:

Reference: '#/components/headers/pragma'

'400' Error in the Access Token Request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/AccessTokenErr'

Headers:

Cache-Control:

Reference: '#/components/headers/cache-control'

Pragma:

Reference: '#/components/headers/pragma'

Components

Headers

cache-control

Required: true

schema:

Type: string

enum:

- no-store

pragma

Required: true

schema:

Type: string

enum:

- no-cache

Schemas

AccessTokenReq

Type: object

Required:

- grant_type

- nfiInstanceId

- scope

Properties:

grant_type:

Type: string

enum:

- client_credentials

nfiInstanceId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

nfType:

Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'

targetNfType:

Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'

scope:

Type: string

Pattern: '^[a-zA-Z0-9_-]+)([a-zA-Z0-9_-]+)*\$'

targetNfInstanceId:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

requesterPlmn:

Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'

targetPlmn:

Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'

AccessTokenRsp

Type: object

Required:

- access_token

- token_type

Properties:

access_token:

Type: string

Description: JWS Compact Serialized representation of JWS signed JSON object (AccessTokenClaims)

token_type:

Type: string

expires_in:

Type: integer

scope:

Type: string

Pattern: '^[a-zA-Z0-9_-]+)([a-zA-Z0-9_-]+)*\$'

AccessTokenClaims

Type: object

Required:

- issuer
- subject
- audience
- scope
- expiration

Properties:**issuer:**

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

subject:

Type: string

audience:**anyOf:**

- \$ref: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
- type: array

Items:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

minItems: 1

scope:

Type: string

Pattern: '^([a-zA-Z0-9_-])([a-zA-Z0-9_-]*)\$'

expiration:

Type: integer

AccessTokenErr

Type: object

Required:

- error

Properties:**error:**

Type: string

enum:

- invalid_request
- invalid_client
- invalid_grant
- unauthorized_client

- unsupported_grant_type

- invalid_scope

error_description:

Type: string

error_uri:

Type: string



CHAPTER 9

Nnrf_NFDiscovery

The Nnrf_NFDiscovery service allows a Network Function Instance to discover services offered by other Network Function Instances, by querying the local NRF.

It also allows an NRF in a PLMN to re-issue a discovery request towards an NRF in another PLMN (e.g., the HPLMN of a certain UE).

Reference: 3GPP TS 29.510 version 15.0.0 Release 15

- [OpenAPI, on page 141](#)
- [Info, on page 141](#)
- [Servers, on page 141](#)
- [Security, on page 142](#)
- [Paths, on page 142](#)
- [Components, on page 147](#)
- [External Docs, on page 150](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.0.0'
Title: 'NRF NFDiscovery Service'
Description: 'NRF NFDiscovery Service'

Servers

URL: '{apiRoot}/nnrf-disc/v1'
Variables:
 API Root:

Default: https://example.com

Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2ClientCredentials:
  - nnrf-disc
```

Paths

/nf-instances

get:

Summary: Search a collection of NF Instances

Operation ID: SearchNFInstances

Tags:

- NF Instances (Store)

Parameters:

- **Name:** target-nf-type
In: query
Description: Type of the target NF
Required/Optional: true
Schema:
Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
- **Name:** requester-nf-type
In: query
Description: Type of the requester NF
Required/Optional: true
Schema:
Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
- **Name:** service-names
In: query
Description: Name of the service offered by the NF
Schema:
Type: array
Items:
Type: string
Min Items: 1
Style: form
Explode: false
- **Name:** requester-nf-instance-fqdn
In: query
Description: FQDN of the requester NF
Schema:

```
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
- Name: target-plmn-list
  In: query
  Description: Id of the PLMN where the target NF is located
  Content:
    Application/JSON:
      Schema:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          Min Items: 1
- Name: requester-plmn-list
  In: query
  Description: Id of the PLMN where the NF issuing the Discovery request is located

  Content:
    Application/JSON:
      Schema:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          Min Items: 1
- Name: target-nf-instance-id
  In: query
  Description: Identity of the NF instance being discovered
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
- Name: target-nf-fqdn
  In: query
  Description: FQDN of the NF instance being discovered
  Schema:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
- Name: hnrfr-uri
  In: query
  Description: Uri of the home NRF
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
- Name: snssais
  In: query
  Description: Slice info of the target NF
  Content:
    Application/JSON:
      Schema:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
          Min Items: 1
- Name: dnn
  In: query
  Description: Dnn supported by the BSF, SMF or UPF
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
```

- **Name:** nsi-list
In: query
Description: NSI IDs that are served by the services being discovered
Schema:
Type: array
Items:
Type: string
Min Items: 1
Style: form
Explode: false
- **Name:** smf-serving-area
In: query
Schema:
Type: string
- **Name:** tai
In: query
Description: Tracking Area Identity
Content:
Application/JSON:
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
- **Name:** amf-region-id
In: query
Description: AMF Region Identity
Schema:
Type: string
- **Name:** amf-set-id
In: query
Description: AMF Set Identity
Schema:
Type: string
- **Name:** guami
In: query
Description: Guami used to search for an appropriate AMF
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
- **Name:** supi
In: query
Description: SUPI of the user
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
- **Name:** ue-ipv4-address
In: query
Description: IPv4 address of the UE
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
- **Name:** ip-domain
In: query
Description: IP domain of the UE, which supported by BSF
Schema:
Type: string

- **Name:** ue-ipv6-prefix
In: query
Description: IPv6 prefix of the UE
Schema:
 - Reference:** 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
- **Name:** pgw-ind
In: query
Description: Combined PGW-C and SMF or a standalone SMF
Schema:
 - Type:** boolean
- **Name:** pgw
In: query
Description: PGW FQDN of a combined PGW-C and SMF
Schema:
 - Reference:** 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
- **Name:** gpsi
In: query
Description: GPSI of the user
Schema:
 - Reference:** 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
- **Name:** external-group-identity
In: query
Description: external group identifier of the user
Schema:
 - Type:** string
- **Name:** data-set
In: query
Description: data set supported by the NF
Schema:
 - Reference:** 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/DataSetId'
- **Name:** routing-indicator
In: query
Description: routing indicator in SUCI
Schema:
 - Type:** string
 - pattern:** '^[0-9]{1,4}\$'
- **Name:** group-id-list
In: query
Description: Group IDs of the NFs being discovered
Schema:
 - Type:** array
 - Items:**
 - Reference:** 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
 - Min Items:** 1
 - Style:** form
 - Explode:** false
- **Name:** dnai-list
In: query
Description: Data network access identifiers of the NFs being discovered
Schema:
 - Type:** array

```

    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnai'
      Min Items: 1
      Style: form
      Explode: false
-   Name: supported-features
      In: query
      Description: Features required to be supported by the target NF
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
-   Name: upf-iwk-eps-ind
      In: query
      Description: UPF supporting interworking with EPS or not
      Schema:
        Type: boolean
-   Name: chf-supported-plmn
      In: query
      Description: PLMN ID supported by a CHF
      Content:
        Application/JSON:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
-   Name: preferred-locality
      In: query
      Description: preferred target NF location
      Schema:
        Type: string
-   Name: access-type
      In: query
      Description: AccessType supported by the target NF
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
-   Name: If-None-Match
      In: header
      Description: Validator for conditional requests, as described in IETF RFC 7232,
3.2
      Schema:
        Type: string

Responses:
  '200':
    Description: Expected response to a valid request
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/SearchResult'
    Headers:
      Cache-Control:
        Description: Cache-Control containing max-age, described in IETF RFC 7234,
5.2
        Schema:
          Type: string

```

ETag:
Description: Entity Tag containing a strong validator, described in IETF RFC 7232, 2.3

Schema:
Type: string

'307':
Description: Temporary Redirect

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':
Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':
Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':
Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'501':
Reference: 'TS29571_CommonData.yaml#/components/responses/501'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:
Reference: 'TS29571_CommonData.yaml#/components/responses/default'

Components

securitySchemes:
oAuth2ClientCredentials:
Type: oAuth2
Flows:
clientCredentials:
tokenUrl: '/oAuth2/token'
scopes:
nnrf-disc: Access to the Nnrf_NFDDiscovery API

schemas:
SearchResult:
Type: object
Required:
 - nfInstances
Properties:
validityPeriod:
Type: integer
nfInstances:
Type: array
Items:

```

      Reference: '#/components/schemas/NFProfile'
NfProfile:
  Type: object
  Required:
    - nfInstanceId
    - nfType
    - nfStatus
  Properties:
    nfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    nfType:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
    nfStatus:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFStatus'
    plmnList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
      minItems: 1
    sNssais:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      minItems: 1
    nsilist:
      Type: array
      Items:
        Type: string
      minItems: 1
    fqdn:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
    ipv4Addresses:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
      minItems: 1
    ipv6Addresses:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
      minItems: 1
    capacity:
      Type: integer
      Minimum: 0
      Maximum: 65535
    load:
      Type: integer
      Minimum: 0
      Maximum: 100
    locality:
      Type: string
    priority:

```

```

    Type: integer
    Minimum: 0
    Maximum: 65535
udrInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/UdrInfo'
udmInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/UdmInfo'
ausfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/AusfInfo'
amfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/AmfInfo'
smfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/SmfInfo'
upfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/UpfInfo'
pcfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/PcfInfo'
bsfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/BsfInfo'
chfInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ChfInfo'
customInfo:
    Type: object
recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
nfServicePersistence:
    Type: boolean
    Default: false
nfServices:
    Type: array
    Items:
      Reference: '#/components/schemas/NFService'
    minItems: 1
NFService:
  Type: object
  Required:
    - serviceInstanceId
    - serviceName
    - versions
    - scheme
    - nfServiceStatus
  Properties:
    serviceInstanceId:
      Type: string
    serviceName:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    versions:
      Type: array
      Items:
        Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFServiceVersion'

    minItems: 1
  scheme:

```

```

    Reference: 'TS29571_CommonData.yaml#/components/schemas/UriScheme'
nfServiceStatus:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFServiceStatus'
fqdn:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
ipEndpoints:
    Type: array
    Items:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/IpEndPoint'
    minItems: 1
apiPrefix:
    Type: string
defaultNotificationSubscriptions:
    Type: array
    Items:
      Reference:
'TS29510_Nnrf_NFManagement.yaml#/components/schemas/DefaultNotificationSubscription'
    minItems: 1
capacity:
    Type: integer
    Minimum: 0
    Maximum: 65535
load:
    Type: integer
    Minimum: 0
    Maximum: 100
priority:
    Type: integer
    Minimum: 0
    Maximum: 65535
recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
chfServiceInfo:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ChfServiceInfo'
supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

```

External Docs

Description: 3GPP TS 29.510 V15.2.0; 5G System; Network Function Repository Services; Stage 3

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.510/'



CHAPTER 10

Nnrf_NFManagement

The Nnrf_NFManagement service allows a Network Function instance in the serving PLMN to register, update or deregister its profile in the NRF.

It also allows an NF to subscribe to be notified of newly registered NF instances along with their NF services.

The NF profile consists of NF instance parameters. It also consists of different services parameters exposed by the NF Instance.

Reference: 3GPP TS 29.510 version 15.1.0 Release 15

- [OpenAPI, on page 151](#)
- [Info, on page 151](#)
- [Servers, on page 151](#)
- [Security, on page 152](#)
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- [External Docs, on page 178](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.0.0'
Title: 'NRF NFManagement Service'
Description: 'NRF NFManagement Service'

Servers

URL: '{apiRoot}/nnrf-nfm/v1'
Variables:
 API Root:

Default: https://example.com

Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2ClientCredentials:
  - nnrf-nfm
```

Paths

/nf-instances

get:

Summary: Retrieves a collection of NF Instances

Operation ID: GetNFInstances

Tags:

- NF Instances (Store)

Parameters:

```
- Name: nf-type
  In: query
  Description: Type of NF
  Required/Optional: false
  Schema:
    Reference: '#/components/schemas/NFType'
- Name: limit
  In: query
  Description: How many items to return at one time
  Required/Optional: false
  Schema:
    Type: integer
```

Responses:

'200':

Description: Expected response to a valid request

Content:

application/3gppHal+json:

Schema:

Type: object

Properties:

_links:

Type: object

Description: 'List of the URI of NF instances. It has two members whose names are item and self. The item one contains an array of URIs.'

additionalProperties:

Reference:
 'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
minProperties: 1

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':
Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':
Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':
Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'501':
Reference: 'TS29571_CommonData.yaml#/components/responses/501'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:
Reference: 'TS29571_CommonData.yaml#/components/responses/default'

/nf-instances/{nfInstanceId}

get:

Summary: Read the profile of a given NF Instance

Operation ID: GetNFInstance

Tags:

- NF Instance ID (Document)

Parameters:

- **Name:** nfInstanceId

In: path

Description: Unique ID of the NF Instance

Required/Optional: true

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

Responses:

'200':

Description: Expected response to a valid request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/NFProfile'

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

```

    Reference: 'TS29571_CommonData.yaml#/components/responses/403'
  '404':
    Reference: 'TS29571_CommonData.yaml#/components/responses/404'
  '411':
    Reference: 'TS29571_CommonData.yaml#/components/responses/411'
  '413':
    Reference: 'TS29571_CommonData.yaml#/components/responses/413'
  '415':
    Reference: 'TS29571_CommonData.yaml#/components/responses/415'
  '500':
    Reference: 'TS29571_CommonData.yaml#/components/responses/500'
  '501':
    Reference: 'TS29571_CommonData.yaml#/components/responses/501'
  '503':
    Reference: 'TS29571_CommonData.yaml#/components/responses/503'
  Default:
    Reference: 'TS29571_CommonData.yaml#/components/responses/default'
put:
  Summary: Register a new NF Instance
  Operation ID: RegisterNFInstance

  Tags:
    - NF Instance ID (Document)

  Parameters:
    - Name: nfInstanceId
      In: path
      Required/Optional: true
      Description: Unique ID of the NF Instance to register
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  Request Body:
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/NFProfile'
      Required/Optional: true

  Responses:
    '200':
      Description: OK (Profile Replacement)
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/NFProfile'
    '201':
      Description: Expected response to a valid request
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/NFProfile'
      Headers:

```

Location:
description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/nnrf-nfm/v1/nf-instances/{nfInstanceId}'
Required/Optional: true
Schema:
Type: string

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':
Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':
Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':
Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'501':
Reference: 'TS29571_CommonData.yaml#/components/responses/501'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:
Reference: 'TS29571_CommonData.yaml#/components/responses/default'

patch:
Summary: Update NF Instance profile
Operation ID: UpdateNFInstance

Tags:
- NF Instance ID (Document)

Parameters:
- **Name:** nfInstanceId
In: path
Required/Optional: true
Description: Unique ID of the NF Instance to update
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

Request Body:
Content:
application/json-patch+json:
Schema:
Type: array
Items:
Reference: 'TS29571_CommonData.yaml#/components/schemas/PatchItem'
Min Items: 1
Required/Optional: true

Responses:
'200':

Description: Expected response to a valid request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/NFProfile'

'204':

Description: Expected response with empty body

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'501':

Reference: 'TS29571_CommonData.yaml#/components/responses/501'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Reference: 'TS29571_CommonData.yaml#/components/responses/default'

delete:

Summary: Deregisters a given NF Instance

Operation ID: DeregisterNFInstance

Tags:

- NF Instance ID (Document)

Parameters:

- **Name:** nfInstanceId

In: path

Required/Optional: true

Description: Unique ID of the NF Instance to deregister

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

Responses:

'204':

Description: Expected response to a successful deregistration

/subscriptions

Method: Post

Summary: Create a new subscription

Operation ID: CreateSubscription

```

Tags:
  - Subscriptions (Collection)
Request Body:
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/SubscriptionData'
      Required/Optional: true

Responses:
  '201':
    Description: Expected response to a valid request
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/SubscriptionData'
    Headers:
      Location:
        description: 'Contains the URI of the newly created resource,
according to the structure: {apiRoot}/nnrf-nfm/v1/subscriptions/{subscriptionId}'
        Required/Optional: true
        Schema:
          Type: string
  '400':
    Reference: 'TS29571_CommonData.yaml#/components/responses/400'
  '403':
    Reference: 'TS29571_CommonData.yaml#/components/responses/403'
  '404':
    Reference: 'TS29571_CommonData.yaml#/components/responses/404'
  '411':
    Reference: 'TS29571_CommonData.yaml#/components/responses/411'
  '413':
    Reference: 'TS29571_CommonData.yaml#/components/responses/413'
  '415':
    Reference: 'TS29571_CommonData.yaml#/components/responses/415'
  '500':
    Reference: 'TS29571_CommonData.yaml#/components/responses/500'
  '501':
    Reference: 'TS29571_CommonData.yaml#/components/responses/501'
  '503':
    Reference: 'TS29571_CommonData.yaml#/components/responses/503'
  Default:
    Reference: 'TS29571_CommonData.yaml#/components/responses/default'
Callbacks:
  onNFStatusEvent:
    '{ $request.body#/nfStatusNotificationUri }':
      Method: Post
      Request Body:
        Description: Notification Payload
        Content:
          Application/JSON:

```

Schema:**Reference:** '#/components/schemas/NotificationData'**Responses:****'204':****Description:** Expected response to a successful callback processing**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'403':****Reference:** 'TS29571_CommonData.yaml#/components/responses/403'**'404':****Reference:** 'TS29571_CommonData.yaml#/components/responses/404'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'**'501':****Reference:** 'TS29571_CommonData.yaml#/components/responses/501'**'503':****Reference:** 'TS29571_CommonData.yaml#/components/responses/503'**Default:****Reference:** 'TS29571_CommonData.yaml#/components/responses/default'

/subscriptions/{subscriptionID}

patch:**Summary:** Updates a subscription**Operation ID:** UpdateSubscription**Tags:**

- Subscription ID (Document)

