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| 3GPP TS 29.581 V18.3.0 (2023-12) | |
| Technical Specification | |
| 3rd Generation Partnership Project;  Technical Specification Group Core Network and Terminals;  5G System; Multicast/Broadcast Service Transport Services;  Stage 3  (Release 18) | |
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| ***3GPP***  Postal address  3GPP support office address  650 Route des Lucioles - Sophia Antipolis  Valbonne - FRANCE  Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16  Internet  http://www.3gpp.org |
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# Foreword

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

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

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

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

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

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

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

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

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

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

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

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

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

In addition:

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

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

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

# 1 Scope

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

The 5G System stage 2 architecture and procedures are specified in 3GPP TS 23.501 [2] and 3GPP TS 23.502 [3]. The 5G Multicast-Broadcast Session Management Services for 5G System is specified in 3GPP TS 23.247 [15] and the User Service Architecture for 5G Multicast-Broadcast Services is specified in 3GPP TS 26.502 [17].

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

# 2 References

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

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

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

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

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

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

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

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

[6] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[11] IETF RFC 9113: "HTTP/2".

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

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

[14] IETF RFC 6902: "JavaScript Object Notation (JSON) Patch".

[15] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[16] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[17] 3GPP TS 26.502: "5G multicast–broadcast services; User Service architecture; Stage 2".

[18] 3GPP TS 29.580: "5G System; Multicast/Broadcast Service Function services; Stage 3".

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

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

For the definitions of the basic SBI notions (e.g. apiRoot, API URI, Callback URI, etc.), SBI specific abbreviations (e.g. CRUD, YAML, etc.), special characters, operators and delimiters that are used by SBI specifications, see clause 3 in 3GPP TS 29.501 [5].

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

## 3.3 Abbreviations

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

5MBS 5G Multicast-Broadcast Services

AF Application Function

AS Application server

DNN Data Network Name

MBSF Multicast/Broadcast Service Function

MBSTF Multicast/Broadcast Service Transport Function

MB-SMF Multicast/Broadcast Session Management Function

MB-UPF Multicast/Broadcast User Plane Function

NEF Network Exposure Function

NF Network Function

S-NSSAI Single Network Slice Selection Assistance Information

URI Uniform Resource Identifier

# 4 Overview

## 4.1 General

Within the 5GC, the MBSTF offers services to the MBSF via the Nmbstf service based interface (see 3GPP TS 23.501 [2] and 3GPP TS 26.502 [17]).

Figures 4.1 provides the reference model (in service based interface representation and in reference point representation), with focus on the MBSTF and the scope of the present specification.



Figure 4-1: Reference model – MBSTF

Nmb2 is the reference point between MBSF and MBSTF.

The functionalities supported by the MBSTF are listed in clause 5.3.2.12 of 3GPP TS 23.247 [15].

The services and service operations provided by the Nmbstf interface are listed in clause 7.3 of 3GPP TS 26.502 [17].

# 5 Services offered by the MBSTF

## 5.1 Introduction

Table 5.1-1 summarizes the SBI services produced by the MBSTF.

Table 5.1-1: NF Services provided by MBSTF

|  |  |  |
| --- | --- | --- |
| Service Name | Description | Example Consumers |
| Nmbstf\_MBSDistributionSession | Manage (e.g. Create, Modify, Delete) a new MBS Distribution Session within the MBSTF. | MBSF |

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

Table 5.1-2: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Service Name | Clause | Description | OpenAPI Specification File | apiName | Annex |
| Nmbstf\_MBSDistributionSession | 5.2 | MBSTF Distribution Session Service | TS29581\_ Nmbstf\_DistSession.yaml | nmbstf-distsession | A.2 |

## 5.2 Nmbstf\_MBSDistributionSession Service

### 5.2.1 Service Description

The Nmbstf\_MBSDistributionSession service operates on MBS distribution sessions. The following are the key functionalities of this NF service:

- Creation, modification, retrieval and deletion of MBS Distribution Sessions

Table 5.2.1-1 lists the service operations that are supported by the Nmbstf\_MBSDistributionSession service.

Table 5.2.1-1: Service operations supported by the Nmbstf\_MBSDistributionSession service

|  |  |  |  |
| --- | --- | --- | --- |
| Service Operations | Description | Operation  Semantics | Example Consumers |
| Create | Create a new MBS Distribution Session within the MBSTF | Request / Response | MBSF |
| Update | Update an existing MBS Distribution Session | Request / Response | MBSF |
| Destroy | Delete an existing MBS Distribution Session | Request / Response | MBSF |
| Retrieve | Retrieve the parameters of an existing MBS Distribution Session | Request / Response | MBSF |
| StatusSubscribe | Subscribe to notifications related to an MBS Distribution Session | Subscribe/  Notify | MBSF |
| StatusUnsubscribe | Unsubscribe from notifications related to an MBS Distribution Session | MBSF |
| StatusNotify | Notify event(s) related to an MBS Distribution Session | MBSF |

### 5.2.2 Service Operations

#### 5.2.2.1 Introduction

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

#### 5.2.2.2 Create

##### 5.2.2.2.1 General

The Create service operation shall be used to create a new MBS Distribution Session within the MBSTF (see clauses 5.2, 4.5.2 of 3GPP TS 26.502 [17]).

The NF Service Consumer (e.g. MBSF) shall create an MBS Distribution session in the MBSTF by using the HTTP POST method as shown in Figure 5.2.2.2.1-1.



Figure 5.2.2.2.1-1: MBS Distribution session creation

1. The NF Service Consumer shall send a POST request (CreateReqData) targeting the MBS Distribution Sessions collection resource of the MBSTF. The content of the POST request shall contain the following information:

- The baseline parameters for an MBS Distribution Session including Distribution Session Identifier, and;

- Additional MBS Distribution Session parameters for Object Distribution Method, or;

- Additional MBS Distribution Session parameters for Packet Distribution Method;

2a. On success, the MBSTF shall return a "201 Created" response. The "Location" header shall be present and shall contain the URI of the created resource. The content of the POST response (CreateRspData) shall contain a representation of the created MBS session.

2b. On failure, one of the HTTP status code listed in Table 6.1.3.2.3.1-3 shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.1.3.2.3.1-3.

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of POST response.

#### 5.2.2.3 Update

##### 5.2.2.3.1 General

The Update service operation shall be used to update an existing MBS Distribution Session within the MBSTF (see clauses 5.2, 4.5.2 of 3GPP TS 26.502 [17]).

The NF Service Consumer (e.g. MBSF) shall update an MBS Distribution session in the MBSTF by using the HTTP PATCH method as shown in Figure 5.2.2.3.1-1.



Figure 5.2.2.3.1-1: MBS Distribution session update

1. The NF Service Consumer shall send a PATCH request (PatchData) to update the MBS distribution session.

2a. On success, the MBSTF shall return "204 No Content";

2b. On success, the MBSTF shall return "200 OK" containing new resource representation of MBS distribution session;

2c. On failure, one of the HTTP status code listed in Table 6.1.3.3.3.1-3 shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.1.3.3.3.1-3.

2d. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of PATCH response.

#### 5.2.2.4 Destroy

##### 5.2.2.4.1 General

The Destroy service operation shall be used to delete an existing MBS Distribution Session within the MBSTF (see clauses 5.2, 4.5.2 of 3GPP TS 26.502 [17]).

The NF Service Consumer (e.g. MBSF) shall delete an MBS Distribution session in the MBSTF by using the HTTP DELETE method as shown in Figure 5.2.2.4.1-1.



Figure 5.2.2.4.1-1: MBS Distribution session deletion

1. The NF Service Consumer shall send a DELETE request (distSessionRef) to release the MBS distribution session.

2a. On success, the MBSTF shall delete the MBS distribution session and return a "204 No Content" response.

2b. On failure, one of the HTTP status code listed in Table 6.1.3.3.3.2-3 shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.1.3.3.3.2-3.

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of DELETE response.

#### 5.2.2.5 Retrieve

##### 5.2.2.5.1 General

The Retrieve service operation shall be used to retrieve the parameters of an existing MBS Distribution Session within the MBSTF (see clauses 5.2, 4.5.2 of 3GPP TS 26.502 [17]).

The NF Service Consumer (e.g. MBSF) shall retrieve an MBS Distribution session in the MBSTF by using the HTTP GET method as shown in Figure 5.2.2.5.1-1.



Figure 5.2.2.5.1-1: MBS Distribution session retrieval

1. The NF Service Consumer shall send a GET request to the resource representing the MBS distribution session (distSessionRef).

2a. On success, the MBSTF shall respond with "200 OK" with the message body containing parameters of the distribution session (distSession).

2b. On failure, one of the HTTP status code listed in Table 6.1.3.3.3.3-3 shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.1.3.3.3.3-3.

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of GET response.

#### 5.2.2.6 StatusSubscribe service operation

##### 5.2.2.6.1 General

The StatusSubscribe service operation shall be used by an NF Service Consumer (e.g. MBSF) to create a subscription to the MBSTF notifications related to the event(s) of an MBS distribution session.

##### 5.2.2.6.2 Subscription creation

The NF Service Consumer (e.g. MBSF) shall subscribe to MBSTF service notifications by using the HTTP POST method as shown in Figure 5.2.2.6.2-1.



Figure 5.2.2.6.2-1: Subscribing to MBSTF notifications

1. The NF Service Consumer shall send a POST request (StatusSubscribeReqData) to the resource URI representing the subscriptions collection resource in the MBSTF. The content of the POST request shall contain:

- the list of MBS distribution session events requested to be subscribed.

- the Notification URI , indicating the address where the MBSTF shall send the notifications;

The request body may also contain:

- an expiry time suggested by the NF Service Consumer, representing the time span during which the subscription is desired to be kept active; and

- Notification Correlation ID;

2a. On success, the MBSTF shall return a "201 Created" response. The "Location" header shall be present and shall contain the URI of the created resource. The content of the POST response (StatusSubscribeRspData) shall include:

- the Distribution Session Identifier;

- the list of events successfully subscribed;

- the expiry time after which the subscription becomes invalid.

2b. On failure, one of the HTTP status code listed in the data structures supported by the POST Response Body (see Table 6.1.3.4.3.1-3) shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in the same Table 6.1.3.4.3.1-3).

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of POST response.

##### 5.2.2.6.3 Subscription update

When the StatusSubscribe service operation is used for updating a subscription, the NF Service Consumer (e.g. MBSF) shall update its subscription to MBSTF notifications by using the HTTP PATCH method as shown in Figure 5.2.2.6.3-1.



Figure 5.2.2.6.3-1: Updating a subscription to MBSTF notifications

1. The NF Service Consumer shall send a PATCH request to update the individual subscription resource in the MBSTF (/dist-sessions/{distSessionRef}/subscriptions/{subscriptionId}). The message body contains an array(PatchItem), where each PatchItem type indicates a requested change to the DistSessionSubscription data structure (see clause 6.1.6.2.10). The following information may be requested to be modified with array(PatchItem) structure (see Table 6.1.3.5.3.2-2):

- Notification URI (callback URI), indicating the address where the MBSTF shall send the notifications;

- New expiration time;

2a. On success, the MBSTF shall return a "200 Ok" response with a representation of the modified subscription (DistSessionSubscription data structure (see clause 6.1.6.2.10)).

2b. On failure, one of the HTTP status code listed in Table 6.1.3.5.3.2-3 shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application errors listed in Table 6.1.3.5.3.2-3.

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of PATCH response.

#### 5.2.2.7 StatusUnsubscribe

##### 5.2.2.7.1 General

The StatusUnsubscribe service operation shall be used by an NF Service Consumer (e.g. MBSF) to unsubscribe from the MBSTF notifications related to an MBS distribution session.

The NF Service Consumer (e.g. MBSF) shall unsubscribe from MBSTF notifications by using the HTTP DELETE method as shown in Figure 5.2.2.7.1-1.



Figure 5.2.2.7.1-1: Unsubscribing from MBSTF notifications

1. The NF Service Consumer shall send a DELETE request to the resource URI representing the individual subscription document resource in the MBSTF.

2. On success, the MBSTF shall return a "204 No Content" response.

2b. On failure, one of the HTTP status code listed in the data structures supported by the DELETE Response Body (see Table 6.1.3.5.3.1-3) shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in the same Table 6.1.3.5.3.1-3.

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of DELETE response.

#### 5.2.2.8 StatusNotify

##### 5.2.2.8.1 General

The StatusNotify service operation shall be used by the MBSTF to notify a subscribed NF Service Consumer (e.g. MBSF) about the events related to an MBS distribution session.

The MBSTF shall notify the NF Service Consumer (e.g. MBSF) by using the HTTP POST method to the callback URI received earlier in the subscription as shown in Figure 5.2.2.8.1-1.



Figure 5.2.2.8.1-1: MBTSMF notifications

1. The MBSTF shall send a POST request (StatusNotifyReqData) to the callback URI ({notifUri}) of the subscribed NF Service Consumer. The content of the POST request shall contain:

- Notification Correlation ID, if this information was provided during subscription;

- the list of MBS distribution session events to be reported:

- report a DATA\_INGEST\_FAILURE event when the MBSTF failed to ingest data from the AF/AS;

- report a SESSION\_DEACTIVATED event when the MBS distribution session is deactivated;

- report a SESSION\_ACTIVATED event when the MBS distribution session is activated.

- report a SERVICE\_MANAGEMENT\_FAILURE event when the MBS distribution session failed to start.

- report a DATA\_INGEST\_SESSION\_ESTABLISHED event when the User Data Ingest Session corresponding to the distribution session is successfully established.

- report a DATA\_INGEST\_SESSION\_TERMINATED event when the User Data Ingest Session corresponding to the distribution session is stopped at the end of the current active period.

2a. On success, the MBSF shall return a "204 No Content" response.

2b. On failure, one of the HTTP status code listed in the data structures supported by the POST Response Body (see Table 6.1.5.2.3.1-2) shall be returned. The message body shall contain a ProblemDetails structure with the "cause" attribute set to one of the application error listed in the same Table 6.1.5.2.3.1-2).

2c. On redirection, "307 Temporary Redirect" or "308 Permanent Redirect" shall be returned. A RedirectResponse IE shall be included in the content of POST response.

# 6 API Definitions

## 6.1 Nmbstf\_MBSDistributionSession Service API

### 6.1.1 Introduction

The Nmbstf\_MBSDistributionSession service shall use the Nmbstf-distsession API.

The API URI of the Nmbstf\_MBSDistributionSession API shall be:

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

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

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

with the following components:

- The {apiRoot} shall be set as described in 3GPP TS 29.501 [5].

- The <apiName>shall be "nmbstf-distsession".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 6.1.3.

### 6.1.2 Usage of HTTP

#### 6.1.2.1 General

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

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

The OpenAPI [6] specification of HTTP messages and content bodies for the Nmbstf-distsession API is contained in Annex A.

#### 6.1.2.2 HTTP standard headers

##### 6.1.2.2.1 General

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

##### 6.1.2.2.2 Content type

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

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

#### 6.1.2.3 HTTP custom headers

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

### 6.1.3 Resources

#### 6.1.3.1 Overview

Figure 6.1.3.1-1 describes the resource URI structure of the Nmbstf\_MBSDistributionSession API.

Figure 6.1.3.1-1: Resource URI structure of the Nmbstf\_MBSDistributionSession API

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

Table 6.1.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource purpose/name | Resource URI (relative path after API URI) | HTTP method or custom operation | Description (service operation) |
| MBS Distribution sessions collection | /dist-sessions | POST | Create |
| Individual MBS Distribution session | /dist-sessions/{distSessionRef} | PATCH | Update |
| GET | Retrieve |
| DELETE | Destroy |
| Subscriptions collection for MBS Distribution sessions | /dist-sessions/{distSessionRef}/subscriptions | POST | StatusSubscribe  (to create a subscription) |
| Individual subscription for an MBS Distribution session | /dist-sessions/{distSessionRef}/subscriptions/{subscriptionId} | DELETE | StatusUnsubscribe |
| PATCH | StatusSubscribe  (to update or renew a subscription) |

#### 6.1.3.2 Resource: MBS Distribution sessions collection (Collection)

##### 6.1.3.2.1 Description

This resource represents the collection of the MBS Distribution sessions created in the MBSTF.