Parameters:- **Name:** subscriptionID**In:** path**Required/Optional:** true**Description:** Unique ID of the subscription to update**Schema:****Type:** string**pattern:** '^[0-9]{5,6}-)?[^-]+\$'**Request Body:****Content:**

application/json-patch+json:

Schema:**Type:** array**Items:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/PatchItem'

Required/Optional: true

Responses:

'200':

Description: Expected response to a valid request

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/SubscriptionData'

'204':

Description: No Content

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

'500':

Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'501':

Reference: 'TS29571_CommonData.yaml#/components/responses/501'

'503':

Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Reference: 'TS29571_CommonData.yaml#/components/responses/default'

delete:

Summary: Deletes a subscription

Operation ID: RemoveSubscription

Tags:

- Subscription ID (Document)

Parameters:

- **Name:** subscriptionID

In: path

Required/Optional: true

Description: Unique ID of the subscription to remove

Schema:

Type: string

pattern: '^([0-9]{5,6})?[^-]+\$'

Responses:

'204':

Description: Expected response to a successful subscription removal

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

```

'403':
  Reference: 'TS29571_CommonData.yaml#/components/responses/403'
'404':
  Reference: 'TS29571_CommonData.yaml#/components/responses/404'
'411':
  Reference: 'TS29571_CommonData.yaml#/components/responses/411'
'413':
  Reference: 'TS29571_CommonData.yaml#/components/responses/413'
'415':
  Reference: 'TS29571_CommonData.yaml#/components/responses/415'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'501':
  Reference: 'TS29571_CommonData.yaml#/components/responses/501'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Reference: 'TS29571_CommonData.yaml#/components/responses/default'

```

Components

```

securitySchemes:
  OAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '/oauth2/token'
        scopes:
          nnrf-nfm: Access to the Nnrf_NFManagement API

schemas:
  NFProfile:
    Type: object
    Required:
      - nfInstanceId
      - nfType
      - nfStatus
    anyOf:
      - required: [ fqdn ]
      - required: [ ipv4Addresses ]
      - required: [ ipv6Addresses ]
    Properties:
      nfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      nfType:
        Reference: '#/components/schemas/NFType'
      nfStatus:
        Reference: '#/components/schemas/NFStatus'
      heartBeatTimer:
        Type: integer

```

```
plmnList:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  minItems: 1
sNssais:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  minItems: 1
nsiList:
  Type: array
  Items:
    Type: string
  minItems: 1
fqdn:
  Reference: '#/components/schemas/Fqdn'
interPlmnFqdn:
  Reference: '#/components/schemas/Fqdn'
ipv4Addresses:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
  minItems: 1
ipv6Addresses:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
  minItems: 1
allowedPlmns:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  minItems: 1
allowedNfTypes:
  Type: array
  Items:
    Reference: '#/components/schemas/NFType'
  minItems: 1
allowedNfDomains:
  Type: array
  Items:
    Type: string
  minItems: 1
allowedNssais:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  minItems: 1
priority:
  Type: integer
```

```

    Minimum: 0
    Maximum: 65535
  capacity:
    Type: integer
    Minimum: 0
    Maximum: 65535
  load:
    Type: integer
    Minimum: 0
    Maximum: 100
  locality:
    Type: string
  udrInfo:
    Reference: '#/components/schemas/UdrInfo'
  udmInfo:
    Reference: '#/components/schemas/UdmInfo'
  ausfInfo:
    Reference: '#/components/schemas/AusfInfo'
  amfInfo:
    Reference: '#/components/schemas/AmfInfo'
  smfInfo:
    Reference: '#/components/schemas/SmfInfo'
  upfInfo:
    Reference: '#/components/schemas/UpfInfo'
  pcfInfo:
    Reference: '#/components/schemas/PcfInfo'
  bsfInfo:
    Reference: '#/components/schemas/BsfInfo'
  chfInfo:
    Reference: '#/components/schemas/ChfInfo'
  nrfInfo:
    Reference: '#/components/schemas/NrfInfo'
  customInfo:
    Type: object
  recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  nfServicePersistence:
    Type: boolean
    Default: false
  nfServices:
    Type: array
    Items:
      Reference: '#/components/schemas/NFService'
    minItems: 1
  NFService:
    Type: object
    Required:
      - serviceInstanceId
      - serviceName
      - versions
      - scheme
      - nfServiceStatus

```

```
Properties:
  serviceInstanceId:
    Type: string
  serviceName:
    Reference: '#/components/schemas/ServiceName'
  versions:
    Type: array
    Items:
      Reference: '#/components/schemas/NFServiceVersion'
    minItems: 1
  scheme:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UriScheme'
  nfServiceStatus:
    Reference: '#/components/schemas/NFServiceStatus'
  fqdn:
    Reference: '#/components/schemas/Fqdn'
  interPlmnFqdn:
    Reference: '#/components/schemas/Fqdn'
  ipEndPoints:
    Type: array
    Items:
      Reference: '#/components/schemas/IpEndPoint'
    minItems: 1
  apiPrefix:
    Type: string
  defaultNotificationSubscriptions:
    Type: array
    Items:
      Reference: '#/components/schemas/DefaultNotificationSubscription'
    minItems: 1
  allowedPlmns:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    minItems: 1
  allowedNfTypes:
    Type: array
    Items:
      Reference: '#/components/schemas/NFType'
    minItems: 1
  allowedNfDomains:
    Type: array
    Items:
      Type: string
    minItems: 1
  allowedNssais:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    minItems: 1
  priority:
```

```

    Type: integer
    Minimum: 0
    Maximum: 65535
  capacity:
    Type: integer
    Minimum: 0
    Maximum: 65535
  load:
    Type: integer
    Minimum: 0
    Maximum: 100
  recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  chfServiceInfo:
    Reference: '#/components/schemas/ChfServiceInfo'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
NFType:
  anyOf:
    - type: string
      enum:
        - NRF
        - UDM
        - AMF
        - SMF
        - AUSF
        - NEF
        - PCF
        - SMSF
        - NSSF
        - UDR
        - LMF
        - GMLC
        - 5G_EIR
        - SEPP
        - UPF
        - N3IWF
        - AF
        - UDSF
        - BSF
        - CHF
        - NWDAF
    - type: string
Fqdn:
  Type: string
IpEndPoint:
  Type: object
  Properties:
    ipv4Address:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    ipv6Address:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
    transport:
      Reference: '#/components/schemas/TransportProtocol'
    port:
      Type: integer

```

```
    Minimum: 0
    Maximum: 65535
SubscriptionData:
  Type: object
  Required:
    - nfStatusNotificationUri
    - subscriptionId
  Properties:
    nfStatusNotificationUri:
      Type: string
    subscrCond:
      oneOf:
        - $ref: '#/components/schemas/NfInstanceIdCond'
        - $ref: '#/components/schemas/NfTypeCond'
        - $ref: '#/components/schemas/ServiceNameCond'
        - $ref: '#/components/schemas/AmfCond'
        - $ref: '#/components/schemas/GuamiListCond'
        - $ref: '#/components/schemas/NetworkSliceCond'
        - $ref: '#/components/schemas/NfGroupCond'
    subscriptionId:
      Type: string
      Pattern: '^[0-9]{5,6}-)?[^-]+$'
      readOnly: true
    validityTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    reqNotifEvents:
      Type: array
      Items:
        Reference: '#/components/schemas/NotificationEventType'
      minItems: 1
    plmnId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    notifCondition:
      Reference: '#/components/schemas/NotifCondition'
    reqNfType:
      Reference: '#/components/schemas/NFType'
    reqNfFqdn:
      Reference: '#/components/schemas/Fqdn'
NfInstanceIdCond:
  Type: object
  Required:
    - nfInstanceId
  Properties:
    nfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
NfTypeCond:
  Type: object
  Required:
    - nfType
  Properties:
    nfType:
      Reference: '#/components/schemas/NFType'
ServiceNameCond:
  Type: object
```

```

Required:
  - serviceName
Properties:
  serviceName:
    Reference: '#/components/schemas/ServiceName'
AmfCond:
  Type: object
  anyOf:
    - required: [ amfSetId ]
    - required: [ amfRegionId ]
  Properties:
    amfSetId:
      Type: string
    amfRegionId:
      Type: string
GuamiListCond:
  Type: object
  Required:
    - guamiList
  Properties:
    guamiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
NetworkSliceCond:
  Type: object
  Required:
    - snssaiList
  Properties:
    snssaiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    nsiList:
      Type: array
      Items:
        Type: string
NfGroupCond:
  Type: object
  Required:
    - nfType
    - nfGroupId
  Properties:
    nfType:
      Type: string
      enum:
        - UDM
        - AUSF
        - UDR
    nfGroupId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
NotifCondition:
  Type: object

```

```

not:
  Required: [ monitoredAttributes, unmonitoredAttributes ]
Properties:
  monitoredAttributes:
    Type: array
    Items:
      Type: string
    minItems: 1
  unmonitoredAttributes:
    Type: array
    Items:
      Type: string
    minItems: 1
UdrInfo:
  Type: object
Properties:
  groupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  supiRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/SupiRange'
    minItems: 1
  gpsiRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/IdentityRange'
    minItems: 1
  externalGroupIdentifiersRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/IdentityRange'
    minItems: 1
  supportedDataSets:
    Type: array
    Items:
      Reference: '#/components/schemas/DataSetId'
    minItems: 1
SupiRange:
  Type: object
Properties:
  start:
    Type: string
    Pattern: '^[0-9]+$'
  end:
    Type: string
    Pattern: '^[0-9]+$'
  Pattern:
    Type: string
IdentityRange:
  Type: object

```

```

Properties:
  start:
    Type: string
    Pattern: '^[0-9]+$'
  end:
    Type: string
    Pattern: '^[0-9]+$'
  Pattern:
    Type: string
DataSetId:
anyOf:
  - type: string
    enum:
      - SUBSCRIPTION
      - POLICY
      - EXPOSURE
      - APPLICATION
  - type: string
UdmInfo:
Type: object
Properties:
  groupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  supiRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/SupiRange'
    minItems: 1
  gpsiRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/IdentityRange'
    minItems: 1
  externalGroupIdentifiersRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/IdentityRange'
    minItems: 1
  routingIndicators:
    Type: array
    Items:
      Type: string
      Pattern: '^[0-9]{1,4}$'
    minItems: 1
AusfInfo:
Type: object
Properties:
  groupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  supiRanges:
    Type: array
    Items:
      Reference: '#/components/schemas/SupiRange'

```

```
    minItems: 1
    routingIndicators:
      Type: array
      Items:
        Type: string
        Pattern: '^[0-9]{1,4}$'
    minItems: 1
AmfInfo:
  Type: object
  Required:
    - amfSetId
    - amfRegionId
    - guamiList
  Properties:
    amfSetId:
      Type: string
    amfRegionId:
      Type: string
    guamiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    taiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
      minItems: 1
    taiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/TaiRange'
      minItems: 1
    backupInfoAmfFailure:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    backupInfoAmfRemoval:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    n2InterfaceAmfInfo:
      Reference: '#/components/schemas/N2InterfaceAmfInfo'
SmfInfo:
  Type: object
  Required:
    - sNssaiSmfInfoList
  Properties:
    sNssaiSmfInfoList:
      Type: array
```

```

    Items:
      Reference: '#/components/schemas/SnssaiSmfInfoItem'
    minItems: 1
  taiList:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
    minItems: 1
  taiRangeList:
    Type: array
    Items:
      Reference: '#/components/schemas/TaiRange'
    minItems: 1
  pgwFqdn:
    Reference: '#/components/schemas/Fqdn'
  accessType:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
    minItems: 1
SnssaiSmfInfoItem:
  Type: object
  Required:
    - sNssai
    - dnnSmfInfoList
  Properties:
    sNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    dnnSmfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/DnnSmfInfoItem'
      minItems: 1
DnnSmfInfoItem:
  Type: object
  Required:
    - dnn
  Properties:
    dnn:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
UpfInfo:
  Type: object
  Required:
    - sNssaiUpfInfoList
  Properties:
    sNssaiUpfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/SnssaiUpfInfoItem'
      minItems: 1
    smfServingArea:
      Type: array

```

```

    Items:
      Type: string
    minItems: 1
  interfaceUpfInfoList:
    Type: array
    Items:
      Reference: '#/components/schemas/InterfaceUpfInfoItem'
    minItems: 1
  iwkEpsInd:
    Type: boolean
    Default: false
  SnssaiUpfInfoItem:
    Type: object
    Required:
      - sNssai
      - dnnUpfInfoList
    Properties:
      sNssai:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      dnnUpfInfoList:
        Type: array
        Items:
          Reference: '#/components/schemas/DnnUpfInfoItem'
        minItems: 1
  DnnUpfInfoItem:
    Type: object
    Required:
      - dnn
    Properties:
      dnn:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      dnaiList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnai'
        minItems: 1
  InterfaceUpfInfoItem:
    Type: object
    Required:
      - interfaceType
    Properties:
      interfaceType:
        Reference: '#/components/schemas/UPInterfaceType'
      ipv4EndpointAddresses:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
        minItems: 1
      ipv6EndpointAddresses:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'

```

```

    minItems: 1
    endpointFqdn:
      Reference: '#/components/schemas/Fqdn'
    networkInstance:
      Type: string
  UPInterfaceType:
    anyOf:
      - type: string
        enum:
          - N3
          - N6
          - N9
      - type: string
  PcfInfo:
    Type: object
    Properties:
      dnnList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        minItems: 1
      supiRanges:
        Type: array
        Items:
          Reference: '#/components/schemas/SupiRange'
        minItems: 1
      rxDiamHost:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DiameterIdentity'
      rxDiamRealm:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DiameterIdentity'
  BsfInfo:
    Type: object
    Properties:
      dnnList:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        minItems: 1
      ipDomainList:
        Type: array
        Items:
          Type: string
        minItems: 1
      ipv4AddressRanges:
        Type: array
        Items:
          Reference: '#/components/schemas/Ipv4AddressRange'
        minItems: 1
      ipv6PrefixRanges:
        Type: array
        Items:
          Reference: '#/components/schemas/Ipv6PrefixRange'

```

```

        minItems: 1
ChfInfo:
  Type: object
  Properties:
    supiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/SupiRange'
      minItems: 1
    gpsiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/IdentityRange'
      minItems: 1
    plmnRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/PlmnRange'
      minItems: 1
Ipv4AddressRange:
  Type: object
  Properties:
    start:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    end:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
Ipv6PrefixRange:
  Type: object
  Properties:
    start:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
    end:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
DefaultNotificationSubscription:
  Type: object
  Required:
    - notificationType
    - callbackUri
  Properties:
    notificationType:
      Reference: '#/components/schemas/NotificationType'
    callbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    n1MessageClass:
      Reference: 'TS29518_Namf_Communication.yaml#/components/schemas/N1MessageClass'
    n2InformationClass:
      Reference: 'TS29518_Namf_Communication.yaml#/components/schemas/N2InformationClass'
NotificationType:
  anyOf:
    - type: string
    enum:

```

```

        - N1_MESSAGES
        - N2_INFORMATION
        - LOCATION_NOTIFICATION
        - DATA_REMOVAL_NOTIFICATION
        - DATA_CHANGE_NOTIFICATION
    - type: string
TransportProtocol:
  anyOf:
    - type: string
    enum:
      - TCP
    - type: string
NotificationEventType:
  anyOf:
    - type: string
    enum:
      - NF_REGISTERED
      - NF_DEREGISTERED
      - NF_PROFILE_CHANGED
    - type: string
NotificationData:
  Type: object
  Required:
    - event
    - nfInstanceUri
  allOf:
    - anyOf:
    - not:
      Properties:
        event:
          Type: string
          enum:
            - NF_PROFILE_CHANGED
        - oneOf:
          - required: [ nfProfile ]
          - required: [ profileChanges ]
    - anyOf:
    - not:
      Properties:
        event:
          Type: string
          enum:
            - NF_REGISTERED
          - required: [ nfProfile ]
  Properties:
    event:
      Reference: '#/components/schemas/NotificationEventType'
    nfInstanceUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    nfProfile:
      allOf:
        - $ref: '#/components/schemas/NFProfile'
        - not:
          Required: [ interPlmnFqdn ]
        - properties:
          nfServices:
            Type: array

```

```

      Items:
        allof:
          - $ref: '#/components/schemas/NFService'
          - not:
              Required: [ interPlmnFqdn ]
          - not:
              Required: [ allowedPlmns ]
          - not:
              Required: [ allowedNfTypes ]
          - not:
              Required: [ allowedNfDomains ]
          - not:
              Required: [ allowedNssais ]
    profileChanges:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ChangeItem'
      minItems: 1
  NFStatus:
    anyOf:
      - type: string
        enum:
          - REGISTERED
          - SUSPENDED
      - type: string
  NFServiceVersion:
    Type: object
    Required:
      - apiVersionInUri
      - apiFullVersion
    Properties:
      apiVersionInUri:
        Type: string
      apiFullVersion:
        Type: string
      expiry:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  ServiceName:
    anyOf:
      - type: string
        enum:
          - nnrf-nfm
          - nnrf-disc
          - nudm-sdm
          - nudm-uecm
          - nudm-ueau
          - nudm-ee
          - nudm-pp
          - namf-comm
          - namf-evts
          - namf-mt
          - namf-loc
          - nsmf-pdusession
          - nsmf-event-exposure
          - nausf-auth
          - nausf-sorprotection
          - nnef-pfdmanagement

```

```

- npcf-am-policy-control
- npcf-smpolicycontrol
- npcf-policyauthorization
- npcf-bdtpolicycontrol
- npcf-eventexposure
- npcf-ue-policy-control
- nsmsf-sms
- nnssf-nssselection
- nnssf-nssaiavailability
- nudr-dr
- nlmf-loc
- n5g-eir-eic
- nbsf-management
- nchf-spendinglemitcontrol
- nchf-convergedcharging
- nnwdaf-eventssubscription
- nnwdaf-analyticsinfo
- type: string
N2InterfaceAmfInfo:
  Type: object
  Properties:
    ipv4EndpointAddress:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
      minItems: 1
    ipv6EndpointAddress:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
      minItems: 1
    amfName:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/AmfName'
NFServiceStatus:
  anyOf:
    - type: string
      enum:
        - REGISTERED
        - SUSPENDED
    - type: string
TaiRange:
  Type: object
  Required:
    - plmnId
    - tacRangeList
  Properties:
    plmnId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    tacRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/TacRange'
      minItems: 1
TacRange:
  Type: object
  Properties:

```

```

    start:
      Type: string
      Pattern: '^[A-Za-f0-9]{4}|[A-Za-f0-9]{6})$'
    end:
      Type: string
      Pattern: '^[A-Za-f0-9]{4}|[A-Za-f0-9]{6})$'
    Pattern:
      Type: string
  ChfServiceInfo:
    Type: object
    not:
      Required: [ primaryChfServiceInstance, secondaryChfServiceInstance ]
    Properties:
      primaryChfServiceInstance:
        Type: string
      secondaryChfServiceInstance:
        Type: string
  PlmnRange:
    Type: object
    Properties:
      start:
        Type: string
        Pattern: '^[0-9]{3}[0-9]{2,3}$'
      end:
        Type: string
        Pattern: '^[0-9]{3}[0-9]{2,3}$'
      Pattern:
        Type: string
  NrfInfo:
    Type: object
    Properties:
      servedUdrInfo:
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/UdrInfo'
        minProperties: 1
      servedUdmInfo:
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/UdmInfo'
        minProperties: 1
      servedAusfInfo:
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/AusfInfo'
        minProperties: 1
      servedAmfInfo:
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/AmfInfo'
        minProperties: 1

```

```
servedSmfInfo:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/SmfInfo'
  minProperties: 1
servedUpfInfo:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/UpfInfo'
  minProperties: 1
servedPcfInfo:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/PcfInfo'
  minProperties: 1
servedBsfInfo:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/BsfInfo'
  minProperties: 1
servedChfInfo:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/ChfInfo'
  minProperties: 1
```

External Docs

Description: 3GPP TS 29.510 V15.2.0; 5G System; Network Function Repository Services; Stage 3
URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.510/'



CHAPTER 11

Npcf_AMPolicyControl

The Access and Mobility Policy Control Service (Npcf_AMPolicyControl) is part of the Npcf service-based interface exhibited by the Policy Control Function (PCF).