This resource is modelled with the Collection resource archetype (see clause C.2 of 3GPP TS 29.501 [5]).

##### 6.1.3.2.2 Resource Definition

Resource URI: **{apiRoot}/nmbstf-distSession/<apiVersion>/dist-sessions**

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

Table 6.1.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.1.1 |
| apiVersion | string | See clause 6.1.1 |

##### 6.1.3.2.3 Resource Standard Methods

###### 6.1.3.2.3.1 POST

This method creates an individual MBS distribution session resource in the MBSTF.

This method shall support the URI query parameters specified in table 6.1.3.2.3.1-1.

Table 6.1.3.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.2.3.1-2 and the response data structures and response codes specified in table 6.1.3.2.3.1-3.

Table 6.1.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| CreateReqData | M | 1 | Representation of the MBS distribution session to be created in the MBSTF |

Table 6.1.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| CreateRspData | M | 1 | 201 Created | Successful creation of an MBS session |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.2.3.1-4: Headers supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

Table 6.1.3.2.3.1-5: Headers supported by the 201 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/nmbstf-distSession/<apiVersion>/dist-sessions/{distSessionRef} |

Table 6.1.3.2.3.1-6: Headers supported by the 307 response code on this resource

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

Table 6.1.3.2.3.1-7: Headers supported by the 308 response code on this resource

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

##### 6.1.3.2.4 Resource Custom Operations

None

#### 6.1.3.3 Resource: Individual MBS distribution session (Document)

##### 6.1.3.3.1 Description

This resource represents an individual MBS distribution session created in the MBSTF.

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

##### 6.1.3.3.2 Resource Definition

Resource URI: **{apiRoot}/nmbstf-distSession/<apiVersion>/dist-sessions/{distSessionRef}**

This resource shall support the resource URI variables defined in table 6.1.3.3.2-1.

Table 6.1.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | String | See clause 6.1.1 |
| apiVersion | String | See clause 6.1.1 |
| distSessionRef | String | MBS distribution session reference assigned by the MBSTF during the Create service operation |

##### 6.1.3.3.3 Resource Standard Methods

###### 6.1.3.3.3.1 PATCH

This method updates an individual MBS distribution session resource in the MBSTF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.1-1.

Table 6.1.3.3.3.1-1: URI query parameters supported by the PATCH method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.1-2 and the response data structures and response codes specified in table 6.1.3.3.3.1-3.

Table 6.1.3.3.3.1-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| array(PatchItem) | M | 1 | List of changes to be made to the MBS session resource, according to the JSON PATCH format specified in IETF RFC 6902 [16]. |

Table 6.1.3.3.3.1-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| n/a |  |  | 204 No Content | Successful response |
| DistSession | M | 1 | 200 OK | Upon success, a response body containing the updated representation of Distribution Session shall be returned |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the PATCH method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.3.3.1-4: Headers supported by the 307 Response Code on this resource

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

Table 6.1.3.3.3.1-5: Headers supported by the 308 Response Code on this resource

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

###### 6.1.3.3.3.2 DELETE

This method deletes an individual MBS distribution session resource in the MBSTF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.2-1.

Table 6.1.3.3.3.2-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.2-2 and the response data structures and response codes specified in table 6.1.3.3.3.2-3.

Table 6.1.3.3.3.2-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| n/a |  |  |  |

Table 6.1.3.3.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| n/a |  |  | 204 No Content | Successful response |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the DELETE method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

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

Table 6.1.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

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

###### 6.1.3.3.3.3 GET

This method retrieves an individual MBS distribution session resource in the MBSTF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.3-1.

Table 6.1.3.3.3.3-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.3-2 and the response data structures and response codes specified in table 6.1.3.3.3.3-3.

Table 6.1.3.3.3.3-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| n/a |  |  |  |

Table 6.1.3.3.3.3-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| DistSession | M | 1 | 200 OK | Successful response containing representation of the MBS Distribution Session |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the GET method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.3.3.3-4: Headers supported by the 307 Response Code on this resource

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

Table 6.1.3.3.3.3-5: Headers supported by the 308 Response Code on this resource

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

##### 6.1.3.3.4 Resource Custom Operations

None.

#### 6.1.3.4 Resource: Subscriptions collection for MBS distribution session (Collection)

##### 6.1.3.4.1 Description

This resource represents the collection of the individual subscriptions for an MBS distribution session created in the MBSTF with StatusSubscribe service operation.

This resource is modelled with the Collection resource archetype (see clause C.2 of 3GPP TS 29.501 [5]).

##### 6.1.3.4.2 Resource Definition

Resource URI: **{apiRoot}/nmbstf-distSession/<apiVersion>/dist-sessions/{distSessionRef}/subscriptions**

This resource shall support the resource URI variables defined in table 6.1.3.4.2-1.

Table 6.1.3.4.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.1.1 |
| apiVersion | string | See clause 6.1.1 |
| distSessionRef | string | MBS distribution session reference assigned by the MBSTF during the Create service operation |

##### 6.1.3.4.3 Resource Standard Methods

###### 6.1.3.4.3.1 POST

This method creates an individual subscription resource for an MBS distribution session in the MBSTF with StatusSubscribe service operation.

This method shall support the URI query parameters specified in table 6.1.3.4.3.1-1.

Table 6.1.3.4.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.4.3.1-2 and the response data structures and response codes specified in table 6.1.3.4.3.1-3.

Table 6.1.3.4.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| StatusSubscribeReqData | M | 1 | Data within the StatusSubscribe Request |

Table 6.1.3.4.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| StatusSubscribeRspData | M | 1 | 201 Created | Data within the StatusSubscribe Response |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.4.3.1-4: Headers supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

Table 6.1.3.4.3.1-5: Headers supported by the 201 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/nmbstf-distSession/<apiVersion>/dist-sessions/{distSessionRef}/subscriptions/{subscriptionId} |

Table 6.1.3.4.3.1-6: Headers supported by the 307 Response Code on this resource

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

Table 6.1.3.4.3.1-7: Headers supported by the 308 Response Code on this resource

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

##### 6.1.3.4.4 Resource Custom Operations

None.

#### 6.1.3.5 Resource: Individual subscription for an MBS distribution session (Document)

##### 6.1.3.5.1 Description

This resource represents an individual subscription for an MBS distribution session in the MBSTF, which can be deleted with StatusUnsubscribe service operation or updated with StatusSubscribe service operation.

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

##### 6.1.3.5.2 Resource Definition

Resource URI: **{apiRoot}/nmbstf-distsession/<apiVersion>/dist-sessions/{distSessionRef}/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 6.1.3.5.2-1.

Table 6.1.3.5.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.1.1 |
| apiVersion | string | See clause 6.1.1 |
| distSessionRef | string | MBS distribution session reference assigned by the MBSTF during the Create service operation |
| subscriptionId | string | Subscription identifier assigned by the MBSTF during the creation of the subscription |

##### 6.1.3.5.3 Resource Standard Methods

###### 6.1.3.5.3.1 DELETE

This method deletes an individual subscription resource for an MBS distribution session in the MBSTF with StatusUnsubscribe service operation.

This method shall support the URI query parameters specified in table 6.1.3.5.3.1-1.

Table 6.1.3.5.3.1-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.5.3.1-2 and the response data structures and response codes specified in table 6.1.3.5.3.1-3.

Table 6.1.3.5.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.1.3.5.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  Codes | Description |
| n/a |  |  | 204 No Content | Successful deletion |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.5.3.1-4: Headers supported by the 307 Response Code on this resource

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

Table 6.1.3.5.3.1-5: Headers supported by the 308 Response Code on this resource

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

###### 6.1.3.5.3.2 PATCH

This method updates an individual subscription resource for an MBS distribution session in the MBSTF with StatusSubscribe service operation for the subscription update (see clause 5.2.2.6.3).

This method shall support the URI query parameters specified in table 6.1.3.5.3.2-1.

Table 6.1.3.5.3.2-1: URI query parameters supported by the PATCH method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.5.3.2-2 and the response data structures and response codes specified in table 6.1.3.5.3.2-3.

Table 6.1.3.5.3.2-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| array(PatchItem) | M | 1 | It shall contain the list of changes to be made to the Status Subscription (i.e. DistSessionSubscription data type), according to the JSON PATCH format specified in IETF RFC 6902 [16]. |

Table 6.1.3.5.3.2-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| DistSessionSubscription | M | 1 | 200 OK | Upon success, a response body shall be returned containing the updated Status Subscription. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.  (NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.  (NOTE 2) |
| NOTE 1: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE 2: RedirectResponse may be inserted by an SCP, see clause 6.10.9.1 of 3GPP TS 29.500 [4]. | | | | |

Table 6.1.3.5.3.2-4: Headers supported by the PATCH method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

Table 6.1.3.5.3.2-5: Headers supported by the 200 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

Table 6.1.3.5.3.2-6: Headers supported by the 307 Response Code on this resource

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

Table 6.1.3.5.3.2-7: Headers supported by the 308 Response Code on this resource

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

##### 6.1.3.5.4 Resource Custom Operations

None.

### 6.1.4 Custom Operations without associated resources

None

### 6.1.5 Notifications

#### 6.1.5.1 General

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

Table 6.1.5.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description  (service operation) |
| Event Notification | NotifUri | POST | StatusNotify |

#### 6.1.5.2 StatusNotify

##### 6.1.5.2.1 Description

The Event Notification is used by the NF service producer to report one or several observed Events to a NF service consumer that has subscribed to such Notifications.

##### 6.1.5.2.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 6.1.5.2.2-1.

Table 6.1.5.2.2-1: Callback URI variables

|  |  |
| --- | --- |
| Name | Definition |
| notifUri | String formatted as URI with the Callback Uri |

##### 6.1.5.2.3 Standard Methods

6.1.5.2.3.1 POST

This method shall support the request data structures specified in table 6.1.5.2.3.1-1 and the response data structures and response codes specified in table 6.1.5.2.3.1-2.

Table 6.1.5.2.3.1-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| StatusNotifyReqData | M | 1 | Data within the StatusNotify Request |

Table 6.1.5.2.3.1-2: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Successful response |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. | | | | |

Table 6.1.5.2.3.1-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | A URI pointing to the endpoint of the NF service consumer to which the notification should be sent. For the case, when a request is redirected to the same target resource via a different SCP, see clause 6.10.9.1 in 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

Table 6.1.5.2.3.1-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | A URI pointing to the endpoint of the NF service consumer to which the notification should be sent. For the case, when a request is redirected to the same target resource via a different SCP, see clause 6.10.9.1 in 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance ID towards which the request is redirected |

### 6.1.6 Data Model

#### 6.1.6.1 General

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

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

Table 6.1.6.1-1: Nmbstf\_MBSDistributionSession specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| CreateReqData | 6.1.6.2.2 | Data within the Create Request |  |
| CreateRspData | 6.1.6.2.3 | Data within the Create Response |  |
| DistSession | 6.1.6.2.4 | Data specific to distribution session |  |
| ObjDistributionData | 6.1.6.2.5 | Data specific to Object Distribution Method |  |
| PktDistributionData | 6.1.6.2.6 | Data specific to Packet Distribution Method |  |
| StatusSubscribeReqData | 6.1.6.2.7 | Data within Subscription creation request |  |
| StatusSubscribeRspData | 6.1.6.2.8 | Data within Subscription creation response |  |
| StatusNotifyReqData | 6.1.6.2.9 | Data within Notification request |  |
| DistSessionSubscription | 6.1.6.2.10 | Data specific to subscription request |  |
| DistSessionEventReportList | 6.1.6.2.11 | MBS distribution session event report list |  |
| DistSessionEventReport | 6.1.6.2.12 | MBS distribution session event report |  |
| UpTrafficFlowInfo | 6.1.6.2.13 | IP Multicast Address and Port Number |  |
| MbStfIngestAddr | 6.1.6.2.14 | MBSTF Ingest Addresses |  |
| ExtSsm | 6.1.6.2.15 | SSM and Port Number |  |
| DistSessionState | 6.1.6.3.3 | MBS distribution session state |  |
| ObjDistributionOperatingMode | 6.1.6.3.4 | Operating Mode for Object distribution method |  |
| ObjAcquisitionMethod | 6.1.6.3.5 | Object acquisition method |  |
| PktDistributionOperatingMode | 6.1.6.3.6 | Operating Mode for Packet distribution method |  |
| DistSessionEventType | 6.1.6.3.7 | MBS distribution session event type |  |
| PktIngestMethod | 6.1.6.3.8 | Packet Ingest Method |  |

Table 6.1.6.1-2 specifies data types re-used by the Nmbstf\_MBSDistributionSession service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nmbstf\_MBSDistributionSession service based interface.

Table 6.1.6.1-2: Nmbstf\_MBSDistributionSession re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| TunnelAddress | 3GPP TS 29.571 [16] | Tunnel Address (UDP/IP) |  |
| BitRate | 3GPP TS 29.571 [16] | Bit Rate |  |
| PacketDelBudget | 3GPP TS 29.571 [16] | Maximum Delay |  |
| Uri | 3GPP TS 29.571 [16] | Uniform resource identifier |  |
| DateTime | 3GPP TS 29.571 [16] | Data and Time |  |
| NfInstanceId | 3GPP TS 29.571 [16] | NF Instance Identifier |  |
| Uinteger | 3GPP TS 29.571 [16] | Unsigned Integer |  |
| IpAddr | 3GPP TS 29.571 [16] | IP Address |  |
| Ssm | 3GPP TS 29.571 [16] | Source Specific Multicast Address |  |
| FECConfig | 3GPP TS 29.580 [18] | FEC Configuration |  |
| RedirectResponse | 3GPP TS 29.571 [16] | Contains redirection related information. |  |

#### 6.1.6.2 Structured data types

##### 6.1.6.2.1 Introduction

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

##### 6.1.6.2.2 Type: CreateReqData

Table 6.1.6.2.2-1: Definition of type CreateReqData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| distSession | DistSession | M | 1 | MBS Distribution Session to be created. |  |

##### 6.1.6.2.3 Type: CreateRspData

Table 6.1.6.2.3-1: Definition of type CreateRspData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| distSession | DistSession | M | 1 | Representation of the created MBS session |  |