The known consumers of the Npcf_AMPolicyControl service are the Access and Mobility Management Function (AMF) and the Visited Policy Control Function (V-PCF).

Reference: 3GPP TS 29.507 version 15.0.0 Release 15

- [OpenAPI, on page 179](#)
- [Info, on page 179](#)
- [Servers, on page 179](#)
- [Security, on page 180](#)
- [Paths, on page 180](#)
- [Components, on page 183](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Description: Access and Mobility Policy Control Service API

Version: "1.0.0"

Title: Npcf_AMPolicyControl

Servers

URL: '{apiRoot}/npcf-am-policy-control/v1'

Variables:

API Root:

Default: <https://example.com>

Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501

Security

```
- {}
- oAuth2ClientCredentials:
  - npcf-am-policy-control
```

Paths

/policies

```
Method: Post
Request Body:
  Required/Optional: true
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/PolicyAssociationRequest'

Responses:
  '201':
    Description: Created
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/PolicyAssociation'
    Headers:
      Location:
        description: 'Contains the URI of the newly created resource,
according to the structure: {apiRoot}/npcf-am-policy-control/v1/policies/{polAssoId}'

      Required/Optional: true
      Schema:
        Type: string
  '400':
    Reference: 'TS29571_CommonData.yaml#/components/responses/400'
  '401':
    Reference: 'TS29571_CommonData.yaml#/components/responses/401'
  '403':
    Reference: 'TS29571_CommonData.yaml#/components/responses/403'
  '404':
    Reference: 'TS29571_CommonData.yaml#/components/responses/404'
  '411':
    Reference: 'TS29571_CommonData.yaml#/components/responses/411'
  '413':
    Reference: 'TS29571_CommonData.yaml#/components/responses/413'
  '415':
    Reference: 'TS29571_CommonData.yaml#/components/responses/415'
```

```

'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Reference: 'TS29571_CommonData.yaml#/components/responses/default'
Callbacks:
  policyUpdateNotification:
    '{$request.body#/notificationUri}/update':
      Method: Post
      Request Body:
        Required/Optional: true
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/PolicyUpdate'

      Responses:
        '204':
          Description: No Content, Notification was succesfull
        '307':
          Description: temporary redirect
        '400':
          Reference: 'TS29571_CommonData.yaml#/components/responses/400'
        '401':
          Reference: 'TS29571_CommonData.yaml#/components/responses/401'
        '403':
          Reference: 'TS29571_CommonData.yaml#/components/responses/403'
        '404':
          Reference: 'TS29571_CommonData.yaml#/components/responses/404'
        '411':
          Reference: 'TS29571_CommonData.yaml#/components/responses/411'
        '413':
          Reference: 'TS29571_CommonData.yaml#/components/responses/413'
        '415':
          Reference: 'TS29571_CommonData.yaml#/components/responses/415'
        '429':
          Reference: 'TS29571_CommonData.yaml#/components/responses/429'
        '500':
          Reference: 'TS29571_CommonData.yaml#/components/responses/500'
        '503':
          Reference: 'TS29571_CommonData.yaml#/components/responses/503'
        Default:
          Reference: 'TS29571_CommonData.yaml#/components/responses/default'
  policyAssociationTerminationRequestNotification:
    '{$request.body#/notificationUri}/terminate':
      Method: Post
      Request Body:
        Required/Optional: true
        Content:

```

Application/JSON:**Schema:****Reference:** '#/components/schemas/TerminationNotification'**Responses:****'204':****Description:** No Content, Notification was succesfull**'307':****Description:** temporary redirect**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'401':****Reference:** 'TS29571_CommonData.yaml#/components/responses/401'**'403':****Reference:** 'TS29571_CommonData.yaml#/components/responses/403'**'404':****Reference:** 'TS29571_CommonData.yaml#/components/responses/404'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'**'503':****Reference:** 'TS29571_CommonData.yaml#/components/responses/503'**Default:****Reference:** 'TS29571_CommonData.yaml#/components/responses/default'

/policies/{polAssold}

delete:**Parameters:****- Name:** polAssoId**In:** path**Description:** Identifier of a policy association**Required/Optional:** true**Schema:****Type:** string**Responses:****'204':****Description:** No Content. Resource was succesfully deleted**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'401':****Reference:** 'TS29571_CommonData.yaml#/components/responses/401'

```

'403':
  Reference: 'TS29571_CommonData.yaml#/components/responses/403'
'404':
  Reference: 'TS29571_CommonData.yaml#/components/responses/404'
'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Reference: 'TS29571_CommonData.yaml#/components/responses/default'

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          npcf-am-policy-control: Access to the Npcf_AMPolicyControl API

schemas:
  PolicyAssociation:
    Type: object
    Properties:
      request:
        Reference: '#/components/schemas/PolicyAssociationRequest'
      triggers:
        Type: array
        Items:
          Reference: '#/components/schemas/RequestTrigger'
        minItems: 1
        Description: Request Triggers that the PCF subscribes. Only values "LOC_CH" and
"PRA_CH" are permitted.
      servAreaRes:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ServiceAreaRestriction'
      rfsp:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/RfspIndex'
      pras:
        Type: object
        additionalProperties:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'
        minProperties: 1
      suppFeat:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    Required:
      - suppFeat

```

PolicyAssociationRequest:**Type:** object**Properties:****notificationUri:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Uri'**altNotifIpv4Addrs:****Type:** array**Items:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'**minItems:** 1**Description:** Alternate or backup IPv4 Address(es) where to send Notifications.**altNotifIpv6Addrs:****Type:** array**Items:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'**minItems:** 1**Description:** Alternate or backup IPv6 Address(es) where to send Notifications.**supi:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Supi'**gpsi:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Gpsi'**accessType:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/AccessType'**pei:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Pei'**userLoc:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/UserLocation'**timeZone:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/TimeZone'**servingPlmn:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/NetworkId'**ratType:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/RatType'**groupIds:****Type:** array**Items:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/GroupId'**minItems:** 1**servAreaRes:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/ServiceAreaRestriction'**rfsf:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/RfspIndex'**guami:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Guami'**serviveName:****Type:** string**Description:** If the NF service consumer is an AMF, it should provide the name of a service produced by the AMF that makes use of information received within the Npcf_AMPolicyControl_UpdateNotify service operation.**traceReq:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/TraceData'**suppFeat:**

Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

Required:

- notificationUri
- suppFeat
- supi

PolicyAssociationUpdateRequest:

Type: object

Properties:

notificationUri:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

altNotifIpv4Addrs:

Type: array

Items:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'

minItems: 1

Description: Alternate or backup IPv4 Address(es) where to send Notifications.

altNotifIpv6Addrs:

Type: array

Items:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'

minItems: 1

Description: Alternate or backup IPv6 Address(es) where to send Notifications.

triggers:

Type: array

Items:

Reference: '#/components/schemas/RequestTrigger'

minItems: 1

Description: Request Triggers that the NF service consumer observes.

servAreaRes:

Reference: 'TS29571_CommonData.yaml#/components/schemas/ServiceAreaRestriction'

rfsp:

Reference: 'TS29571_CommonData.yaml#/components/schemas/RfspIndex'

praStatuses:

Type: object

additionalProperties:

Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfo'

minProperties: 1

Description: Map of PRA status information.

userLoc:

Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'

traceReq:

Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'

PolicyUpdate:

Type: object

Properties:

resourceUri:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

triggers:

Type: array

Items:

Reference: '#/components/schemas/RequestTrigger'

minItems: 1

```

    nullable: true
    Description: Request Triggers that the PCF subscribes. Only values "LOC_CH" and
    "PRA_CH" are permitted.
    servAreaRes:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ServiceAreaRestriction'
    rfsp:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RfspIndex'
    pras:
      Type: object
      additionalProperties:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceInfoRm'
        Description: Map of PRA information.
        minProperties: 1
        nullable: true
    Required:
      - resourceUri
TerminationNotification:
  Type: object
  Properties:
    resourceUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    cause:
      Reference: '#/components/schemas/PolicyAssociationReleaseCause'
  Required:
    - resourceUri
    - cause
RequestTrigger:
  anyOf:
    - type: string
      enum:
        - LOC_CH
        - PRA_CH
        - SERV_AREA_CH
        - RFSP_CH
    - 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
        - LOC_CH: Location change (tracking area). The tracking area of the UE has changed.
        - PRA_CH: Change of UE presence in PRA. The UE is entering/leaving a Presence Reporting
        Area.
        - SERV_AREA_CH: Service Area Restriction change. The UDM notifies the AMF that the
        subscribed service area restriction information has changed.
        - RFSP_CH: RFSP index change. The UDM notifies the AMF that the subscribed RFSP index
        has changed.
  PolicyAssociationReleaseCause:
    anyOf:
      - type: string
        enum:
          - UNSPECIFIED
          - UE_SUBSCRIPTION
          - INSUFFICIENT_RES
      - 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

- UNSPECIFIED: This value is used for unspecified reasons.
- UE_SUBSCRIPTION: This value is used to indicate that the session needs to be terminated because the subscription of UE has changed (e.g. was removed).
- INSUFFICIENT_RES: This value is used to indicate that the server is overloaded and needs to abort the session.



CHAPTER 12

Nsmf_PDUSession

The Nsmf_PDUSession service operates on the PDU Sessions. The service operations exposed by this service allows other NFs to establish, modify and release the PDU Sessions. The following are the key functionalities of this NF service:

- Creation, modification and deletion of SM contexts for PDU Sessions upon receiving N1 message notification from AMF carrying the NAS SM messages. An SM context represents an association between the NF Service Consumer (for example, AMF) and the SMF for a PDU session;
- Retrieval of SM contexts of PDU sessions, for example, to move PDU sessions towards the EPC using the N26 interface;
- Creation, modification and deletion of PDU sessions between the V-SMF and H-SMF, in HR roaming scenarios;
- Association of policy and charging rules with PDU Sessions and binding the policy and charging rules to flows;
- Interacting with the UPF over N4 for creating, modifying and releasing user plane sessions;
- Process user plane events from the UPF and apply the corresponding policy and charging rules.

Reference: 3GPP TS 29.502 version 15.0.0 Release 15

- [OpenAPI, on page 189](#)
- [Info, on page 190](#)
- [Servers, on page 190](#)
- [Security, on page 190](#)
- [Paths, on page 190](#)
- [Components, on page 203](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.0.0'
Title: 'Nsmf_PDUSession'
Description: 'SMF PDU Session Service'

Servers

URL: '{apiRoot}/nsmf-pdusession/v1'
Variables:
API Root:
Default: https://example.com
Description: apiRoot as defined in subclause 4.4 of 3GPP TS 29.501. The sm-contexts and pdu-sessions resources can be distributed on different processing instances or hosts. Thus the authority and/or deployment-specific string of the apiRoot of the created individual sm context and pdu-session resources' URIs may differ from the authority and/or deployment-specific string of the apiRoot of the sm-contexts and pdu-sessions collections' URIs.

Security

```
- {}
- OAuth2ClientCredentials:
  - nsmf-pdusession
```

Paths

/sm-contexts

Method: Post
Summary: Create SM Context
Tags:
 - SM contexts collection
Operation ID: PostSmContexts
Request Body:
Description: representation of the SM context to be created in the SMF
Required/Optional: true
Content:
Multipart/Related:
Schema:
Type: object
Properties: # Request parts

```
    JSON Data:
      Reference: '#/components/schemas/SmContextCreateData'
    binaryDataN1SmMessage:
      Type: string
      Format: binary
  Encoding:
    JSON Data:
      Content Type: application/json
    binaryDataN1SmMessage:
      Content Type: application/vnd.3gpp.5gnas
    Headers:
      Content ID:
        Schema:
          Type: string
  Callbacks:
    smContextStatusNotification:
      '{$request.body#/smContextStatusUri}':
        Method: Post
        Request Body: # contents of the callback message
        Required/Optional: true
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/SmContextStatusNotification'

  Responses:
    '204':
      Description: successful notification
    '307':
      Description: temporary redirect
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '411':
      Reference: 'TS29571_CommonData.yaml#/components/responses/411'
    '413':
      Reference: 'TS29571_CommonData.yaml#/components/responses/413'
    '415':
      Reference: 'TS29571_CommonData.yaml#/components/responses/415'
    '429':
      Reference: 'TS29571_CommonData.yaml#/components/responses/429'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'

  Responses:
    '201':
      Description: successful creation of an SM context
```

```

Content:
  Application/JSON: # message without binary body part
  Schema:
    Reference: '#/components/schemas/SmContextCreatedData'
  Multipart/Related: # message with binary body part(s)
  Schema:
    Type: object
    Properties: # Request parts
    JSON Data:
      Reference: '#/components/schemas/SmContextCreatedData'
    binaryDataN2SmInformation:
      Type: string
      Format: binary
  Encoding:
    JSON Data:
      Content Type: application/json
    binaryDataN2SmInformation:
      Content Type: application/vnd.3gpp.ngap
  Headers:
    Content ID:
      Schema:
        Type: string
  Headers:
    Location:
      description: 'Contains the URI of the newly created resource,
according to the structure: {apiRoot}/nsmf-pdusession/v1/sm-contexts/{smContextRef}'

    Required/Optional: true
    Schema:
      Type: string
'307':
  Description: temporary redirect
'308':
  Description: permanent redirect
'400':
  Description: unsuccessful creation of an SM context - bad request
Content:
  Application/JSON: # message without binary body part
  Schema:
    Reference: '#/components/schemas/SmContextCreateError'
  Multipart/Related: # message with binary body part(s)
  Schema:
    Type: object
    Properties: # Request parts
    JSON Data:
      Reference: '#/components/schemas/SmContextCreateError'
    binaryDataN1SmMessage:
      Type: string
      Format: binary
  Encoding:
    JSON Data:
      Content Type: application/json

```

```
    binaryDataN1SmMessage:
      Content Type: application/vnd.3gpp.5gnas
      Headers:
        Content ID:
          Schema:
            Type: string
'403':
  Description: unsuccessful creation of an SM context - forbidden
  Content:
    Application/JSON: # message without binary body part
    Schema:
      Reference: '#/components/schemas/SmContextCreateError'
    Multipart/Related: # message with binary body part(s)
    Schema:
      Type: object
      Properties: # Request parts
      JSON Data:
        Reference: '#/components/schemas/SmContextCreateError'
      binaryDataN1SmMessage:
        Type: string
        Format: binary
    Encoding:
      JSON Data:
        Content Type: application/json
      binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
        Headers:
          Content ID:
            Schema:
              Type: string
'404':
  Description: unsuccessful creation of an SM context - not found
  Content:
    Application/JSON: # message without binary body part
    Schema:
      Reference: '#/components/schemas/SmContextCreateError'
    Multipart/Related: # message with binary body part(s)
    Schema:
      Type: object
      Properties: # Request parts
      JSON Data:
        Reference: '#/components/schemas/SmContextCreateError'
      binaryDataN1SmMessage:
        Type: string
        Format: binary
    Encoding:
      JSON Data:
        Content Type: application/json
      binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
        Headers:
```