##### 6.1.6.2.4 Type: DistSession

Table 6.1.6.2.4-1: Definition of type DistSession

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| distSessionId | string | M | 1 | An identifier for this MBS Distribution Session assigned by the MBSF that is unique within the scope of the MBS User Service (see clause 4.5.3 of 3GPP TS 26.502) |  |
| distSessionState | DistSessionState | M | 1 | The current state of the MBS Distribution Session(see clause 4.6.1 of 3GPP TS 26.502) |  |
| mbUpfTunAddr | TunnelAddress | M | 1 | The tunnel endpoint address of the MB‑UPF that supports this MBS Distribution Session at reference point Nmb9 or the tunnel endpoint address of the MBMS-GW at reference point SGi-mb.  Write-Only: true |  |
| mbmsGwTunAddr | TunnelAddress | O | 0..1 | This IE may be present to contain the tunnel endpoint address of the MBMS-GW at reference point SGi-mb when the mbUpfTunAddr is also present which contains the tunnel endpoint address of the MB‑UPF that supports this MBS Distribution Session at reference point Nmb9.  Write-Only: true |  |
| upTrafficFlowInfo | UpTrafficFlowInfo | C | 0..1 | Details of the traffic flow to be used by the MBSTF for this MBS Distribution Session, including the multicast group destination address and port number.  Shall be present in case of Object Distribution Method and Packet Distribution Method in Packet Proxy Mode.  Write-Only: true |  |
| mbr | BitRate | M | 1 | The maximum bit rate for this MBS Distribution Session  Write-Only: true |  |
| maxDelay | PacketDelBudget | O | 0..1 | The maximum end-to-end distribution delay that is tolerated for this MBS Distribution Session by the MBS Application Provider  Write-Only: true |  |
| objDistributionData | ObjDistributionData | C | 0..1 | Additional MBS Distribution Session parameters for Object Distribution Method (NOTE 1) |  |
| pktDistributionData | PktDistributionData | C | 0..1 | Additional MBS Distribution Session parameters for Packet Distribution Method (NOTE 1) |  |
| fecInformation | FECConfig | O | 0..1 | Configuration for FEC information added by the MBSTF to protect this MBS Distribution Session. |  |
| dscpMarking | string | O | 0..1 | DSCP Marking to be applied to outgoing traffic.  It shall be encoded as two octet string in hexadecimal representation. The first octet shall contain the DSCP value in the IPv4 Type-of-Service or the IPv6 Traffic-Class field and the second octet shall contain the ToS/Traffic Class mask field, which shall be set to "0xFC".  Write-Only: true |  |
| NOTE 1: Either the objDistributionData IE or the pktDistributionData IE shall be present in a request/response. | | | | | |

##### 6.1.6.2.5 Type: ObjDistributionData

Table 6.1.6.2.5-1: Definition of type ObjDistributionData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| objDistributionOperatingMode | ObjDistributionOperatingMode | M | 1 | Operating Mode for the Object distribution method |  |
| objAcquisitionMethod | ObjAcquisitionMethod | M | 1 | Indicates whether the objects(s) are to be pushed into the MBSTF by the MBS Application Provider or whether they are to be pulled from the MBS Application Provider by the MBSTF |  |
| objAcquisitionIdsPull | array(Uri) | C | 1..N | Represents the URL(s) (expressed as path(es) relative to the object ingest base URL provided in the "objIngestBaseUrl" attribute) pointing to the root object(s) to be pulled by the MBSTF and then distributed during this MBS Distribution Session.  This attribute shall be provided, when available.  See clause 6.1 of 3GPP TS 26.502 [17]  (NOTE 2, NOTE 5) |  |
| objAcquisitionIdPush | Uri | C | 0..1 | Represents the URL (expressed as a path relative to the object ingest base URL provided in the "objIngestBaseUrl" attribute) pointing to the root object(s) to be pushed to the MBSTF and then distributed during this MBS Distribution Session.  This attribute shall be provided, when available.  See clause 6.1 of 3GPP TS 26.502 [17]  (NOTE 2, NOTE 5) |  |
| objIngestBaseUrl | Uri | C | 0..1 | Represents the object ingest base URL. It contains a URL prefix that is replaced by the object distribution base URL by the MBSTF to derive the object distribution URI prior to the distribution of ingested objects.  Shall be present if the object Distribution base URL (within the "objDistributionBaseUrl") is present.  (NOTE 3, NOTE 4) |  |
| objDistributionBaseUrl | Uri | O | 0..1 | Represents the object distribution base URL. It contains a URL prefix with which the MBSTF replaces the object ingest base URL to derive the object distribution URL prior to the distribution of ingested objects.  (NOTE 4) |  |
| NOTE 1: void.  NOTE 2: Either the "objAcquisitionIdsPull" attribute or the "objAcquisitionIdsPush" attribute shall be provided, when available.  NOTE 3: When the "objAcquisitionMethod" attribute is set to "PULL", this attribute may be provided by the MBSF during the creation and/or update/modification of the MBS Distribution Session (if received from the AF). When the "objAcquisitionMethod" attribute is set to "PUSH", this attribute may be provided by the MBSTF in the response to the creation and/or update/modification request of the MBS Distribution Session.  NOTE 4: When the "objDistributionBaseUrl" attribute is omitted, nothing is replaced/removed from the object ingest URL when deriving the object distribution URL.  NOTE 5: For group message delivery, the NEF transforms the group message payload into a file, so as an object to be ingested and distributed by the MBSTF using PULL or PUSH Method as specified in 3GPP TS 23.247 [15]. | | | | | |

##### 6.1.6.2.6 Type: PktDistributionData

Table 6.1.6.2.6-1: Definition of type PktDistributionData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pktDistributionOperatingMode | PktDistributionOperatingMode | M | 1 | Operating Mode for the Packet distribution method |  |
| pktIngestMethod | PktIngestMethod | C | 1 | Indicates whether packets are ingested using multicast or unicast ingest. It shall be present if operating mode of the packet distribution method is set to "PACKET\_PROXY". |  |
| mbStfIngestAddr | MbStfIngestAddr | M | 1 | The endpoint addresses used by the MBS Application Provider and MBSTF to establish a connection at reference point Nmb8 prior to the commencement of MBS User Data Ingest Session. |  |

##### 6.1.6.2.7 Type: StatusSubscribeReqData

Table 6.1.6.2.7-1: Definition of type StatusSubscribeReqData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscription | DistSessionSubscription | M | 1 | Subscription to be created |  |

##### 6.1.6.2.8 Type: StatusSubscribeRspData

Table 6.1.6.2.8-1: Definition of type StatusSubscribeReqData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscription | DistSessionSubscription | M | 1 | Subscription created |  |
| reportList | DistSessionEventReportList | C | 0..1 | Immediate event reports, if requested in the request and if corresponding information is available. |  |

##### 6.1.6.2.9 Type: StatusNotifyReqData

Table 6.1.6.2.9-1: Definition of type StatusSubscribeReqData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| reportList | DistSessionEventReportList | M | 1 | Reported MBS session events |  |

##### 6.1.6.2.10 Type: DistSessionSubscription

Table 6.1.6.2.10-1: Definition of type DistSessionSubscription

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| eventList | array(DistSessionEventType) | M | 1..N | List of MBS distribution session events subscribed |
| notifyUri | Uri | M | 1 | URI where the NF service consumer requests to receive notifications.  Write-Only: true |
| notifyCorrelationId | string | O | 0..1 | Notification Correlation ID  Write-Only: true |
| expiryTime | DateTime | O | 0..1 | When present in the subscription creation request, it shall indicate the time up to which the subscription is desired to be kept active and after which the subscribed events shall stop generating notifications.  When present in a subscription response, it shall indicate the expiry time after which the subscription becomes invalid. |
| nfcInstanceId | NfInstanceId | C | 0..1 | NF Instance ID of the NF Service Consumer  This IE shall be present if available.  Write-Only: true |
| distSessionSubscUri | Uri | C | 0..1 | This IE shall be present in the response to an MBS distribution session creation request that includes a subscription to events about the MBS session and the subscription was created successfully. When present, it shall contain the URI of the individual subscription resource.  Read-Only: true  (NOTE) |
| NOTE: When an MBS distribution session status subscription is created separately (i.e. after) an MBS distribution session creation, the Location header returned in the MBS distribution session status subscription creation response contains the URI of the created subscription. | | | | |

##### 6.1.6.2.11 Type: DistSessionEventReportList

Table 6.1.6.2.11-1: Definition of type DistSessionEventReportList

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eventReportList | array(DistSessionEventReport) | M | 1..N | List of MBS distribution session events to report |  |
| notifyCorrelationId | string | C | 0..1 | Notification Correlation ID.  This IE shall be present if a Notification Correlation ID is available in the subscription. |  |

##### 6.1.6.2.12 Type: DistSessionEventReport

Table 6.1.6.2.12-1: Definition of type DistSessionEventReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eventType | DistSessionEventType | M | 1 | MBS distribution session event type |  |
| timeStamp | DateTime | C | 0..1 | This IE shall contain the time at which the event is generated. This IE should be present, if available. |  |