```

        Content ID:
        Schema:
        Type: string
'411':
  Reference: 'TS29571_CommonData.yaml#/components/responses/411'
'413':
  Reference: 'TS29571_CommonData.yaml#/components/responses/413'
'415':
  Reference: 'TS29571_CommonData.yaml#/components/responses/415'
'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Description: unsuccessful creation of an SM context - internal server error
  Content:
    Application/JSON: # message without binary body part
    Schema:
      Reference: '#/components/schemas/SmContextCreateError'
    Multipart/Related: # message with binary body part(s)
    Schema:
      Type: object
      Properties: # Request parts
      JSON Data:
        Reference: '#/components/schemas/SmContextCreateError'
      binaryDataN1SmMessage:
        Type: string
        Format: binary
    Encoding:
      JSON Data:
        Content Type: application/json
      binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
      Headers:
        Content ID:
        Schema:
        Type: string
'503':
  Description: unsuccessful creation of an SM context - service unavailable
  Content:
    Application/JSON: # message without binary body part
    Schema:
      Reference: '#/components/schemas/SmContextCreateError'
    Multipart/Related: # message with binary body part(s)
    Schema:
      Type: object
      Properties: # Request parts
      JSON Data:
        Reference: '#/components/schemas/SmContextCreateError'
      binaryDataN1SmMessage:
        Type: string
        Format: binary
    Encoding:

```

```

      JSON Data:
        Content Type: application/json
      binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
      Headers:
        Content ID:
        Schema:
        Type: string
    '504':
      Description: unsuccessful creation of an SM context - gateway timeout
      Content:
        Application/JSON: # message without binary body part
        Schema:
          Reference: '#/components/schemas/SmContextCreateError'
        Multipart/Related: # message with binary body part(s)
        Schema:
          Type: object
          Properties: # Request parts
          JSON Data:
            Reference: '#/components/schemas/SmContextCreateError'
          binaryDataN1SmMessage:
            Type: string
            Format: binary
        Encoding:
          JSON Data:
            Content Type: application/json
          binaryDataN1SmMessage:
            Content Type: application/vnd.3gpp.5gnas
          Headers:
            Content ID:
            Schema:
            Type: string
      Default:
        Reference: 'TS29571_CommonData.yaml#/components/responses/default'

```

/sm-contexts/{smContextRef}/retrieve

```

Method: Post
Summary: Retrieve SM Context

Tags:
- Individual SM context
Operation ID: RetrieveSmContext

Parameters:
- Name: smContextRef
  In: path
  Description: SM context reference
  Required/Optional: true
  Schema:
    Type: string

```

Request Body:**Description:** parameters used to retrieve the SM context**Required/Optional:** false**Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/SmContextRetrieveData'**Responses:****'200':****Description:** successful retrieval of an SM context**Content:****Application/JSON:****Schema:****Reference:** '#/components/schemas/SmContextRetrievedData'**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'403':****Reference:** 'TS29571_CommonData.yaml#/components/responses/403'**'404':****Reference:** 'TS29571_CommonData.yaml#/components/responses/404'**'411':****Reference:** 'TS29571_CommonData.yaml#/components/responses/411'**'413':****Reference:** 'TS29571_CommonData.yaml#/components/responses/413'**'415':****Reference:** 'TS29571_CommonData.yaml#/components/responses/415'**'429':****Reference:** 'TS29571_CommonData.yaml#/components/responses/429'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'**'503':****Reference:** 'TS29571_CommonData.yaml#/components/responses/503'**Default:****Reference:** 'TS29571_CommonData.yaml#/components/responses/default'

/sm-contexts/{smContextRef}/modify

Method: Post**Summary:** Update SM Context**Tags:**

- Individual SM context

Operation ID: UpdateSmContext**Parameters:**- **Name:** smContextRef**In:** path**Description:** SM context reference**Required/Optional:** true**Schema:**

Type: string

Request Body:

Description: representation of the updates to apply to the SM context

Required/Optional: true

Content:

Application/JSON: # message without binary body part

Schema:

Reference: '#/components/schemas/SmContextUpdateData'

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/SmContextUpdateData'

binaryDataN1SmMessage:

Type: string

Format: binary

binaryDataN2SmInformation:

Type: string

Format: binary

Encoding:

JSON Data:

Content Type: application/json

binaryDataN1SmMessage:

Content Type: application/vnd.3gpp.5gnas

Headers:

Content ID:

Schema:

Type: string

binaryDataN2SmInformation:

Content Type: application/vnd.3gpp.ngap

Headers:

Content ID:

Schema:

Type: string

Responses:

'200':

Description: successful update of an SM context with content in the response

Content:

Application/JSON: # message without binary body part

Schema:

Reference: '#/components/schemas/SmContextUpdatedData'

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/SmContextUpdatedData'

binaryDataN1SmMessage:

Type: string

Format: binary

```

        binaryDataN2SmInformation:
            Type: string
            Format: binary
    Encoding:
    JSON Data:
        Content Type: application/json
    binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
    Headers:
        Content ID:
        Schema:
            Type: string
    binaryDataN2SmInformation:
        Content Type: application/vnd.3gpp.ngap
    Headers:
        Content ID:
        Schema:
            Type: string
'204':
    Description: successful update of an SM context without content in the response
'400':
    Description: unsuccessful update of an SM context - bad request
    Content:
        Application/JSON: # message without binary body part
        Schema:
            Reference: '#/components/schemas/SmContextUpdateError'
        Multipart/Related: # message with binary body part(s)
        Schema:
            Type: object
        Properties: # Request parts
        JSON Data:
            Reference: '#/components/schemas/SmContextUpdateError'
        binaryDataN1SmMessage:
            Type: string
            Format: binary
        binaryDataN2SmInformation:
            Type: string
            Format: binary
    Encoding:
    JSON Data:
        Content Type: application/json
    binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
    Headers:
        Content ID:
        Schema:
            Type: string
    binaryDataN2SmInformation:
        Content Type: application/vnd.3gpp.ngap
    Headers:
        Content ID:

```

```

        Schema:
            Type: string
'403':
    Description: unsuccessful update of an SM context - forbidden
    Content:
        Application/JSON: # message without binary body part
        Schema:
            Reference: '#/components/schemas/SmContextUpdateError'
        Multipart/Related: # message with binary body part(s)
        Schema:
            Type: object
            Properties: # Request parts
            JSON Data:
                Reference: '#/components/schemas/SmContextUpdateError'
            binaryDataN1SmMessage:
                Type: string
                Format: binary
            binaryDataN2SmInformation:
                Type: string
                Format: binary
        Encoding:
            JSON Data:
                Content Type: application/json
            binaryDataN1SmMessage:
                Content Type: application/vnd.3gpp.5gnas
            Headers:
                Content ID:
                Schema:
                    Type: string
            binaryDataN2SmInformation:
                Content Type: application/vnd.3gpp.ngap
            Headers:
                Content ID:
                Schema:
                    Type: string
'404':
    Description: unsuccessful update of an SM context - not found
    Content:
        Application/JSON: # message without binary body part
        Schema:
            Reference: '#/components/schemas/SmContextUpdateError'
        Multipart/Related: # message with binary body part(s)
        Schema:
            Type: object
            Properties: # Request parts
            JSON Data:
                Reference: '#/components/schemas/SmContextUpdateError'
            binaryDataN1SmMessage:
                Type: string
                Format: binary
            binaryDataN2SmInformation:
```

```

        Type: string
        Format: binary
    Encoding:
    JSON Data:
        Content Type: application/json
    binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
    Headers:
        Content ID:
        Schema:
            Type: string
    binaryDataN2SmInformation:
        Content Type: application/vnd.3gpp.ngap
    Headers:
        Content ID:
        Schema:
            Type: string
'411':
    Reference: 'TS29571_CommonData.yaml#/components/responses/411'
'413':
    Reference: 'TS29571_CommonData.yaml#/components/responses/413'
'415':
    Reference: 'TS29571_CommonData.yaml#/components/responses/415'
'429':
    Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
    Description: unsuccessful update of an SM context - Internal server error
    Content:
        Application/JSON: # message without binary body part
        Schema:
            Reference: '#/components/schemas/SmContextUpdateError'
        Multipart/Related: # message with binary body part(s)
        Schema:
            Type: object
            Properties: # Request parts
            JSON Data:
                Reference: '#/components/schemas/SmContextUpdateError'
            binaryDataN1SmMessage:
                Type: string
                Format: binary
            binaryDataN2SmInformation:
                Type: string
                Format: binary
    Encoding:
    JSON Data:
        Content Type: application/json
    binaryDataN1SmMessage:
        Content Type: application/vnd.3gpp.5gnas
    Headers:
        Content ID:
        Schema:

```

```

        Type: string
    binaryDataN2SmInformation:
        Content Type: application/vnd.3gpp.ngap
        Headers:
            Content ID:
            Schema:
            Type: string
'503':
    Description: unsuccessful update of an SM context - Service Unavailable
    Content:
        Application/JSON: # message without binary body part
        Schema:
            Reference: '#/components/schemas/SmContextUpdateError'
        Multipart/Related: # message with binary body part(s)
        Schema:
            Type: object
            Properties: # Request parts
            JSON Data:
                Reference: '#/components/schemas/SmContextUpdateError'
            binaryDataN1SmMessage:
                Type: string
                Format: binary
            binaryDataN2SmInformation:
                Type: string
                Format: binary
        Encoding:
            JSON Data:
                Content Type: application/json
            binaryDataN1SmMessage:
                Content Type: application/vnd.3gpp.5gnas
            Headers:
                Content ID:
                Schema:
                Type: string
            binaryDataN2SmInformation:
                Content Type: application/vnd.3gpp.ngap
            Headers:
                Content ID:
                Schema:
                Type: string
    Default:
        Reference: 'TS29571_CommonData.yaml#/components/responses/default'

```

/sm-contexts/{smContextRef}/release

Method: Post

Summary: Release SM Context

Tags:

- Individual SM context

Operation ID: ReleaseSmContext

Parameters:

- **Name:** smContextRef
 - In:** path
 - Description:** SM context reference
 - Required/Optional:** true
 - Schema:**
 - Type:** string

Request Body:

Description: representation of the data to be sent to the SMF when releasing the SM context

Required/Optional: false

Content:

Application/JSON: # message without binary body part

Schema:

Reference: '#/components/schemas/SmContextReleaseData'

Multipart/Related: # message with binary body part(s)

Schema:

Type: object

Properties: # Request parts

JSON Data:

Reference: '#/components/schemas/SmContextReleaseData'

binaryDataN2SmInformation:

Type: string

Format: binary

Encoding:

JSON Data:

Content Type: application/json

binaryDataN2SmInformation:

Content Type: application/vnd.3gpp.ngap

Headers:

Content ID:

Schema:

Type: string

Responses:

'204':

Description: successful release of an SM context without content in the response

'400':

Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'403':

Reference: 'TS29571_CommonData.yaml#/components/responses/403'

'404':

Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'411':

Reference: 'TS29571_CommonData.yaml#/components/responses/411'

'413':

Reference: 'TS29571_CommonData.yaml#/components/responses/413'

'415':

Reference: 'TS29571_CommonData.yaml#/components/responses/415'

```

'429':
  Reference: 'TS29571_CommonData.yaml#/components/responses/429'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Reference: 'TS29571_CommonData.yaml#/components/responses/default'

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          nsmf-pdusession: Access to the nsmf-pdusession API

schemas:
# STRUCTURED DATA TYPES
SmContextCreateData:
  Type: object
  Properties:
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
    unauthenticatedSupi:
      Type: boolean
      Default: false
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    gpsi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    dnn:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
    sNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    hplmnSnssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    servingNfId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    guami:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
    serviceName:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    servingNetwork:

```

```
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
requestType:
    Reference: '#/components/schemas/RequestType'
n1SmMsg:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
anType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
ratType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
presenceInLadn:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceState'
ueLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
ueTimeZone:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
addUeLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
smContextStatusUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
hSmfUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
additionalHsmfUri:
    Type: array
    Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    minItems: 1
oldPduSessionId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
pduSessionsActivateList:
    Type: array
    Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    minItems: 1
ueEpsPdnConnection:
    Reference: '#/components/schemas/EpsPdnCnxContainer'
hoState:
    Reference: '#/components/schemas/HoState'
pcfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
nrfUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
selMode:
    Reference: '#/components/schemas/DnnSelectionMode'
backupAmfInfo:
    Type: array
    Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
    minItems: 1
traceData:
```

```

    Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
udmGroupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
routingIndicator:
    Type: string
epsInterworkingInd:
    Reference: '#/components/schemas/EpsInterworkingIndication'
indirectForwardingFlag:
    Type: boolean
Required:
  - servingNfId
  - servingNetwork
  - anType
  - smContextStatusUri
SmContextCreatedData:
Type: object
Properties:
  hSmfUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  pduSessionId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
  sNssai:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  upCnxState:
    Reference: '#/components/schemas/UpCnxState'
  n2SmInfo:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
  n2SmInfoType:
    Reference: '#/components/schemas/N2SmInfoType'
  allocatedEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EbiArpMapping'
    minItems: 1
  hoState:
    Reference: '#/components/schemas/HoState'
  smfServiceInstanceId:
    Type: string
  recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
SmContextUpdateData:
Type: object
Properties:
  pei:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
  gpsi:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
  servingNfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  guami:

```

```
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
servingNetwork:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
backupAmfInfo:
    Type: array
    Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
    minItems: 1
    nullable: true
anType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
ratType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
presenceInLadn:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PresenceState'
ueLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
ueTimeZone:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
addUeLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
upCnxState:
    Reference: '#/components/schemas/UpCnxState'
hoState:
    Reference: '#/components/schemas/HoState'
toBeSwitched:
    Type: boolean
    Default: false
failedToBeSwitched:
    Type: boolean
n1SmMsg:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
n2SmInfo:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
n2SmInfoType:
    Reference: '#/components/schemas/N2SmInfoType'
targetServingNfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
smContextStatusUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
dataForwarding:
    Type: boolean
    Default: false
epsBearerSetup:
    Type: array
    Items:
        Reference: '#/components/schemas/EpsBearerContainer'
    minItems: 0
revokeEbiList:
    Type: array
    Items:
```

```
    Reference: '#/components/schemas/EpsBearerId'
  minItems: 1
  release:
    Type: boolean
    Default: false
  cause:
    Reference: '#/components/schemas/Cause'
  ngApCause:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'
  5gMmCauseValue:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/5GMmCause'
  sNssai:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  traceData:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
  epsInterworkingInd:
    Reference: '#/components/schemas/EpsInterworkingIndication'
  anTypeCanBeChanged:
    Type: boolean
    Default: false
SmContextUpdatedData:
  Type: object
  Properties:
    upCnxState:
      Reference: '#/components/schemas/UpCnxState'
    hoState:
      Reference: '#/components/schemas/HoState'
    releaseEbiList:
      Type: array
      Items:
        Reference: '#/components/schemas/EpsBearerId'
      minItems: 1
    allocatedEbiList:
      Type: array
      Items:
        Reference: '#/components/schemas/EbiArpMapping'
      minItems: 1
    modifiedEbiList:
      Type: array
      Items:
        Reference: '#/components/schemas/EbiArpMapping'
      minItems: 1
    n1SmMsg:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    n2SmInfo:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    n2SmInfoType:
      Reference: '#/components/schemas/N2SmInfoType'
  epsBearerSetup:
    Type: array
    Items:
```

```

        Reference: '#/components/schemas/EpsBearerContainer'
      minItems: 1
    dataForwarding:
      Type: boolean
  SmContextReleaseData:
    Type: object
    Properties:
      cause:
        Reference: '#/components/schemas/Cause'
      ngApCause:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'
      5gMmCauseValue:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/5GMmCause'
      ueLocation:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
      ueTimeZone:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
      addUeLocation:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
      vsmfReleaseOnly:
        Type: boolean
        Default: false
  SmContextStatusNotification:
    Type: object
    Properties:
      statusInfo :
        Reference: '#/components/schemas/StatusInfo'
    Required:
      - statusInfo
  PduSessionCreateData:
    Type: object
    Properties:
      supi:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
      unauthenticatedSupi:
        Type: boolean
        Default: false
      pei:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
      pduSessionId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
      dnn:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      sNssai:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      vsmfId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      servingNetwork:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
      requestType:
        Reference: '#/components/schemas/RequestType'
      epsBearerId:

```

```

    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 1
  pgwS8cFteid:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
  vsmfPduSessionUri:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  vcnTunnelInfo:
    Reference: '#/components/schemas/TunnelInfo'
  anType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
  ratType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
  ueLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
  ueTimeZone:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
  addUeLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
  gpsi:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
  n1SmInfoFromUe:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
  unknownN1SmInfo:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
  supportedFeatures:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
  hPcfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  hoPreparationIndication:
    Type: boolean
  selMode:
    Reference: '#/components/schemas/DnnSelectionMode'
  alwaysOnRequested:
    Type: boolean
    Default: false
  udmGroupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  routingIndicator:
    Type: string
  epsInterworkingInd:
    Reference: '#/components/schemas/EpsInterworkingIndication'
  vSmfServiceInstanceId:
    Type: string
  recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  roamingChargingProfile:
    Reference:
      'TS32291_Nchf_ConvergedCharging.yaml#/components/schemas/RoamingChargingProfile'
  chargingId:
    Type: string

```

```

    oldPduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
Required:
  - dnn
  - vsmfId
  - servingNetwork
  - vsmfPduSessionUri
  - vcnTunnelInfo
  - anType
PduSessionCreatedData:
  Type: object
  Properties:
    pduSessionType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionType'
    sscMode:
      Type: string
      Pattern: '^[0-7]${}'
    hcnTunnelInfo:
      Reference: '#/components/schemas/TunnelInfo'
    sessionAmbr:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ambr'
    qosFlowsSetupList:
      Type: array
      Items:
        Reference: '#/components/schemas/QosFlowSetupItem'
      minItems: 1
    hSmfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    sNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    enablePauseCharging:
      Type: boolean
      Default: false
    ueIpv4Address:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    ueIpv6Prefix:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
    n1SmInfoToUe:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    epsPdnCnxInfo:
      Reference: '#/components/schemas/EpsPdnCnxInfo'
    epsBearerInfo:
      Type: array
      Items:
        Reference: '#/components/schemas/EpsBearerInfo'
      minItems: 1
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    maxIntegrityProtectedDataRate:
      Reference: '#/components/schemas/MaxIntegrityProtectedDataRate'
    alwaysOnGranted:

```