##### 6.1.6.2.13 Type: UpTrafficFlowInfo

Table 6.1.6.2.13-1: Definition of type UpTrafficFlowInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| destIpAddr | IpAddr | M | 1 | Multicast group destination Address |  |
| portNumber | Uinteger | M | 1 | Port Number |  |

##### 6.1.6.2.14 Type: MbStfIngestAddr

Table 6.1.6.2.14-1: Definition of type MbStfIngestAddr

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| afEgressTunAddr | TunnelAddress | C | 0..1 | AF side endpoint address and port for establishment of unicast tunnel at reference point Nmb8 prior to the commencement of MBS User Data Ingest Session.  The MBSTF shall use this information to validate the source IP address and port of incoming packets pertaining to the MBS User Data Ingest Session from the MBS Application Provider.  This IE shall be included if the packet distribution method is used and when the operating mode is set to "PACKET\_FORWARD\_ONLY", or when the operating mode is set to "PACKET\_PROXY" while the packet ingest method is set to "UNICAST".  This shall be present only in the Create request over the Nmb2, Nmb10 and Nmb5 interfaces.  Write-Only: true |  |
| mbStfIngressTunAddr | TunnelAddress | C | 0..1 | MBSTF side endpoint address and port for establishment of unicast tunnel at reference point Nmb8 prior to the commencement of MBS User Data Ingest Session.  It is applicable only if operating mode of the packet distribution method is set to "PACKET\_FORWARD\_ONLY".  This shall be present only in either the response to the Create (or Retrieve) request over the Nmb2, Nmb10 and Nmb5 interfaces, or a notification request over the Nmb10 and Nmb5 interfaces.  Read-Only: true |  |
| afSsm | ExtSsm | C | 0..1 | AF side Source specific multicast address and port to which MBSTF issues an IGMP Join to ingest multicast UDP/IP datagrams.  It is applicable only if operating mode of the packet distribution method is set to "PACKET\_PROXY" and packet ingest method is set to "MULTICAST".  This shall be present only in the Create request over the Nmb2, Nmb10 and Nmb5 interfaces.  Write-Only: true |  |
| mbStfListenAddr | TunnelAddress | C | 0..1 | MBSTF side endpoint address and port for to receive unicast-addressed UDP/IP datagrams.  It is applicable only if operating mode of the packet distribution method is set to "PACKET\_PROXY" and packet ingest method is set to "UNICAST".  This shall be present only in the response to the Create (or Retrieve) request over the Nmb2, Nmb10 and Nmb5 interfaces, or a notification request over the Nmb10 and Nmb5 interfaces.  Read-Only: true |  |

##### 6.1.6.2.15 Type: ExtSsm

Table 6.1.6.2.15-1: Definition of type ExtSsm

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| ssm | Ssm | M | 1 | Source Specific Multicast Address consisting of multicast source IP address and the destination multicast address |  |
| portNumber | Uinteger | M | 1 | Source Port |  |

#### 6.1.6.3 Simple data types and enumerations

##### 6.1.6.3.1 Introduction

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

##### 6.1.6.3.2 Simple data types

None

##### 6.1.6.3.3 Enumeration: DistSessionState

The enumeration DistSessionState represents the current state of the MBS Distribution Session. It shall comply with the values defined in table 6.1.6.3.3-1.

Table 6.1.6.3.3-1: Enumeration DistSessionState

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "INACTIVE" | Distribution Session in Inactive |  |
| "ESTABLISHED" | Distribution Session in Established |  |
| "ACTIVE" | Distribution Session in Active |  |
| "DEACTIVATING" | Distribution Session in Released |  |

##### 6.1.6.3.4 Enumeration: ObjDistributionOperatingMode

The enumeration ObjDistributionOperatingMode defines the mode of data ingestion for Object distribution method. It shall comply with the values defined in table 6.1.6.3.4-1.

Table 6.1.6.3.4-1: Enumeration ObjDistributionOperatingMode

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "SINGLE" | Each object ingested by the MBSTF is distributed once |  |
| "COLLECTION" | A set of objects described by a manifest is ingested by the MBSTF and distributed once |  |
| "CAROUSEL" | A set of one or more objects described by a manifest is ingested by the MBSTF and distributed according to a repetition pattern specified in the manifest |  |
| "STREAMING" | A sequence of objects is ingested by the MBSTF and streamed in real time |  |

##### 6.1.6.3.5 Enumeration: ObjAcquisitionMethod

The enumeration ObjAcquisitionMethod indicates whether the objects(s) are to be pushed into the MBSTF by the MBS Application Provider or whether they are to be pulled from the MBS Application Provider by the MBSTF. It shall comply with the values defined in table 6.1.6.3.5-1.

Table 6.1.6.3.5-1: Enumeration ObjAcquisitionMethod

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "PULL" | MBSTF Pulls objects from AF/AS |  |
| "PUSH" | AF/AS Pushes objects into MBSTF |  |

##### 6.1.6.3.6 Enumeration: PktDistributionOperatingMode

The enumeration PktDistributionOperatingMode defines the mode of data ingestion for Packet distribution method. It shall comply with the values defined in table 6.1.6.3.6-1.

Table 6.1.6.3.6-1: Enumeration PktDistributionOperatingMode

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "PACKET\_PROXY" | The payloads of UDP packets ingested by the MBSTF are forwarded to the MB-UPF in new UDP packets (Layer 4 proxying) |  |
| "PACKET\_FORWARD\_ONLY" | The payloads of IP packets ingested by the MBSTF are forwarded to the MB-UPF in new IP packets (Layer 3 proxying) |  |

##### 6.1.6.3.7 Enumeration: DistSessionEventType

The enumeration DistSessionEventType defines the status of the MBS distribution session that NF consumer wants to subscribe to. It shall comply with the values defined in table 6.1.6.3.7-1.

Table 6.1.6.3.7-1: Enumeration DistSessionEventType

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "DATA\_INGEST\_FAILURE" | MBSTF failed to ingest data from AF/AS |  |
| "SESSION\_DEACTIVATED" | Session released in MBSTF |  |
| "SESSION\_ACTIVATED" | Delivery started towards MB-UPF |  |
| "SERVICE\_MANAGEMENT\_FAILURE" | MBS distribution session failed to start |  |
| "DATA\_INGEST\_SESSION\_ESTABLISHED" | MBSTF successfully established the User Data Ingest Session corresponding to the distribution session. |  |
| "DATA\_INGEST\_SESSION\_TERMINATED" | MBSTF stopped the User Data Ingest Session corresponding to the distribution session at the end of the current active period. |  |

##### 6.1.6.3.8 Enumeration: PktIngestMethod

The enumeration PktIngestMethod defines the mode of data ingestion for Packet distribution method. It shall comply with the values defined in table 6.1.6.3.8-1.

Table 6.1.6.3.8-1: Enumeration PktIngestMethod

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "MULTICAST" | Multicast Ingest Mode |  |
| "UNICAST" | Unicast Ingest Mode |  |

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

None

#### 6.1.6.5 Binary data

None

### 6.1.7 Error Handling

#### 6.1.7.1 General

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

In addition, the requirements in the following clauses are applicable for the Nmbstf-distsession API.

#### 6.1.7.2 Protocol Errors

No specific procedures for the Nmbstf-distsession service are specified.

#### 6.1.7.3 Application Errors

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

Table 6.1.7.3-1: Application errors

|  |  |  |
| --- | --- | --- |
| Application Error | HTTP status code | Description |
|  |  |  |

### 6.1.8 Feature negotiation

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

Table 6.1.8-1: Supported Features

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

### 6.1.9 Security

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

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

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

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

### 6.1.10 HTTP redirection

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

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

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

Annex A (normative):  
OpenAPI specification

# A.1 General

This Annex specifies the formal definition of the API(s) defined in the present specification. It consists of OpenAPI specifications in YAML format.

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

NOTE 1: The semantics and procedures, as well as conditions, e.g. for the applicability and allowed combinations of attributes or values, not expressed in the OpenAPI definitions but defined in other parts of the specification also apply.