```
    Type: boolean
    Default: false
  upSecurity:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UpSecurity'
  roamingChargingProfile:
    Reference:
'TS32291_Nchf_ConvergedCharging.yaml#/components/schemas/RoamingChargingProfile'
  hSmfServiceInstanceId:
    Type: string
  recoveryTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
Required:
- pduSessionType
- sscMode
- hcnTunnelInfo
- sessionAmbr
- qosFlowsSetupList
- hSmfInstanceId
HsmfUpdateData:
  Type: object
  Properties:
    requestIndication:
      Reference: '#/components/schemas/RequestIndication'
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    vcnTunnelInfo:
      Reference: '#/components/schemas/TunnelInfo'
    servingNetwork:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    anType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
    ratType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
    ueLocation:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
    ueTimeZone:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
    addUeLocation:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
    pauseCharging:
      Type: boolean
    ptl:
      Reference: '#/components/schemas/ProcedureTransactionId'
    n1SmInfoFromUe:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    unknownN1SmInfo:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    qosFlowsRelNotifyList:
      Type: array
      Items:
        Reference: '#/components/schemas/QosFlowItem'
      minItems: 1
    qosFlowsNotifyList:
```

```

    Type: array
    Items:
      Reference: '#/components/schemas/QosFlowNotifyItem'
    minItems: 1
  NotifyList:
    Type: array
    Items:
      Reference: '#/components/schemas/PduSessionNotifyItem'
    minItems: 1
  epsBearerId:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 0
  hoPreparationIndication:
    Type: boolean
  revokeEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 1
  cause:
    Reference: '#/components/schemas/Cause'
  ngApCause:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'
  5gMmCauseValue:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/5GMmCause'
  alwaysOnRequested:
    Type: boolean
    Default: false
  epsInterworkingInd:
    Reference: '#/components/schemas/EpsInterworkingIndication'
  secondaryRatUsageReport:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SecondaryRatUsageReport'
    minItems: 1
  Required:
    - requestIndication
  HsmfUpdatedData:
    Type: object
    Properties:
      n1SmInfoToUe:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
  ReleaseData:
    Type: object
    Properties:
      cause:
        Reference: '#/components/schemas/Cause'
      ngApCause:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'

```

```
5gMmCauseValue:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/5GmCause'
ueLocation:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
ueTimeZone:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
addUeLocation:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
secondaryRatUsageReport:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SecondaryRatUsageReport'

  minItems: 1
ReleasedData:
  Type: object
VsmfUpdateData:
  Type: object
Properties:
  requestIndication:
    Reference: '#/components/schemas/RequestIndication'
  sessionAmbr:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ambr'
  qosFlowsAddModRequestList:
    Type: array
    Items:
      Reference: '#/components/schemas/QosFlowAddModifyRequestItem'
    minItems: 1
  qosFlowsRelRequestList:
    Type: array
    Items:
      Reference: '#/components/schemas/QosFlowReleaseRequestItem'
    minItems: 1
  epsBearerInfo:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerInfo'
    minItems: 1
  assignEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 1
  revokeEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 1
  modifiedEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EbiArpMapping'
```

```

    minItems: 1
  pti:
    Reference: '#/components/schemas/ProcedureTransactionId'
  n1SmInfoToUe:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
  alwaysOnGranted:
    Type: boolean
    Default: false
  cause:
    Reference: '#/components/schemas/Cause'
  n1smCause:
    Type: string
  backOffTimer:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
  Required:
    - requestIndication
  VsmfUpdatedData:
    Type: object
  Properties:
    qosFlowsAddModList:
      Type: array
      Items:
        Reference: '#/components/schemas/QosFlowItem'
      minItems: 1
    qosFlowsRelList:
      Type: array
      Items:
        Reference: '#/components/schemas/QosFlowItem'
      minItems: 1
    qosFlowsFailedtoAddModList:
      Type: array
      Items:
        Reference: '#/components/schemas/QosFlowItem'
      minItems: 1
    qosFlowsFailedtoRelList:
      Type: array
      Items:
        Reference: '#/components/schemas/QosFlowItem'
      minItems: 1
    n1SmInfoFromUe:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    unknownN1SmInfo:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    ueLocation:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
    ueTimeZone:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
    addUeLocation:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
    assignedEbiList:
      Type: array
      Items:

```

```
      Reference: '#/components/schemas/EbiArpMapping'
    minItems: 1
  failedToAssignEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 1
  releasedEbiList:
    Type: array
    Items:
      Reference: '#/components/schemas/EpsBearerId'
    minItems: 1
  secondaryRatUsageReport:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SecondaryRatUsageReport'
    minItems: 1
StatusNotification:
  Type: object
  Properties:
    statusInfo :
      Reference: '#/components/schemas/StatusInfo'
  Required:
    - statusInfo
QosFlowItem:
  Type: object
  Properties:
    qfi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Qfi'
    cause:
      Reference: '#/components/schemas/Cause'
  Required:
    - qfi
QosFlowSetupItem:
  Type: object
  Properties:
    qfi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Qfi'
    qosRules:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    ebi:
      Reference: '#/components/schemas/EpsBearerId'
    qosFlowDescription:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    qosFlowProfile:
      Reference: '#/components/schemas/QosFlowProfile'
  Required:
    - qfi
    - qosRules
QosFlowAddModifyRequestItem:
  Type: object
  Properties:
```

```

    qfi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Qfi'
    ebi:
      Reference: '#/components/schemas/EpsBearerId'
    qosRules:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    qosFlowDescription:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    qosFlowProfile:
      Reference: '#/components/schemas/QosFlowProfile'
  Required:
    - qfi
QosFlowReleaseRequestItem:
  Type: object
  Properties:
    qfi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Qfi'
    qosRules:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    qosFlowDescription:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
  Required:
    - qfi
QosFlowProfile:
  Type: object
  Properties:
    5qi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/5Qi'
    nonDynamic5Qi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NonDynamic5Qi'
    dynamic5Qi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dynamic5Qi'
    arp:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
    gbrQosFlowInfo:
      Reference: '#/components/schemas/GbrQosFlowInformation'
    rqa:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ReflectiveQoSAttribute'
    additionalQosFlowInfo:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/AdditionalQosFlowInfo'
  Required:
    - 5qi
GbrQosFlowInformation:
  Type: object
  Properties:
    maxFbrDl:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
    maxFbrUl:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
    quaFbrDl:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
    quaFbrUl:

```

```
    Reference: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
  notifControl:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NotificationControl'
  maxPacketLossRateDl:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PacketLossRate'
  maxPacketLossRateUl:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PacketLossRate'
  Required:
    - maxFbrDl
    - maxFbrUl
    - guaFbrDl
    - guaFbrUl
  QosFlowNotifyItem:
    Type: object
    Properties:
      qfi:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Qfi'
      notificationCause:
        Reference: '#/components/schemas/NotificationCause'
    Required:
      - qfi
      - notificationCause
  SmContextRetrieveData:
    Type: object
    Properties:
      targetMmeCap:
        Reference: '#/components/schemas/MmeCapabilities'
  SmContextRetrievedData:
    Type: object
    Properties:
      ueEpsPdnConnection:
        Reference: '#/components/schemas/EpsPdnCnxContainer'
    Required:
      - ueEpsPdnConnection
  MmeCapabilities:
    Type: object
    Properties:
      nonIpSupported:
        Type: boolean
        Default: false
  TunnelInfo:
    Type: object
    Properties:
      ipv4Addr:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
      ipv6Addr:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
      gtpTeid:
        Reference: '#/components/schemas/Teid'
    Required:
      - gtpTeid
  StatusInfo:
    Type: object
```

```

Properties:
  resourceStatus:
    Reference: '#/components/schemas/ResourceStatus'
  cause:
    Reference: '#/components/schemas/Cause'
Required:
  - resourceStatus
EpsPdnCnxInfo:
  Type: object
  Properties:
    pgwS8cFteid:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    pgwNodeName:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
  Required:
  - pgwS8cFteid
EpsBearerInfo:
  Type: object
  Properties:
    ebi:
      Reference: '#/components/schemas/EpsBearerId'
    pgwS8uFteid:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
    bearerLevelQoS:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Bytes'
  Required:
  - ebi
  - pgwS8uFteid
  - bearerLevelQoS
PduSessionNotifyItem:
  Type: object
  Properties:
    notificationCause:
      Reference: '#/components/schemas/NotificationCause'
  Required:
  - notificationCause
EbiArpMapping:
  Type: object
  Properties:
    epsBearerId:
      Reference: '#/components/schemas/EpsBearerId'
    arp:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Arp'
  Required:
  - epsBearerId
  - arp
SmContextCreateError:
  Type: object
  Properties:
    error:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    n1SmMsg:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'

```

```
    recoveryTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  Required:
    - error
SmContextUpdateError:
  Type: object
  Properties:
    error:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    n1SmMsg:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    n2SmInfo:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    n2SmInfoType:
      Reference: '#/components/schemas/N2SmInfoType'
    upCnxState:
      Reference: '#/components/schemas/UpCnxState'
    recoveryTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  Required:
    - error
PduSessionCreateError:
  Type: object
  Properties:
    error:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    n1smCause:
      Type: string
      Pattern: '^[A-F0-9]{2}$'
    n1SmInfoToUe:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    backOffTimer:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
    recoveryTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  Required:
    - error
HsmfUpdateError:
  Type: object
  Properties:
    error:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    pti:
      Reference: '#/components/schemas/ProcedureTransactionId'
    n1smCause:
      Type: string
      Pattern: '^[A-F0-9]{2}$'
    n1SmInfoToUe:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    backOffTimer:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
    recoveryTime:
```

```

    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  Required:
    - error
  VsmfUpdateError:
    Type: object
    Properties:
      error:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
      pti:
        Reference: '#/components/schemas/ProcedureTransactionId'
      n1smCause:
        Type: string
        Pattern: '^[A-F0-9]{2}$'
      n1smInfoFromUe:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
      unknownN1smInfo:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
      failedToAssignEbiList:
        Type: array
        Items:
          Reference: '#/components/schemas/EpsBearerId'
        minItems: 1
      ngApCause:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NgApCause'
      5gMmCauseValue:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/5GMmCause'
      recoveryTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  Required:
    - error
# SIMPLE DATA TYPES
ProcedureTransactionId:
  Type: integer
  Minimum: 0
  Maximum: 255
EpsBearerId:
  Type: integer
  Minimum: 0
  Maximum: 15
EpsPdnCnxContainer:
  Type: string
EpsBearerContainer:
  Type: string
Teid:
  Type: string
  Pattern: '^[A-F0-9]{8}$'
# ENUMERATIONS
UpCnxState:
  anyOf:
    - type: string
  enum:
    - ACTIVATED
    - DEACTIVATED

```

- ACTIVATING
- 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
 - ACTIVATED
 - DEACTIVATED
 - ACTIVATING

HoState:

- anyOf:**
- type: string
- enum:**
 - NONE
 - PREPARING
 - PREPARED
 - COMPLETED
 - CANCELLED
- 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
 - NONE
 - PREPARING
 - PREPARED
 - COMPLETED
 - CANCELLED

RequestType:

- anyOf:**
- type: string
- enum:**
 - INITIAL_REQUEST
 - EXISTING_PDU_SESSION
 - INITIAL_EMERGENCY_REQUEST
 - EXISTING_EMERGENCY_PDU_SESSION
- 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
 - INITIAL_REQUEST
 - EXISTING_PDU_SESSION
 - INITIAL_EMERGENCY_REQUEST
 - EXISTING_EMERGENCY_PDU_SESSION

RequestIndication:

- anyOf:**
- type: string
- enum:**
 - UE_REQ_PDU_SES_MOD
 - UE_REQ_PDU_SES_REL
 - PDU_SES_MOB
 - NW_REQ_PDU_SES_AUTH
 - NW_REQ_PDU_SES_MOD
 - NW_REQ_PDU_SES_REL

- EBI_ASSIGNMENT_REQ
- 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

- UE_REQ_PDU_SES_MOD
- UE_REQ_PDU_SES_REL
- PDU_SES_MOB
- NW_REQ_PDU_SES_AUTH
- NW_REQ_PDU_SES_MOD
- NW_REQ_PDU_SES_REL
- EBI_ASSIGNMENT_REQ

NotificationCause:

anyOf:

- type: string
- enum:**
 - QOS_FULFILLED
 - QOS_NOT_FULFILLED
 - UP_SEC_FULFILLED
 - UP_SEC_NOT_FULFILLED
- 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

- QOS_FULFILLED
- QOS_NOT_FULFILLED
- UP_SEC_FULFILLED
- UP_SEC_NOT_FULFILLED

Cause:

anyOf:

- type: string
- enum:**
 - REL_DUE_TO_HO
 - EPS_FALLBACK
 - REL_DUE_TO_UP_SEC
 - DNN_CONGESTION
 - S-NSSAI_CONGESTION
 - REL_DUE_TO_REACTIVATION
 - 5G_AN_NOT_RESPONDING
 - REL_DUE_TO_SLICE_NOT_AVAILABLE
 - REL_DUE_TO_DUPLICATE_SESSION_ID
 - PDU_SESSION_STATUS_MISMATCH
 - HO_FAILURE
- 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

- REL_DUE_TO_HO
- EPS_FALLBACK
- REL_DUE_TO_UP_SEC
- DNN_CONGESTION
- S-NSSAI_CONGESTION

- REL_DUE_TO_REACTIVATION
- 5G_AN_NOT_RESPONDING
- REL_DUE_TO_SLICE_NOT_AVAILABLE
- REL_DUE_TO_DUPLICATE_SESSION_ID
- PDU_SESSION_STATUS_MISMATCH
- HO_FAILURE

ResourceStatus:**anyOf:**

- type: string

enum:

- 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

- RELEASED

DnnSelectionMode:**anyOf:**

- type: string

enum:

- VERIFIED
- UE_DNN_NOT_VERIFIED
- NW_DNN_NOT_VERIFIED

- 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

- VERIFIED
- UE_DNN_NOT_VERIFIED
- NW_DNN_NOT_VERIFIED

EpsInterworkingIndication:**anyOf:**

- type: string

enum:

- NONE
- WITH_N26
- WITHOUT_N26

- 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

- NONE
- WITH_N26
- WITHOUT_N26

N2SmInfoType:**anyOf:**

- type: string

enum:

- PDU_RES_SETUP_REQ
- PDU_RES_SETUP_RSP
- PDU_RES_SETUP_FAIL

- PDU_RES_REL_CMD
- PDU_RES_REL_RSP
- PDU_RES_MOD_REQ
- PDU_RES_MOD_RSP
- PDU_RES_MOD_FAIL
- PDU_RES_NTY
- PDU_RES_NTY_REL
- PDU_RES_MOD_IND
- PDU_RES_MOD_CFM
- PATH_SWITCH_REQ
- PATH_SWITCH_SETUP_FAIL
- PATH_SWITCH_REQ_ACK
- PATH_SWITCH_REQ_FAIL
- HANDOVER_REQUIRED
- HANDOVER_CMD
- HANDOVER_PREP_FAIL
- HANDOVER_REQ_ACK
- HANDOVER_RES_ALLOC_FAIL

- 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

- PDU_RES_SETUP_REQ
- PDU_RES_SETUP_RSP
- PDU_RES_SETUP_FAIL
- PDU_RES_REL_CMD
- PDU_RES_REL_RSP
- PDU_RES_MOD_REQ
- PDU_RES_MOD_RSP
- PDU_RES_MOD_FAIL
- PDU_RES_NTY
- PDU_RES_NTY_REL
- PDU_RES_MOD_IND
- PDU_RES_MOD_CFM
- PATH_SWITCH_REQ
- PATH_SWITCH_SETUP_FAIL
- PATH_SWITCH_REQ_ACK
- PATH_SWITCH_REQ_FAIL
- HANDOVER_REQUIRED
- HANDOVER_CMD
- HANDOVER_PREP_FAIL
- HANDOVER_REQ_ACK
- HANDOVER_RES_ALLOC_FAIL

MaxIntegrityProtectedDataRate:**anyOf:**

- type: string

enum:

- 64_KBPS
- MAX_UE_RATE

- 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

- 64_KBPS
- MAX_UE_RATE

HTTP responses

```
responses:
  'PduSessionCreateError':
    Description: unsuccessful creation of a PDU session
    content:
      application/json: # message without binary body part
        schema:
          Reference: '#/components/schemas/PduSessionCreateError'
      multipart/related: # message with binary body part(s)
        schema:
          Type: object
          Properties: # Request parts
          jsonData:
            Reference: '#/components/schemas/PduSessionCreateError'
          binaryDataN1SmInfoToUe:
            Type: string
            format: binary
        encoding:
          jsonData:
            contentType: application/json
          binaryDataN1SmInfoToUe:
            contentType: application/vnd.3gpp.5gnas
          headers:
            Content-Id:
              schema:
                Type: string
  'HsmfUpdateError':
    Description: unsuccessful update of a PDU session
    content:
      application/json: # message without binary body part
        schema:
          Reference: '#/components/schemas/HsmfUpdateError'
      multipart/related: # message with binary body part(s)
        schema:
          Type: object
          Properties: # Request parts
          jsonData:
            Reference: '#/components/schemas/HsmfUpdateError'
          binaryDataN1SmInfoToUe:
            Type: string
            format: binary
        encoding:
          jsonData:
            contentType: application/json
          binaryDataN1SmInfoToUe:
            contentType: application/vnd.3gpp.5gnas
          headers:
            Content-Id:
              schema:
                Type: string
  'VsmfUpdateError':
    Description: unsuccessful update of a PDU session
```

```
content:
  application/json: # message without binary body part
    schema:
      Reference: '#/components/schemas/VsmfUpdateError'
  multipart/related: # message with binary body part(s)
    schema:
      Type: object
      Properties: # Request parts
        jsonData:
          Reference: '#/components/schemas/VsmfUpdateError'
        binaryDataN1SmInfoFromUe:
          Type: string
          format: binary
        binaryDataUnknownN1SmInfo:
          Type: string
          format: binary
    encoding:
      jsonData:
        contentType: application/json
      binaryDataN1SmInfoFromUe:
        contentType: application/vnd.3gpp.5gnas
      headers:
        Content-Id:
          schema:
            Type: string
      binaryDataUnknownN1SmInfo:
        contentType: application/vnd.3gpp.5gnas
      headers:
        Content-Id:
          schema:
            Type: string
```



CHAPTER 13

Nsmsf_SMSservice

The Nsmsf_SMSservice service provides the service capability for the NF Service Consumer (for example, AMF) to authorize SMS and activate SMS for a service user on SMSF. The following are the key functionalities of this NF service:

- Activation or deactivation of SMS service for a given service user, which results in creating/updating/deleting an UE Context for SMS in SMSF.
- Send SMS payload in uplink direction to SMSF.

Reference: 3GPP TS 29.540, version 15.4.0, Release 15

- [OpenAPI, on page 227](#)
- [Info, on page 227](#)
- [Servers, on page 228](#)
- [Security, on page 228](#)
- [Paths, on page 228](#)
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- [External Docs, on page 233](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '2.0.1'

Title: 'Nsmsf_SMSservice Service API'

Description: |

SMSF SMSservice.

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Servers

URL: '{apiRoot}/nsmsf-sms/v2'

Variables:

API Root:

Default: https://example.com

Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501.

Security

```
- oAuth2ClientCredentials:
- nsmsf-sms
- {}
```

Paths

/ue-contexts/{supi}

put:

Summary: Activate SMS Service for a given UE

Operation ID: SMSserviceActivation

Tags:

- UEContext (Document)

Parameters:

- **Name:** supi

In: path

Required/Optional: true

Description: Subscriber Permanent Identifier (SUPI)

Schema:

Type: string

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/UeSmsContextData'

Required/Optional: true

Responses:

'201':

Description: UE Context for SMS is created in SMSF

Content:

Application/JSON:

Schema:

```

    Reference: '#/components/schemas/UeSmsContextData'
  Headers:
    Location:
      description: 'Contains the URI of the newly created resource,
according to the structure: {apiRoot}/nsmsf-sms/<apiVersion>/ue-contexts/{supi}'
      Required/Optional: true
      Schema:
        Type: string
  '204':
    Description: UE Context for SMS is updated in SMSF
  '400':
    Description: Invalid Service Request
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
  '403':
    Description: Unable to create/update UE Context for SMS in SMSF
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
  '404':
    Description: Unable to found subscription for service user or UE Context for SMS
in SMSF
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
  '503':
    Description: Service Unavailable
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
  Default:
    Description: Unexpected error
    Content:
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
delete:
  Summary: Deactivate SMS Service for a given UE
  Operation ID: SMSserviceDeactivation

Tags:
- UEContext (Document)

Parameters:
- Name: supi
  In: path
  Required/Optional: true

```

Description: Subscriber Permanent Identifier (SUPI)

Schema:

Type: string

Responses:

'204':

Description: UE Context for SMS is deleted from SMSF

'400':

Description: Invalid Service Request

Content:

application/problem+json:

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

'404':

Description: Unable to found UE Context for SMS in SMSF

Content:

application/problem+json:

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

'503':

Description: Service Unavailable

Content:

application/problem+json:

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

/ue-contexts/{supi}/sendsms

Method: Post

Summary: Send SMS payload for a given UE

Operation ID: SendSMS

Tags:

- UEContext (Document)

Parameters:

- **Name:** supi

In: path

Required/Optional: true

Description: Subscriber Permanent Identifier (SUPI)

Schema:

Type: string

Request Body:

Content:

Multipart/Related:

Schema:

Type: object

Properties:

JSON Data:

Reference: '#/components/schemas/SmsRecordData'

binaryPayload:

```

        Type: string
        Format: binary
    Encoding:
    JSON Data:
        Content Type: application/json
    binaryPayload:
        Content Type: application/vnd.3gpp.sms
    Headers:
        Content ID:
        Schema:
            Type: string
    Required/Optional: true

Responses:
'200':
    Description: SMS payload is received by SMSF, and is being delivered out
    Content:
        Application/JSON:
            Schema:
                Reference: '#/components/schemas/SmsRecordDeliveryData'
'400':
    Description: Invalid Service Request
    Content:
        application/problem+json:
            Schema:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
'403':
    Description: Unable to deliver SMS at SMSF
    Content:
        application/problem+json:
            Schema:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
'404':
    Description: Unable to found UE Context for SMS in SMSF
    Content:
        application/problem+json:
            Schema:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
'503':
    Description: Service Unavailable
    Content:
        application/problem+json:
            Schema:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:

```

```

Type: oauth2
Flows:
  clientCredentials:
    tokenUrl: '{nrfApiRoot}/oauth2/token'
    scopes:
      nsmsf-sms: Access to the nsmsf-sms API

```

schemas:

UeSmsContextData:

```

Type: object
Required:
  - supi
  - amfId
  - accessType
Properties:
  supi:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
  pei:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
  amfId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  guamis:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
    minItems: 1
  accessType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
  gpsi:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
  ueLocation:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
  ueTimeZone:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
  traceData:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
  backupAmfInfo:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
    minItems: 1
  udmGroupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
  routingIndicator:
    Type: string
SmsRecordData:
  Type: object
  Required:
    - smsRecordId
    - smsPayload
  Properties:
    smsRecordId:
      Reference: '#/components/schemas/RecordId'

```

```
    smsPayload:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RefToBinaryData'
    accessType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
    gpsi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    ueLocation:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UserLocation'
    ueTimeZone:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TimeZone'
  RecordId:
    Type: string
  SmsRecordDeliveryData:
    Type: object
    Required:
      - smsRecordId
      - deliveryStatus
    Properties:
      smsRecordId:
        Reference: '#/components/schemas/RecordId'
      deliveryStatus:
        Reference: '#/components/schemas/SmsDeliveryStatus'
  SmsDeliveryStatus:
    Type: string
    enum:
      - SMS_DELIVERY_PENDING
      - SMS_DELIVERY_COMPLETED
      - SMS_DELIVERY_FAILED
```

External Docs

Description: 3GPP TS 29.540 V15.3.0; 5G System; SMS Services; Stage 3
URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.540/'



CHAPTER 14

Nudm_SDM

This service is used by Consumer NFs (AMF, SMF, SMSF) to retrieve the UE's individual subscription data relevant to the consumer NF from the UDM.

Reference: 3GPP TS 29.503 Unified Data Management Services, version 15.3.0

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- [Info, on page 235](#)
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- [Security, on page 236](#)
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OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '2.1.0.alpha-4'

Title: 'Nudm_SDM'

Description: |

Nudm Subscriber Data Management Service.

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Servers

URL: '{apiRoot}/nudm-sdm/v2'

Variables:

API Root:

Default: <https://example.com>

Description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501.

Security

```
- oAuth2ClientCredentials:
  - nudm-sdm
- {}
```

Paths

/supi

get:

Summary: retrieve multiple data sets

Operation ID: GetDataSets

Tags:

- Retrieval of multiple data sets

Parameters:

- **Name:** supi
In: path
Description: Identifier of the UE
Required/Optional: true
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
- **Name:** dataset-names
In: query
Style: form
Explode: false
Description: List of dataset names
Required/Optional: true
Schema:
Reference: '#/components/schemas/DatasetNames'
- **Name:** plmn-id
In: query
Description: serving PLMN ID
Content:
Application/JSON:
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
- **Name:** supported-features
In: query
Description: Supported Features
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
- **Name:** If-None-Match
In: header
Description: Validator for conditional requests, as described in RFC 7232, 3.2

```

    Schema:
      Type: string
  - Name: If-Modified-Since
    In: header
    Description: Validator for conditional requests, as described in RFC 7232, 3.3
    Schema:
      Type: string

Responses:
  '200':
    Description: Expected response to a valid request
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/SubscriptionDataSets'
        Headers:
          Cache-Control:
            Description: Cache-Control containing max-age, as described in RFC 7234, 5.2

            Schema:
              Type: string
          ETag:
            Description: Entity Tag, containing a strong validator, as described in RFC
7232, 2.3
            Schema:
              Type: string
          Last-Modified:
            Description: Timestamp for last modification of the resource, as described
in RFC 7232, 2.2
            Schema:
              Type: string
  '400':
    Reference: 'TS29571_CommonData.yaml#/components/responses/400'
  '404':
    Reference: 'TS29571_CommonData.yaml#/components/responses/404'
  '500':
    Reference: 'TS29571_CommonData.yaml#/components/responses/500'
  '503':
    Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Description: Unexpected error

```

/{ueld}/sdm-subscriptions

```

Method: Post
Summary: subscribe to notifications
Operation ID: Subscribe

Tags:
  - Subscription Creation

```

Parameters:

- **Name:** ueId
In: path
Description: Identity of the user
Required/Optional: true
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'

Request Body:

Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/SdmSubscription'
Required/Optional: true

Responses:

'201':
Description: Expected response to a valid request
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/SdmSubscription'
Headers:
Location:
description: 'Contains the URI of the newly created resource, according to the structure:
{apiRoot}/nudm-sdm/<apiVersion>/{supi}/sdm-subscriptions/{subscriptionId}'
Required/Optional: true
Schema:
Type: string
'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'
'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'
'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'501':
Reference: 'TS29571_CommonData.yaml#/components/responses/501'
'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:

Description: Unexpected error

Callbacks:

datachangeNotification:
'{request.body#/callbackReference}':
Method: Post
Request Body:
Required/Optional: true
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/ModificationNotification'

Responses:

'204':
Description: Successful Notification response

'307':
Description: Temporary Redirect
Content:
application/problem+json:
Schema:
Reference:
 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
Headers:
Location:
Description: 'Contains the new Callback URI of the target NF Service Consumer (e.g. AMF) to which the request is redirected'
Required/Optional: true
Schema:
Type: string

'308':
Description: Permanent Redirect
Content:
application/problem+json:
Schema:
Reference:
 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
Headers:
Location:
Description: 'Contains the new Callback URI of the target NF Service Consumer (e.g. AMF) to which the request is redirected'
Required/Optional: true
Schema:
Type: string

'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'

'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'

'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'

'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'

Default:
Description: Unexpected error

{/ueld}/sdm-subscriptions/{subscriptionId}

delete:
Summary: unsubscribe from notifications
Operation ID: Unsubscribe

Tags:
 - Subscription Deletion

Parameters:

- **Name:** ueId
In: path
Description: Identity of the user
Required/Optional: true
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
- **Name:** subscriptionId
In: path
Description: Id of the SDM Subscription
Required/Optional: true
Schema:
Type: string

Responses:

- '204':
Description: Successful response
- '400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'
- '404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'
- '500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'
- '503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'
- Default:**
Description: Unexpected error

patch:

Summary: modify the subscription
Operation ID: Modify

Tags:

- Subscription Modification

Parameters:

- **Name:** ueId
In: path
Description: Identity of the user
Required/Optional: true
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
- **Name:** subscriptionId
In: path
Description: Id of the SDM Subscription
Required/Optional: true
Schema:
Type: string
- **Name:** supported-features
In: query
Description: Features required to be supported by the target NF
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

Request Body:
Content:
 application/merge-patch+json:
Schema:
Reference: '#/components/schemas/SdmSubsModification'
Required/Optional: true

Responses:
'200':
Description: Expected response to a valid request
Content:
Application/JSON:
Schema:
oneOf:
 - **\$ref:** '#/components/schemas/SdmSubscription'
 - **\$ref:** 'TS29571_CommonData.yaml#/components/schemas/PatchResult'
'400':
Reference: 'TS29571_CommonData.yaml#/components/responses/400'
'403':
Reference: 'TS29571_CommonData.yaml#/components/responses/403'
'404':
Reference: 'TS29571_CommonData.yaml#/components/responses/404'
'500':
Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
Description: Unexpected error

{supi}/am-data/sor-ack

put:
Summary: Nudm_Sdm Info service operation
Operation ID: SorAckInfo

Tags:
 - Providing acknowledgement of Steering of Roaming

Parameters:
 - **Name:** supi
In: path
Description: Identifier of the UE
Required/Optional: true
Schema:
Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

Request Body:
Content:
Application/JSON:
Schema:
Reference: '#/components/schemas/AcknowledgeInfo'

```

Responses:
  '204':
    Description: Successful acknowledgement
  '400':
    Reference: 'TS29571_CommonData.yaml#/components/responses/400'
  '500':
    Reference: 'TS29571_CommonData.yaml#/components/responses/500'
  '503':
    Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Description: Unexpected error

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          nudm-sdm: Access to the nudm-sdm API

schemas:
# COMPLEX TYPES:
DatasetNames:
  Type: array
  Items:
    Reference: '#/components/schemas/DataSetName'
  minItems: 2
  uniqueItems: true
SubscriptionDataSets:
  Type: object
  Properties:
    amData:
      Reference: '#/components/schemas/AccessAndMobilitySubscriptionData'
    smfSelData:
      Reference: '#/components/schemas/SmfSelectionSubscriptionData'
    uecSmfData:
      Reference: '#/components/schemas/UeContextInSmfData'
    uecSmsfData:
      Reference: '#/components/schemas/UeContextInSmsfData'
    smsSubsData:
      Reference: '#/components/schemas/SmsSubscriptionData'
    smData:
      Type: array
      Items:
        Reference: '#/components/schemas/SessionManagementSubscriptionData'
      minItems: 1

```

```
    traceData:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
    smsMngData:
      Reference: '#/components/schemas/SmsManagementSubscriptionData'
    lcsPrivacyData:
      Reference: '#/components/schemas/LcsPrivacyData'
    lcsMoData:
      Reference: '#/components/schemas/LcsMoData'
  UeContextInSmsfData:
    Type: object
    Properties:
      smsfInfo3GppAccess:
        Reference: '#/components/schemas/SmsfInfo'
      smsfInfoNon3GppAccess:
        Reference: '#/components/schemas/SmsfInfo'
  SmsfInfo:
    Type: object
    Required:
      - smsfInstanceId
      - plmnId
    Properties:
      smsfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      plmnId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  AccessAndMobilitySubscriptionData:
    Type: object
    Properties:
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      gpsis:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
      internalGroupIds:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
        minItems: 1
      vnGroupInfo:
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/VnGroupData'
        minProperties: 1
      sharedVnGroupDataIds:
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/SharedDataId'
        minProperties: 1
      subscribedUeAmbr:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AmbrRm'
      nssai:
```

```

    Reference: '#/components/schemas/Nssai'
  ratRestrictions:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
  forbiddenAreas:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Area'
  serviceAreaRestriction:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/ServiceAreaRestriction'
  coreNetworkTypeRestrictions:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/CoreNetworkType'
  rfspIndex:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RfspIndexRm'
  subsRegTimer:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSecRm'
  ueUsageType:
    Reference: '#/components/schemas/UeUsageType'
  mpsPriority:
    Reference: '#/components/schemas/MpsPriorityIndicator'
  mcsPriority:
    Reference: '#/components/schemas/McsPriorityIndicator'
  activeTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSecRm'
  dlPacketCount:
    Reference: '#/components/schemas/DlPacketCount'
  sorInfo:
    Reference: '#/components/schemas/SorInfo'
  sorInfoExpectInd:
    Type: boolean
  sorafRetrieval:
    Type: boolean
    Default: false
  sorUpdateIndicatorList:
    Type: array
    Items:
      Reference: '#/components/schemas/SorUpdateIndicator'
    minItems: 1
  upuInfo:
    Reference: '#/components/schemas/UpuInfo'
  micoAllowed:
    Reference: '#/components/schemas/MicoAllowed'
  sharedAmDataIds:
    Type: array
    Items:
      Reference: '#/components/schemas/SharedDataId'
    minItems: 1
  odbPacketServices:

```

```

    Reference: 'TS29571_CommonData.yaml#/components/schemas/OdbPacketServices'
subscribedDnnList:
  Type: array
  Items:
    anyOf:
      - $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      - $ref: 'TS29571_CommonData.yaml#/components/schemas/WildcardDnn'
serviceGapTime:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
traceData:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
cagData:
  Reference: '#/components/schemas/CagData'
stnSr:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/StnSr'
cMsisdn:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/CMSisdn'
nbIoTUEPriority:
  Reference: '#/components/schemas/NbIoTUEPriority'
nssaiInclusionAllowed:
  Type: boolean
  Default: false
rgWirelineCharacteristics:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/RgWirelineCharacteristics'

rgTMBR:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Tmbr'
ecRestrictionData:
  Reference: '#/components/schemas/EcRestrictionData'
expectedUeBehaviourList:
  Reference: '#/components/schemas/ExpectedUeBehaviourData'
maximumResponseTimeList:
  Type: array
  Items:
    Reference: '#/components/schemas/MaximumResponseTime'
  minItems: 1
maximumLatencyList:
  Type: array
  Items:
    Reference: '#/components/schemas/MaximumLatency'
  minItems: 1
primaryRatRestrictions:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
secondaryRatRestrictions:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
edrxParametersList:
  Type: array
  Items:

```