Informative copies of the OpenAPI specification files contained in this 3GPP Technical Specification are available on a Git-based repository that uses the GitLab software version control system (see 3GPP TS 29.501 [5] clause 5.3.1 and 3GPP TR 21.900 [7] clause 5B).

# A.2 Nmbstf\_DistSession API

openapi: 3.0.0

info:

title: Nmbstf-distsession

version: 1.1.0-alpha.1

description: |

MBSTF Distribution Session Service.

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externalDocs:

description: 3GPP TS 29.581 V18.3.0; 5G System; MBSDistribution Service.

url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.581/

servers:

- url: '{apiRoot}/nmbstf-distsession/v1'

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials:

- nmbstf-distsession

paths:

/dist-sessions:

post:

summary: Create

tags:

- MBS distribution sessions collection

operationId: Create

requestBody:

description: >

Representation of the MBS distribution session to be created in the MBSTF

Creates an individual MBS distribution session resource in the MBSTF.

required: true

content:

application/json:

schema:

$ref: '#/components/schemas/CreateReqData'

responses:

'201':

description: >

Successful creation of an MBS session

content:

application/json:

schema:

$ref: '#/components/schemas/CreateRspData'

headers:

Location:

description: >

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

{apiRoot}/nmbstf-distsession/<apiVersion>/dist-sessions/{distSessionRef}'

required: true

schema:

type: string

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

/dist-sessions/{distSessionRef}:

patch:

summary: Updates an individual MBS distribution session resource in the MBSTF.

tags:

- Individual MBS distribution session

operationId: Update

parameters:

- name: distSessionRef

in: path

required: true

description: Unique ID of the MBS distribution session

schema:

type: string

requestBody:

description: Data within the Update Request

required: true

content:

application/json-patch+json:

schema:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/PatchItem'

minItems: 1

responses:

'204':

description: >

Successful modification of the MBS distribution session without content in the response.

'200':

description: >

Successful response containing the updated representation of Distribution Session.

content:

application/json:

schema:

$ref: '#/components/schemas/DistSession'

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

delete:

summary: Deletes an individual MBS distribution session resource in the MBSTF.

tags:

- Individual MBS distribution session

operationId: Destroy

parameters:

- name: distSessionRef

in: path

required: true

description: Unique ID of the MBS distribution session

schema:

type: string

responses:

'204':

description: >

Successful release of the MBS distribution session without content in the response.

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

get:

summary: Retrieves an individual MBS distribution session resource in the MBSTF.

tags:

- Individual MBS distribution session

operationId: Retrieve

parameters:

- name: distSessionRef

in: path

required: true

description: Unique ID of the MBS distribution session

schema:

type: string

responses:

'200':

description: successful retrieval of MBS distribution session parameters

content:

application/json:

schema:

$ref: '#/components/schemas/DistSession'

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

/dist-sessions/{distSessionRef}/subscriptions:

post:

summary: StatusSubscribe creating a subscription

tags:

- Subscriptions collection for MBS distribution session

operationId: StatusSubscribe

parameters:

- name: distSessionRef

in: path

required: true

description: Unique ID of the MBS distribution session

schema:

type: string

requestBody:

description: Data within the StatusSubscribe Request

required: true

content:

application/json:

schema:

$ref: '#/components/schemas/StatusSubscribeReqData'

responses:

'201':

description: Data within a successful StatusSubscribe Response

content:

application/json:

schema:

$ref: '#/components/schemas/StatusSubscribeRspData'

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

callbacks:

statusNotification:

'{$request.body#/notifUri}':

post:

parameters:

- name: Content-Encoding

in: header

description: Content-Encoding, described in IETF RFC 9110

schema:

type: string

requestBody:

description: Notification Payload

content:

application/json:

schema:

$ref: '#/components/schemas/StatusNotifyReqData'

responses:

'204':

description: Expected response to a successful callback processing

headers:

Accept-Encoding:

description: Accept-Encoding, described in IETF RFC 9110

schema:

type: string

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'501':

$ref: 'TS29571\_CommonData.yaml#/components/responses/501'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

/dist-sessions/{distSessionRef}/subscriptions/{subscriptionId}:

delete:

summary: StatusUnSubscribe to unsubscribe from the Status Subscription

tags:

- Individual Subscription for an MBS session

operationId: StatusUnSubscribe

parameters:

- name: subscriptionId

in: path

required: true

description: Unique ID of the subscription

schema:

type: string

- name: distSessionRef

in: path

required: true

description: Unique ID of the MBS distribution session

schema:

type: string

responses:

'204':

description: Successful deletion of the subscription

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

patch:

summary: StatusSubscribe to modify (update or renew) an individual subscription

tags:

- Individual Subscription for an MBS distribution session

operationId: StatusSubscribeMod

parameters:

- name: subscriptionId

in: path

required: true

description: Unique ID of the individual subscription to be modified

schema:

type: string

- name: distSessionRef

in: path

required: true

description: Unique ID of the MBS distribution session

schema:

type: string

requestBody:

description: Data to be modified in the DistSessionSubscription

required: true

content:

application/json-patch+json:

schema:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/PatchItem'

minItems: 1

responses:

'200':

description: Successful modification of the individual Status Subscription

content:

application/json:

schema:

$ref: '#/components/schemas/DistSessionSubscription'

'307':

$ref: 'TS29571\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29571\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'502':

$ref: 'TS29571\_CommonData.yaml#/components/responses/502'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{nrfApiRoot}/oauth2/token'

scopes:

nmbstf-distsession: Access to the nmbstf-distsession API

schemas:

#

# STRUCTURED DATA TYPES

#

CreateReqData:

description: Data within Create Request

type: object

properties:

distSession:

$ref: '#/components/schemas/DistSession'

required:

- distSession

CreateRspData:

description: Data within Create Response

type: object

properties:

distSession:

$ref: '#/components/schemas/DistSession'

required:

- distSession

DistSession:

description: Mbs Distribution Session Information

type: object

properties:

distSessionId:

type: string

distSessionState:

$ref: '#/components/schemas/DistSessionState'

mbUpfTunAddr:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/TunnelAddress'

mbmsGwTunAddr:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/TunnelAddress'

upTrafficFlowInfo:

writeOnly: true

allOf:

- $ref: '#/components/schemas/UpTrafficFlowInfo'

mbr:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

maxDelay:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketDelBudget'

objDistributionData:

$ref: '#/components/schemas/ObjDistributionData'

pktDistributionData:

$ref: '#/components/schemas/PktDistributionData'

fecInformation:

$ref: 'TS29580\_Nmbsf\_MBSUserDataIngestSession.yaml#/components/schemas/FECConfig'

dscpMarking:

type: string

writeOnly: true

required:

- distSessionId

- distSessionState

- mbUpfTunAddr

- mbr

oneOf:

- required: [ objDistributionData ]

- required: [ pktDistributionData ]

ObjDistributionData:

description: Info for Object Distribution Method

type: object

properties:

objDistributionOperatingMode:

$ref: '#/components/schemas/ObjDistributionOperatingMode'

objAcquisitionMethod:

$ref: '#/components/schemas/ObjAcquisitionMethod'

objAcquisitionIdsPull:

type: array

items:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

minItems: 1

objAcquisitionIdPush:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

objIngestBaseUrl:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

objDistributionBaseUrl:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

required:

- objDistributionOperatingMode

- objAcquisitionMethod

not:

required: [ objAcquisitionIdsPull, objAcquisitionIdPush ]

PktDistributionData:

description: Info for Packet Distribution Method

type: object

properties:

pktDistributionOperatingMode:

$ref: '#/components/schemas/PktDistributionOperatingMode'

pktIngestMethod:

$ref: '#/components/schemas/PktIngestMethod'

mbStfIngestAddr:

$ref: '#/components/schemas/MbStfIngestAddr'

required:

- pktDistributionOperatingMode

- mbStfIngestAddr

StatusSubscribeReqData:

description: Data within the StatusSubscribe Request

type: object

properties:

subscription:

$ref: '#/components/schemas/DistSessionSubscription'

required:

- subscription

StatusSubscribeRspData:

description: Data within StatusSubscribe Response

type: object

properties:

subscription:

$ref: '#/components/schemas/DistSessionSubscription'

reportList:

$ref: '#/components/schemas/DistSessionEventReportList'

required:

- subscription

StatusNotifyReqData:

description: Status Notification

type: object

properties:

reportList:

$ref: '#/components/schemas/DistSessionEventReportList'

required:

- reportList

DistSessionSubscription:

description: Data within the Status Subscription

type: object

properties:

nfcInstanceId:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

eventList:

type: array

items:

$ref: '#/components/schemas/DistSessionEventType'

minItems: 1

notifyUri:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

notifyCorrelationId:

type: string

writeOnly: true

expiryTime:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

distSessionSubscUri:

readOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

required:

- eventList

- notifyUri

DistSessionEventReportList:

description: List of Event Reports

type: object

properties:

eventReportList:

type: array

items:

$ref: '#/components/schemas/DistSessionEventReport'

minItems: 1

notifyCorrelationId:

type: string

required:

- eventReportList

DistSessionEventReport:

description: Data related to a specific event

type: object

properties:

eventType:

$ref: '#/components/schemas/DistSessionEventType'

timeStamp:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

required:

- eventType

UpTrafficFlowInfo:

description: IP Multicast Address and Port Number

type: object

properties:

destIpAddr:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/IpAddr'

portNumber:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

required:

- destIpAddr

- portNumber

MbStfIngestAddr:

description: MBSTF Ingest Addresses

type: object

properties:

afEgressTunAddr:

writeOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/TunnelAddress'

mbStfIngressTunAddr:

readOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/TunnelAddress'

afSsm:

writeOnly: true

allOf:

- $ref: '#/components/schemas/ExtSsm'

mbStfListenAddr:

readOnly: true

allOf:

- $ref: 'TS29571\_CommonData.yaml#/components/schemas/TunnelAddress'

ExtSsm:

description: SSM and Port Number

type: object

properties:

ssm:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ssm'

portNumber:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

required:

- ssm

- portNumber

#

# SIMPLE DATA TYPES

#

#

# ENUMERATIONS

#

DistSessionState:

description: Current State of MBS distribution session

anyOf:

- type: string

enum:

- INACTIVE

- ESTABLISHED

- ACTIVE

- DEACTIVATING

- type: string

ObjDistributionOperatingMode:

description: Mode of data ingestion for Object distribution method

anyOf:

- type: string

enum:

- SINGLE

- COLLECTION

- CAROUSEL

- STREAMING

- type: string

ObjAcquisitionMethod:

description: Object Acquisition Method

anyOf:

- type: string

enum:

- PULL

- PUSH

- type: string

PktDistributionOperatingMode:

description: Mode of data ingestion for Packet distribution method

anyOf:

- type: string

enum:

- PACKET\_PROXY

- PACKET\_FORWARD\_ONLY

- type: string

DistSessionEventType:

description: Status Event Type

anyOf:

- type: string

enum:

- DATA\_INGEST\_FAILURE

- SESSION\_DEACTIVATED

- SESSION\_ACTIVATED

- SERVICE\_MANAGEMENT\_FAILURE

- DATA\_INGEST\_SESSION\_ESTABLISHED

- DATA\_INGEST\_SESSION\_TERMINATED

- type: string

PktIngestMethod:

description: Packet Ingest Method

anyOf:

- type: string

enum:

- MULTICAST

- UNICAST

- type: string

Annex B (informative):  
Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2022-03 | CT4 #109e | C4-222344 |  |  |  | Implementation of following pCRs: C4-222320, C4-222321, C4-222322, C4-222323, C4-222324, C4-222325, C4-222326 | 0.1.0 |
| 2022-05 | CT4 #110e | C4-223453 |  |  |  | Implementation of following pCRs: C4-223027, C4-223044, C4-223047, C4-223325, C4-223326, C4-223330, C4-223423, C4-223511 | 0.2.0 |
| 2022-06 | CT#96 | CP-221081 |  |  |  | TS presented for information and approval | 1.0.0 |
| 2022-06 | CT#96 | CP-221081 |  |  |  | TS approved at CT#96 | 17.0.0 |
| 2022-09 | CT#97e | CP-222031 | 0003 |  | F | Corrections to MBS Distribution Session parameters | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0004 |  | F | Updates to Operating Mode Descriptions | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0005 |  | F | Editor's Note on Security Requirements | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0006 | 1 | F | Description of notification events in Nmbstf\_DistSession | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0007 |  | F | Clarification on the use of afEgressTunAddr | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0008 |  | F | Align terminology of operating mode PACKET\_PROXY and PACKET\_FORWARD\_ONLY | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0009 |  | D | Editorial errors for the headings | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0010 |  | F | Corrections for the StatusSubscribe service operation | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0011 |  | F | Corrections for the Nmbstf\_DistSession API | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0012 | 1 | F | Clarification for the attributes in the data type distSession | 17.1.0 |
| 2022-09 | CT#97e | CP-222031 | 0013 | 1 | F | Miscellaneous updates and corrections to the data model of the Nmbstf\_DistSession API | 17.1.0 |
| 2022-09 | CT#97e | CP-222058 | 0014 |  | F | 29.581 Rel-17 API version and External doc update | 17.1.0 |
| 2022-12 | CT#98 | CP-223036 | 0017 |  | F | Clarification on Object Distribution Method | 17.2.0 |
| 2022-12 | CT#98 | CP-223036 | 0018 |  | F | Miscellaneous corrections | 17.2.0 |
| 2022-12 | CT#98 | CP-223097 | 0015 | 2 | F | Add mbmsGwTunAddr attibute in DistSession data type | 17.2.0 |
| 2022-12 | CT#98 | CP-223036 | 0016 | 1 | F | Corrections on data type of the user plane traffice flow information | 17.2.0 |
| 2022-12 | CT#98 | CP-223066 | 0020 |  | F | 29.581 Rel-17 API version and External doc update | 17.2.0 |
| 2023-03 | CT#99 | CP-230077 | 0021 |  | F | Correct datatype and add event to DistSessionEvent | 17.3.0 |
| 2023-03 | CT#99 | CP-230077 | 0023 |  | F | Datatype ObjDistributionData correction | 17.3.0 |
| 2023-03 | CT#99 | CP-230077 | 0025 | 1 | F | Essential corrections to the MBSTF APIs | 17.3.0 |
| 2023-03 | CT#99 | CP-230089 | 0027 |  | F | 29.581 Rel-17 API version and External doc update | 17.3.0 |
| 2023-03 | CT#99 | CP-230036 | 0022 | 1 | B | Support of group message delivery | 18.0.0 |
| 2023-06 | CT#100 | CP-231027 | 0024 | 4 | F | Location header and missing Redirection clause | 18.1.0 |
| 2023-06 | CT#100 | CP-231038 | 0029 | 1 | A | Remove objRepairBaseUrl from OpenAPI | 18.1.0 |
| 2023-06 | CT#100 | CP-231070 | 0032 |  | F | 29.581 Rel-18 API version and External doc update | 18.1.0 |
| 2023-09 | CT#101 | CP-232064 | 0037 | 1 | F | Correct the object acquisition identifier | 18.2.0 |
| 2023-12 | CT#102 | CP-233056 | 0041 | 1 | F | Additional Notification Events | 18.3.0 |
| 2023-12 | CT#102 | CP-233027 | 0044 |  | F | HTTP RFCs obsoleted by IETF RFC 9113/9110 | 18.3.0 |
| 2023-12 | CT#102 | CP-233063 | 0043 |  | F | Remove security key exchange between MBSF and MBSTF | 18.3.0 |
| 2023-12 | CT#102 | CP-233060 | 0045 |  | F | 29.581 Rel-18 API version and External doc update | 18.3.0 |