```

        Reference: '#/components/schemas/EdrxParameters'
    minItems: 1
    ptwParametersList:
        Type: array
        Items:
            Reference: '#/components/schemas/PtwParameters'
        minItems: 1
    iabOperationAllowed:
        Type: boolean
        Default: false
    nrV2xServicesAuth:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NrV2xAuth'
    lteV2xServicesAuth:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/LteV2xAuth'
    nrUePc5Ambr:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
    ltePc5Ambr:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BitRate'
CagData:
    Type: object
    Required:
        - cagInfos
    Properties:
        cagInfos:
            Description: A map (list of key-value pairs where PlmnId serves as key) of CagInfo

            Type: object
            additionalProperties:
                Reference: '#/components/schemas/CagInfo'
        provisioningTime:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
CagInfo:
    Type: object
    Required:
        - allowedCagList
    Properties:
        allowedCagList:
            Type: array
            Items:
                Reference: 'TS29571_CommonData.yaml#/components/schemas/CagId'
        cagOnlyIndicator:
            Type: boolean
SmfSelectionSubscriptionData:
    Type: object
    Properties:
        supportedFeatures:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
        subscribedSnssaiInfos:
            Type: object
            additionalProperties:
                Reference: '#/components/schemas/SnssaiInfo'
        sharedSnssaiInfosId:

```

```

      Reference: '#/components/schemas/SharedDataId'
SnssaiInfo:
  Type: object
  Required:
    - dnnInfos
  Properties:
    dnnInfos:
      Type: array
      Items:
        Reference: '#/components/schemas/DnnInfo'
      minItems: 1
DnnInfo:
  Type: object
  Required:
    - dnn
  Properties:
    dnn:
      anyOf:
        - $ref: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
        - $ref: 'TS29571_CommonData.yaml#/components/schemas/WildcardDnn'
    defaultDnnIndicator:
      Reference: '#/components/schemas/DnnIndicator'
    lboRoamingAllowed:
      Reference: '#/components/schemas/LboRoamingAllowed'
    iwkEpsInd:
      Reference: '#/components/schemas/IwkEpsInd'
    dnnBarred:
      Type: boolean
Nssai:
  Type: object
  Required:
    - defaultSingleNssais
  Properties:
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    defaultSingleNssais:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      minItems: 1
    singleNssais:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
      minItems: 1
    provisioningTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    additionalSnssaiData:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/AdditionalSnssaiData'
      minProperties: 1

```

```

    nullable: true
  UeContextInSmfData:
    Type: object
    Properties:
      pduSessions:
        Description: A map (list of key-value pairs where PduSessionId serves as key) of
PduSessions
        Type: object
        additionalProperties:
          Reference: '#/components/schemas/PduSession'
      pgwInfo:
        Type: array
        Items:
          Reference: '#/components/schemas/PgwInfo'
        minItems: 1
      emergencyInfo:
        Reference: '#/components/schemas/EmergencyInfo'
  EmergencyInfo:
    Type: object
    oneOf:
      - required:
        - pgwFqdn
      - required:
        - pgwIpAddress
    Properties:
      pgwFqdn:
        Type: string
      pgwIpAddress:
        Reference: '#/components/schemas/IpAddress'
      smfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  PduSession:
    Type: object
    Required:
      - dnn
      - smfInstanceId
      - plmnId
    Properties:
      dnn:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      smfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      plmnId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  PgwInfo:
    Type: object
    Required:
      - dnn
      - pgwFqdn
    Properties:
      dnn:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      pgwFqdn:

```

```

    Type: string
  plmnId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
SessionManagementSubscriptionData:
  Type: object
  Required:
    - singleNssai
  Properties:
    singleNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    dnnConfigurations:
      Description: A map (list of key-value pairs where Dnn, or optionally the Wildcard
DNN, serves as key) of DnnConfigurations
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/DnnConfiguration'
    internalGroupIds:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
      minItems: 1
    vnGroupInfo:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/VnGroupData'
      minProperties: 1
    sharedVnGroupDataIds:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/SharedDataId'
      minProperties: 1
    sharedDnnConfigurationsId:
      Reference: '#/components/schemas/SharedDataId'
    odbPacketServices:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/OdbPacketServices'
    traceData:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
    sharedTraceDataId:
      Reference: '#/components/schemas/SharedDataId'
    expectedUeBehavioursList:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/ExpectedUeBehaviourData'
      minProperties: 1
    suggestedPacketNumDlList:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/SuggestedPacketNumDl'
      minProperties: 1
    3gppChargingCharacteristics:
      Reference: '#/components/schemas/3GppChargingCharacteristics'
  DnnConfiguration:

```

```

Type: object
Required:
  - pduSessionTypes
  - sscModes
Properties:
  pduSessionTypes:
    Reference: '#/components/schemas/PduSessionTypes'
  sscModes:
    Reference: '#/components/schemas/SscModes'
  iwkEpsInd:
    Reference: '#/components/schemas/IwkEpsInd'
  5gQosProfile:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/SubscribedDefaultQos'
  sessionAmbr:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ambr'
  3gppChargingCharacteristics:
    Reference: '#/components/schemas/3GppChargingCharacteristics'
  staticIpAddress:
    Type: array
    Items:
      Reference: '#/components/schemas/IpAddress'
    minItems: 1
    maxItems: 2
  upSecurity:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/UpSecurity'
  pduSessionContinuityInd:
    Reference: '#/components/schemas/PduSessionContinuityInd'
  invokeNefSelection:
    Type: boolean
  niddNefId:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NefId'
  niddInfo:
    Reference: '#/components/schemas/NiddInformation'
  redundantSessionAllowed:
    Type: boolean
  acsInfo:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/AcsInfo'
  ipv4FrameRouteList:
    Type: array
    Items:
      Reference: '#/components/schemas/FrameRouteInfo'
    minItems: 1
  ipv6FrameRouteList:
    Type: array
    Items:
      Reference: '#/components/schemas/FrameRouteInfo'
    minItems: 1
  atsssAllowed:
    Type: boolean
    Default: false
NiddInformation:
  Type: object

```

```
Required:
- afId
Properties:
  afId:
    Type: string
  gpsi:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
  extGroupId:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/ExternalGroupId'
IpAddress:
  Type: object
  oneOf:
    - required:
      - ipv4Addr
    - required:
      - ipv6Addr
    - required:
      - ipv6Prefix
  Properties:
    ipv4Addr:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    ipv6Addr:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
    ipv6Prefix:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
PduSessionTypes:
  Type: object
  Required:
    - defaultSessionType
  Properties:
    defaultSessionType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionType'
    allowedSessionTypes:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionType'
      minItems: 1
SscModes:
  Type: object
  Required:
    - defaultSscMode
  Properties:
    defaultSscMode:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SscMode'
    allowedSscModes:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SscMode'
      minItems: 1
      maxItems: 2
SmsSubscriptionData:
  Type: object
  Properties:
```

```

    smsSubscribed:
      Reference: '#/components/schemas/SmsSubscribed'
    sharedSmsSubsDataId:
      Reference: '#/components/schemas/SharedDataId'
  SmsManagementSubscriptionData:
    Type: object
    Properties:
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      mtSmsSubscribed:
        Type: boolean
      mtSmsBarringAll:
        Type: boolean
      mtSmsBarringRoaming:
        Type: boolean
      moSmsSubscribed:
        Type: boolean
      moSmsBarringAll:
        Type: boolean
      moSmsBarringRoaming:
        Type: boolean
      sharedSmsMngDataIds:
        Type: array
        Items:
          Reference: '#/components/schemas/SharedDataId'
        minItems: 1
      traceData:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
  SdmSubscription:
    Type: object
    Required:
      - nfInstanceId
      - callbackReference
      - monitoredResourceUris
    Properties:
      nfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      implicitUnsubscribe:
        Type: boolean
      expires:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
      callbackReference:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
      amfServiceName:
        Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
      monitoredResourceUris:
        Type: array
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
        minItems: 1
      singleNssai:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'

```

```
dnn:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
subscriptionId:
  Type: string
plmnId:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
immediateReport:
  Type: boolean
  Default: false
report:
  Reference: '#/components/schemas/SubscriptionDataSets'
SdmSubsModification:
  Type: object
  Properties:
    expires:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    monitoredResourceUris:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
      minItems: 1
ModificationNotification:
  Type: object
  Required:
    - notifyItems
  Properties:
    notifyItems:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NotifyItem'
      minItems: 1
IdTranslationResult:
  Type: object
  Required:
    - supi
  Properties:
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
    gpsi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
AcknowledgeInfo:
  Type: object
  Required:
    - provisioningTime
  Properties:
    sorMacIue:
      Reference: 'TS29509_Nausf_SoRProtection.yaml#/components/schemas/SorMac'
    upuMacIue:
      Reference: 'TS29509_Nausf_UPUProtection.yaml#/components/schemas/UpuMac'
    securedPacket:
```

```

        Reference: '#/components/schemas/SecuredPacket'
    provisioningTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
SorInfo:
    Type: object
    Properties:
        steeringContainer:
            Reference: '#/components/schemas/SteeringContainer'
        ackInd:
            Reference: 'TS29509_Nausf_SoRProtection.yaml#/components/schemas/AckInd'
        sorMacIausf:
            Reference: 'TS29509_Nausf_SoRProtection.yaml#/components/schemas/SorMac'
        countersor:
            Reference: 'TS29509_Nausf_SoRProtection.yaml#/components/schemas/CounterSor'
        provisioningTime:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    Required:
        - ackInd
        - provisioningTime
SharedDataIds:
    Type: array
    Items:
        Reference: '#/components/schemas/SharedDataId'
    minItems: 1
    uniqueItems: true
UpuInfo:
    Type: object
    Properties:
        upuDataList:
            Type: array
            Items:
                Reference: 'TS29509_Nausf_UPUProtection.yaml#/components/schemas/UpuData'
            minItems: 1
        upuRegInd:
            Reference: '#/components/schemas/UpuRegInd'
        upuAckInd:
            Reference: 'TS29509_Nausf_UPUProtection.yaml#/components/schemas/UpuAckInd'
        upuMacIausf:
            Reference: 'TS29509_Nausf_UPUProtection.yaml#/components/schemas/UpuMac'
        counterUpu:
            Reference: 'TS29509_Nausf_UPUProtection.yaml#/components/schemas/CounterUpu'
        provisioningTime:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    Required:
        - upuDataList
        - upuAckInd
        - upuRegInd
        - provisioningTime
SharedData:
    Type: object
    Required:
        - sharedDataId
    Properties:

```

```

sharedDataId:
  Reference: '#/components/schemas/SharedDataId'
sharedAmData:
  Reference: '#/components/schemas/AccessAndMobilitySubscriptionData'
sharedSmsSubsData:
  Reference: '#/components/schemas/SmsSubscriptionData'
sharedSmsMngSubsData:
  Reference: '#/components/schemas/SmsManagementSubscriptionData'
sharedDnnConfigurations:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/DnnConfiguration'
sharedTraceData:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
sharedSnssaiInfos:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/SnssaiInfo'
sharedVnGroupDatas:
  Type: object
  additionalProperties:
    Reference: '#/components/schemas/VnGroupData'
  minProperties: 1
TraceDataResponse:
  Type: object
  Properties:
    traceData:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
    sharedTraceDataId:
      Reference: '#/components/schemas/SharedDataId'
SteeringContainer:
  oneOf:
    - type: array
      Items:
        Reference: 'TS29509_Nausf_SoRProtection.yaml#/components/schemas/SteeringInfo'

      minItems: 1
    - $ref: '#/components/schemas/SecuredPacket'
GroupIdentifiers:
  Type: object
  Properties:
    extGroupId:
      Reference: '#/components/schemas/ExtGroupId'
    intGroupId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/GroupId'
    ueIdList:
      Type: array
      Items:
        Reference: '#/components/schemas/UeId'
      minItems: 1
VnGroupData:
  Type: object

```

```

Properties:
  pduSessionTypes:
    Reference: '#/components/schemas/PduSessionTypes'
  dnn:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
  singleNssai:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  appDescriptors:
    Type: array
    Items:
      Reference: '#/components/schemas/AppDescriptor'
    minItems: 1
AppDescriptor:
  Type: object
  Properties:
    osId:
      Reference: 'TS29519_Policy_Data.yaml#/components/schemas/OsId'
    appId:
      Type: string
AdditionalSnssaiData:
  Type: object
  Properties:
    requiredAuthnAuthz:
      Type: boolean
AppPortId:
  Type: object
  Properties:
    destinationPort:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uint16'
    originatorPort:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uint16'
LcsPrivacyData:
  Type: object
  Properties:
    lpi:
      Reference: '#/components/schemas/Lpi'
    unrelatedClasses:
      Type: array
      Items:
        Reference: '#/components/schemas/UnrelatedClass'
      minItems: 1
    plmnOperatorClasses:
      Type: array
      Items:
        Reference: '#/components/schemas/PlmnOperatorClass'
      minItems: 1
Lpi:
  Type: object
  Required:
    - locationPrivacyInd
  Properties:
    locationPrivacyInd:

```

```

        Reference: '#/components/schemas/LocationPrivacyInd'
    validTimePeriod:
        Reference: '#/components/schemas/ValidTimePeriod'
UnrelatedClass:
    Type: object
    Required:
        - nonExternalUnrelatedClass
    Properties:
        nonExternalUnrelatedClass:
            Reference: '#/components/schemas/NonExternalUnrelatedClass'
        externalUnrelatedClass:
            Reference: '#/components/schemas/ExternalUnrelatedClass'
        serviceTypeUnrelatedClasses:
            Type: array
            Items:
                Reference: '#/components/schemas/ServiceTypeUnrelatedClass'
            minItems: 1
PlmnOperatorClass:
    Type: object
    Required:
        - lcsClientClass
        - lcsClientIds
    Properties:
        lcsClientClass:
            Reference: '#/components/schemas/LcsClientClass'
        lcsClientIds:
            Type: array
            Items:
                Reference: '#/components/schemas/LcsClientId'
            minItems: 1
ValidTimePeriod:
    Type: object
    Properties:
        startTime:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
        endTime:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
NonExternalUnrelatedClass:
    Properties:
        lcsClientNonExternals:
            Type: array
            Items:
                Reference: '#/components/schemas/LcsClientNonExternal'
            minItems: 1
        afNonExternals:
            Type: array
            Items:
                Reference: '#/components/schemas/AfNonExternal'
            minItems: 1
LcsClientNonExternal:
    Type: object
    Required:

```

```

    - lcsClientId
  Properties:
    lcsClientId:
      Reference: '#/components/schemas/LcsClientId'
    allowedGeographicArea:
      Type: array
      Items:
        Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'
      minItems: 1
    privacyCheckRelatedAction:
      Reference: '#/components/schemas/PrivacyCheckRelatedAction'
    codeWordInd:
      Reference: '#/components/schemas/CodeWordInd'
    validTimePeriod:
      Reference: '#/components/schemas/ValidTimePeriod'
  AfNonExternal:
    Type: object
    Required:
      - afId
    Properties:
      afId:
        Type: string
      allowedGeographicArea:
        Type: array
        Items:
          Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'
        minItems: 1
      privacyCheckRelatedAction:
        Reference: '#/components/schemas/PrivacyCheckRelatedAction'
      codeWordInd:
        Reference: '#/components/schemas/CodeWordInd'
      validTimePeriod:
        Reference: '#/components/schemas/ValidTimePeriod'
  ExternalUnrelatedClass:
    Properties:
      lcsClientExternals:
        Type: array
        Items:
          Reference: '#/components/schemas/LcsClientExternal'
        minItems: 1
      afExternals:
        Type: array
        Items:
          Reference: '#/components/schemas/AfExternal'
        minItems: 1
      lcsClientGroupExternals:
        Type: array
        Items:
          Reference: '#/components/schemas/LcsClientGroupExternal'
        minItems: 1
  AfExternal:
    Type: object

```

```
Properties:
  afId:
    Type: string
  allowedGeographicArea:
    Type: array
    Items:
      Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'
    minItems: 1
  privacyCheckRelatedAction:
    Reference: '#/components/schemas/PrivacyCheckRelatedAction'
  validTimePeriod:
    Reference: '#/components/schemas/ValidTimePeriod'
LcsClientExternal:
  Type: object
  Properties:
    allowedGeographicArea:
      Type: array
      Items:
        Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'
      minItems: 1
    privacyCheckRelatedAction:
      Reference: '#/components/schemas/PrivacyCheckRelatedAction'
    validTimePeriod:
      Reference: '#/components/schemas/ValidTimePeriod'
LcsClientGroupExternal:
  Type: object
  Properties:
    lcsClientGroupId:
      Reference: '#/components/schemas/ExtGroupId'
    allowedGeographicArea:
      Type: array
      Items:
        Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'
      minItems: 1
    privacyCheckRelatedAction:
      Reference: '#/components/schemas/PrivacyCheckRelatedAction'
    validTimePeriod:
      Reference: '#/components/schemas/ValidTimePeriod'
ServiceTypeUnrelatedClass:
  Type: object
  Required:
    - serviceType
  Properties:
    serviceType:
      Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/LcsServiceType'
    allowedGeographicArea:
      Type: array
      Items:
        Reference: 'TS29572_Nlmf_Location.yaml#/components/schemas/GeographicArea'
      minItems: 1
    privacyCheckRelatedAction:
      Reference: '#/components/schemas/PrivacyCheckRelatedAction'
```

```

    codeWordInd:
      Reference: '#/components/schemas/CodeWordInd'
    validTimePeriod:
      Reference: '#/components/schemas/ValidTimePeriod'
  LcsMoData:
    Type: object
    Required:
      - allowedServiceClasses
    Properties:
      allowedServiceClasses:
        Type: array
        Items:
          Reference: '#/components/schemas/LcsMoServiceClass'
        minItems: 1
  EcRestrictionData:
    Type: object
    Properties:
      ecModeARestricted:
        Type: boolean
      ecModeBRestricted:
        Type: boolean
  ExpectedUeBehaviourData:
    Type: object
    Properties:
      stationaryIndication:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/StationaryIndication'
      communicationDurationTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
      periodicTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
      scheduledCommunicationTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ScheduledCommunicationTime'

      scheduledCommunicationType:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ScheduledCommunicationType'

    expectedUmts:
      Type: array
      Items:
        Reference: 'TS29503_Nudm_PP.yaml#/components/schemas/LocationArea'
      minItems: 1
      Description: Identifies the UE's expected geographical movement. The attribute
is only applicable in 5G.
    trafficProfile:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/TrafficProfile'
    batteryIndication:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/BatteryIndication'
    validityTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  MaximumResponseTime:
    Type: object
    Required:

```

```

    - maximumResponseTime
Properties:
  maximumResponseTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
  snssai:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  dnn:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
  validityTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
MaximumLatency:
  Type: object
  Required:
    - maximumLatency
  Properties:
    maximumLatency:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DurationSec'
    snssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    dnn:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
    validityTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
SuggestedPacketNumDl:
  Type: object
  Required:
    - suggestedPacketNumDl
  Properties:
    suggestedPacketNumDl:
      Type: integer
      Minimum: 1
    validityTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
FrameRouteInfo:
  Type: object
  Properties:
    ipv4Mask:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4AddrMask'
    ipv6Prefix:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
SorUpdateInfo:
  Type: object
  Required:
    - vplmnId
  Properties:
    vplmnId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
EnhancedCoverageRestrictionData:
  Type: object
  Properties:
    plmnEcInfoList:
      Type: array

```

```

      Items:
        Reference: 'TS29503_Nudm_PP.yaml#/components/schemas/PlmnEcInfo'
        minItems: 1
    EdrxParameters:
      Type: object
      Required:
        - ratType
        - edrxValue
      Properties:
        ratType:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
        edrxValue:
          Type: string
          Pattern: '^([0-1]{4})$'
    PtwParameters:
      Type: object
      Required:
        - operationMode
        - ptwValue
      Properties:
        operationMode:
          Reference: '#/components/schemas/OperationMode'
        ptwValue:
          Type: string
          Pattern: '^([0-1]{4})$'
    UeId:
      Type: object
      Required:
        - supi
      Properties:
        supi:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
        gpsiList:
          Type: array
          Items:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
          minItems: 1
# SIMPLE TYPES:
    UeUsageType:
      Type: integer
    MpsPriorityIndicator:
      Type: boolean
    McsPriorityIndicator:
      Type: boolean
    DnnIndicator:
      Type: boolean
    LboRoamingAllowed:
      Type: boolean
    SmsSubscribed:
      Type: boolean
    3GppChargingCharacteristics:
      Type: string
    DlPacketCount:

```

```

    Type: integer
    Minimum: -1
MicoAllowed:
    Type: boolean
SharedDataId:
    Type: string
    Pattern: '^[0-9]{5,6}-.+$$'
IwkEpsInd:
    Type: boolean
SecuredPacket:
    Type: string
    format: base64
UpuRegInd:
    Type: boolean
ExtGroupId:
    Type: string
    Pattern: '^extgroupid-[^@]+@[^@]+$$'
NbIoTUEPriority:
    Type: integer
CodeWord:
    Type: string
AfId:
    Type: string
LcsClientId:
    Type: string
# ENUMS:
DataSetName:
    anyOf:
        - type: string
          enum:
            - AM
            - SMF_SEL
            - UEC_SMF
            - UEC_SMSF
            - SMS_SUB
            - SM
            - TRACE
            - SMS_MNG
            - LCS_PRIVACY
            - LCS_MO
        - type: string
PduSessionContinuityInd:
    anyOf:
        - type: string
          enum:
            - MAINTAIN_PDUSESSION
            - RECONNECT_PDUSESSION
            - RELEASE_PDUSESSION
        - type: string
LocationPrivacyInd:
    anyOf:
        - type: string
          enum:
            - LOCATION_DISALLOWED
            - LOCATION_ALLOWED
        - type: string

```

```

PrivacyCheckRelatedAction:
  anyOf:
    - type: string
      enum:
        - LOCATION_NOT_ALLOWED
        - LOCATION_ALLOWED_WITH_NOTIFICATION
        - LOCATION_ALLOWED_WITHOUT_NOTIFICATION
        - LOCATION_ALLOWED_WITHOUT_RESPONSE
        - LOCATION_RESTRICTED_WITHOUT_RESPONSE
    - type: string
LcsClientClass:
  anyOf:
    - type: string
      enum:
        - BROADCAST_SERVICE
        - OM_IN_HPLMN
        - OM_IN_VPLMN
        - ANONYMOUS_LOCATION_SERVICE
        - SPECIFIC_SERVICE
    - type: string
LcsMoServiceClass:
  anyOf:
    - type: string
      enum:
        - BASIC_SELF_LOCATION
        - AUTONOMOUS_SELF_LOCATION
        - TRANSFER_TO_THIRD_PARTY
    - type: string
OperationMode:
  anyOf:
    - type: string
      enum:
        - WB_S1
        - NB_S1
        - WB_N1
        - NB_N1
    - type: string
SorUpdateIndicator:
  anyOf:
    - type: string
      enum:
        - INITIAL_REGISTRATION
        - EMERGENCY_REGISTRATION
    - type: string
CodeWordInd:
  anyOf:
    - type: string
      enum:
        - CODEWORD_CHECK_IN_UE
        - CODEWORD_CHECK_IN_GMLC
    - type: string

```

External Docs

Description: 3GPP TS 29.503 Unified Data Management Services, version 16.3.0

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.503/'



CHAPTER 15

Nudm_UECM

The Nudm Context Management Service provides the NF consumer of the information related to UE's transaction information, allows the NF consumer to register and deregister its information for the serving UE in the UDM, and allows the NF consumer to update some UE context information in the UDM.

Reference: 3GPP TS 29.503 Unified Data Management Services, version 15.3.0

- [OpenAPI, on page 265](#)
- [Info, on page 265](#)
- [Servers, on page 265](#)
- [Security, on page 266](#)
- [Paths, on page 266](#)
- [Components, on page 270](#)
- [External Docs, on page 277](#)

OpenAPI

OpenAPI Version: 3.0.0

Info

Version: '1.1.0.alpha-3'

Title: 'Nudm_UECM'

Description: |

Nudm Context Management Service.

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Servers

URL: '{apiRoot}/nudm-uecm/v1'

Variables:

API Root:

Default: https://example.com

Description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501.

Security

```
- OAuth2ClientCredentials:
  - nudm-uecm
- {}
```

Paths

`{uId}/registrations/amf-3gpp-access`

put:

Summary: register as AMF for 3GPP access

Operation ID: 3GppRegistration

Tags:

- AMF registration for 3GPP access

Parameters:

- **Name:** ueId

In: path

Description: Identifier of the UE

Required/Optional: true

Schema:

Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'

Request Body:

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/Amf3GppAccessRegistration'

Required/Optional: true

Responses:

'201':

Description: Created

Content:

Application/JSON:

Schema:

Reference: '#/components/schemas/Amf3GppAccessRegistration'

Headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure:

`{apiRoot}/nudm-uecm/v1/{uId}/registrations/amf-3gpp-access'`

Required/Optional: true

```

    Schema:
      Type: string
'200':
  Description: OK
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/Amf3GppAccessRegistration'
'204':
  Description: No content
'400':
  Reference: 'TS29571_CommonData.yaml#/components/responses/400'
'403':
  Reference: 'TS29571_CommonData.yaml#/components/responses/403'
'404':
  Reference: 'TS29571_CommonData.yaml#/components/responses/404'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Description: Unexpected error
Callbacks:
  deregistrationNotification:
    '{request.body#/deregCallbackUri}':
      Method: Post
      Request Body:
        Required/Optional: true
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/DeregistrationData'

  Responses:
    '204':
      Description: Successful Notification response
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'
    Default:
      Description: Unexpected error
pcscfRestorationNotification:
  '{request.body#/pcscfRestorationCallbackUri}':
    Method: Post
    Request Body:
      Required/Optional: true
      Content:

```

Application/JSON:**Schema:****Reference:** '#/components/schemas/PcscfRestorationNotification'**Responses:****'204':****Description:** Successful Notification response**'400':****Reference:** 'TS29571_CommonData.yaml#/components/responses/400'**'404':****Reference:** 'TS29571_CommonData.yaml#/components/responses/404'**'500':****Reference:** 'TS29571_CommonData.yaml#/components/responses/500'**'503':****Reference:** 'TS29571_CommonData.yaml#/components/responses/503'**Default:****Description:** Unexpected error**patch:****Summary:** Update a parameter in the AMF registration for 3GPP access**Operation ID:** Update3GppRegistration**Tags:**

- Parameter update in the AMF registration for 3GPP access

Parameters:

- **Name:** ueId

In: path**Description:** Identifier of the UE**Required/Optional:** true**Schema:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/Supi'

- **Name:** supported-features

In: query**Description:** Features required to be supported by the target NF**Schema:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'**Request Body:****Content:****application/merge-patch+json:****Schema:****Reference:** '#/components/schemas/Amf3GppAccessRegistrationModification'**Required/Optional:** true**Responses:****'200':****Description:** Expected response to a valid request**Content:****Application/JSON:****Schema:****Reference:** 'TS29571_CommonData.yaml#/components/schemas/PatchResult'**'204':****Description:** Expected response to a valid request

```
'400':
  Reference: 'TS29571_CommonData.yaml#/components/responses/400'
'403':
  Reference: 'TS29571_CommonData.yaml#/components/responses/403'
'404':
  Reference: 'TS29571_CommonData.yaml#/components/responses/404'
'422':
  Description: Unprocessable Request
  Content:
    application/problem+json:
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
'500':
  Reference: 'TS29571_CommonData.yaml#/components/responses/500'
'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Description: Unexpected error
get:
  Summary: retrieve the AMF registration for 3GPP access information
  Operation ID: Get3GppRegistration

  Tags:
    - AMF 3Gpp-access Registration Info Retrieval

  Parameters:
    - Name: ueId
      In: path
      Description: Identifier of the UE
      Required/Optional: true
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/VarUeId'
    - Name: supported-features
      In: query
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'

  Responses:
    '200':
      Description: Expected response to a valid request
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/Amf3GppAccessRegistration'
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
```

```

'503':
  Reference: 'TS29571_CommonData.yaml#/components/responses/503'
Default:
  Description: Unexpected error

```

Components

```

securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          nudm-uecm: Access to the nudm-uecm API

schemas:
# COMPLEX TYPES:
Amf3GppAccessRegistration:
  Type: object
  Required:
    - amfInstanceId
    - deregCallbackUri
    - guami
    - ratType
  Properties:
    amfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    purgeFlag:
      Reference: '#/components/schemas/PurgeFlag'
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    imsVoPs:
      Reference: '#/components/schemas/ImsVoPs'
    deregCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    amfServiceNameDereg:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    pcscfRestorationCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    amfServiceNamePcscfRest:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    initialRegistrationInd:
      Type: boolean
    guami:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
    backupAmfInfo:
      Type: array

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    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
    minItems: 1
  drFlag:
    Reference: '#/components/schemas/DualRegistrationFlag'
  ratType:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
  urrpIndicator:
    Type: boolean
  amfEeSubscriptionId:
    Type: string
  epsInterworkingInfo:
    Reference: '#/components/schemas/EpsInterworkingInfo'
  ueSrvccCapability:
    Type: boolean
  nid:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Nid'
  registrationTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  vgmlcAddressIpv4:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
  vgmlcAddressIpv6:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
  vgmlcFqdn:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
Amf3GppAccessRegistrationModification:
  Type: object
  Required:
    - guami
  Properties:
    guami:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
    purgeFlag:
      Reference: '#/components/schemas/PurgeFlag'
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    imsVoPs:
      Reference: '#/components/schemas/ImsVoPs'
    backupAmfInfo:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
    epsInterworkingInfo:
      Reference: '#/components/schemas/EpsInterworkingInfo'
    ueSrvccCapability:
      Type: boolean
      nullable: true
  EpsInterworkingInfo:
    Type: object
    Properties:
      epsIwkPgws:
        Description: A map (list of key-value pairs where Dnn serves as key) of EpsIwkPgws

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    Type: object
    additionalProperties:
      Reference: '#/components/schemas/EpsIwkPgw'
EpsIwkPgw:
  Type: object
  Required:
    - pgwFqdn
    - smfInstanceId
  Properties:
    pgwFqdn:
      Type: string
    smfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
AmfNon3GppAccessRegistration:
  Type: object
  Required:
    - amfInstanceId
    - imsVoPs
    - deregCallbackUri
    - guami
    - ratType
  Properties:
    amfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    purgeFlag:
      Reference: '#/components/schemas/PurgeFlag'
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    imsVoPs:
      Reference: '#/components/schemas/ImsVoPs'
    deregCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    amfServiceNameDereg:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    pcscfRestorationCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    amfServiceNamePcscfRest:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    guami:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
    backupAmfInfo:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
      minItems: 1
    ratType:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/RatType'
    urrpIndicator:
      Type: boolean
    amfEeSubscriptionId:

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```

    Type: string
  nid:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Nid'
  registrationTime:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  vgmlcAddressIpv4:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
  vgmlcAddressIpv6:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
  vgmlcFqdn:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
AmfNon3GppAccessRegistrationModification:
  Type: object
  Required:
    - guami
  Properties:
    guami:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
    purgeFlag:
      Reference: '#/components/schemas/PurgeFlag'
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
    imsVoPs:
      Reference: '#/components/schemas/ImsVoPs'
    backupAmfInfo:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/BackupAmfInfo'
SmfRegistration:
  Type: object
  Required:
    - smfInstanceId
    - pduSessionId
    - singleNssai
    - plmnId
  Properties:
    smfInstanceId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    smfSetId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfSetId'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    pduSessionId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
    singleNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    dnn:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
    emergencyServices:
      Type: boolean
    pcscfRestorationCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'

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    plmnId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    pgwFqdn:
      Type: string
    epdgInd:
      Type: boolean
      Default: false
    deregCallbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    registrationReason:
      Reference: '#/components/schemas/RegistrationReason'
    registrationTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  SmsfRegistration:
    Type: object
    Required:
      - smsfInstanceId
      - plmnId
    Properties:
      smsfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      smsfSetId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfSetId'
      supportedFeatures:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
      plmnId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
      smsfMAPAddress:
        Reference: '#/components/schemas/E164Number'
      smsfDiameterAddress:
        Reference: '#/components/schemas/NetworkNodeDiameterAddress'
      registrationTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
  DeregistrationData:
    Type: object
    Required:
      - deregReason
      - accessType
    Properties:
      deregReason:
        Reference: '#/components/schemas/DeregistrationReason'
      accessType:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
      pduSessionId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PduSessionId'
      newSmfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  PcscfRestorationNotification:
    Type: object
    Required:
      - supi
    Properties:

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```
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
NetworkNodeDiameterAddress:
  Type: object
  Required:
    - name
    - realm
  Properties:
    name:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DiameterIdentity'
    realm:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DiameterIdentity'
TriggerRequest:
  Type: object
  Required:
    - supi
  Properties:
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
SmfRegistrationInfo:
  Type: object
  Required:
    - smfRegistrationList
  Properties:
    smfRegistrationList:
      Type: array
      Items:
        Reference: '#/components/schemas/SmfRegistration'
      minItems: 1
AmfDeregInfo:
  Type: object
  Required:
    - deregReason
  Properties:
    deregReason:
      Reference: '#/components/schemas/DeregistrationReason'
LocationInfo:
  Type: object
  Required:
    - registrationLocationInfoList
  Properties:
    supi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
    gpsi:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
    registrationLocationInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/RegistrationLocationInfo'
      minItems: 1
      maxItems: 2
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
```

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RegistrationLocationInfo:
  Type: object
CmInfoReport:
  Type: object
  Required:
    - newCmInfoList
  Properties:
    oldCmInfoList:
      Type: array
      Items:
        Reference: 'TS29518_Namf_EventExposure.yaml#/components/schemas/CmInfo'
        minItems: 1
        maxItems: 2
      newCmInfoList:
        Type: array
        Items:
          Reference: 'TS29518_Namf_EventExposure.yaml#/components/schemas/CmInfo'
          minItems: 1
          maxItems: 2
VgmlcAddress:
  Type: object
  Properties:
    vgmlcAddressIpv4:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    vgmlcAddressIpv6:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
    vgmlcFqdn:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
PeiUpdateInfo:
  Type: object
  Required:
    - pei
  Properties:
    pei:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Pei'
# SIMPLE TYPES:
PurgeFlag:
  Type: boolean
E164Number:
  Type: string
  Pattern: '^[0-9]{1,15}$'
DualRegistrationFlag:
  Type: boolean
# ENUMS:
ImsVoPs:
  anyOf:
    - type: string
    enum:
      - HOMOGENEOUS_SUPPORT
      - HOMOGENEOUS_NON_SUPPORT
      - NON_HOMOGENEOUS_OR_UNKNOWN
    - type: string
DeregistrationReason:

```

```
anyOf:
  - type: string
  enum:
    - UE_INITIAL_REGISTRATION
    - UE_REGISTRATION_AREA_CHANGE
    - SUBSCRIPTION_WITHDRAWN
    - 5GS_TO_EPS_MOBILITY
    - 5GS_TO_EPS_MOBILITY_UE_INITIAL_REGISTRATION
    - REREGISTRATION_REQUIRED
    - SMF_CONTEXT_TRANSFERRED
  - type: string
RegistrationReason:
  anyOf:
    - type: string
    enum:
      - SMF_CONTEXT_TRANSFERRED
    - type: string
```

External Docs

Description: 3GPP TS 29.503 Unified Data Management Services, version 16.3.0

URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.503/'

