**3GPP TSG- S4 Meeting #116e *S4-211520***

**Electronic Meeting, 10th November – 19th November 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.502** | **CR** | **<CR#>** | **Rev** | **<Rev#>** | **Current version:** | **<Version#>** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | [5MBUSA] Clause 8: Network Function Services | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson LM | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBUSA | | | | |  | ***Date:*** | | | <Res\_date> |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **<Cat>** |  | | | | | ***Release:*** | | | <Release> |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The intention of this document is to start defining the MBSF and MBSTF Service APIs (Nmbsf and Nnmb2). It is assumed that the text needs to evolve over multiple conference calls. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\*\* First Change \*\*\*\*

# 8 Network Function Services

## 8.1 General

The Network Function Services exposed by the MBSF and the MBSTF are defined in this clause.

Editor’s Note: This text assumes the re-use of an xMB-C profile for the Nmbsf API.

## 8.2 MBSF Services

### 8.2.1 General

The following table illustrates the set of NF services exposed by the MBSF.

Table 8.2-1: NF services provided by MBSF

|  |  |  |  |
| --- | --- | --- | --- |
| Service name | Service operation name | Operation semantics | Example consumer(s) |
| **Nmbsf\_MBSService** | Create | Request/Response | AF, NEF |
| Retrieve | Request/Response | AF, NEF |
| Update | Request/Response | AF, NEF |
| Destroy | Request/Response | AF, NEF |
| **Nmbsf\_MBSSession** | Create | Request/Response | AF, NEF |
| Retrieve | Request/Response | AF, NEF |
| Update | Request/Response | AF, NEF |
| Destroy | Request/Response | AF, NEF |
| StatusSubscribe | Subscribe/Notify | AF, NEF |
| StatusUnsubscribe | AF, NEF |
| StatusNotify | AF, NEF |

Editor’s Note: Service exposure to AF is FFS.

### 8.2.2 Nmbsf MBS Service operations

#### 8.2.2.1 Nmbsf\_MBSService\_Create service operation

**Service operation name:** Nmbsf\_MBSService\_Create

**Description:** Provision a new Multicast MBS Session or Broadcast MBS Session .

**Input, Required:** MBS Service ID.

**Input, Optional:** Service Name, service language, description, service type, Receive-Only Mode, Service Announcement mode, MBS service area, maximum bit rate, Consumption Reporting Configuration.

**Output, Required:** Result indication.

**Output, Optional:** Cause, service properties, Service Announcement fetch URL.

#### 8.2.2.2 Nmbsmf\_MBSService\_Retrieve service operation

**Service operation name:** Nmbsf\_MBSService\_Retrieve

**Description:** Used by the NF/NEF to retrieve the properties of the MBS Service.

**Input, Required:** None

**Input, Optional:** MBS Service ID.

**Output, Required:** Result indication.

**Output, Optional:** Cause, properties of the MBS service(s)

#### 8.2.2.3 Nmbsf\_MBSService\_Update service operation

**Service operation name:** Nmbsf\_MBSService\_Update

**Description:** Update the established MBS Service properties.

**Input, Required:** MBS Service ID.

**Input, Optional:** Service properties.

**Output, Required:** Result indication.

**Output, Optional:** Cause.

#### 8.2.2.4 Nmbsf\_MBSService\_Destroy service operation

**Service operation name:** Nmbsf\_MBSService\_Destroy

**Description:** Release the resources of the associatedMBS Service.

**Input, Required:** MBS Service ID.

**Input, Optional:** None.

**Output, Required:** Result indication.

**Output, Optional:** Cause.

### 8.2.3 Nmbsf MBS Session operation

#### 8.2.3.1 Nmbsf\_MBSSession\_Create service operation

**Service operation name:** Nmbsf\_MBSSession\_Create

**Description:** Create a new multicast session or broadcast session during MBS service configuration. Optionally subscribe to notifications for this MBS session.

**Input, Required:** MBS Service ID, MBS Session ID

**Input, Optional:** session start time, session stop time, MBS service area, maximum bit rate, max delay, Distribution Method, object delivery session, files, application session, packet delivery proxy mode session, packet distribution forward-only mode session, GC session.

**Output, Required:** Result indication.

**Output, Optional:** Cause, webdavUrl for push mode in object distribution session, webdavUrl for push mode in application session, MBSTF IP address for packet distribution method.

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#### 8.2.2.3 Nmbsf\_MBSSession\_Update service operation

**Service operation name:** Nmbsf\_MBSSession\_Update

**Description:** Update the established multicast session or broadcast session, e.g. prolong the MBS session duration, change files, change the MBS service area.

**Input, Required:** MBS Service ID, MBS Session ID.

**Input, Optional:** Session properties.

**Output, Required:** Result indication.

**Output, Optional:** Cause.

#### 8.2.2.4 Nmbsf\_MBSSession\_Destroy service operation

**Service operation name:** Nmbsf\_MBSSession\_Destroy

**Description:** Release the multicast session or broadcast session.

**Input, Required:** MBS Service ID, MBS Session ID.

**Input, Optional:** None.

**Output, Required:** Result indication.

**Output, Optional:** Cause.

#### 8.2.2.5 Nmbsf\_MBSSession\_StatusSubscribe operation

The Service Operation is used by AF/NEF to subscribe to a status(s) of one service, session, and/or files.

**Service operation name:** Nmbsf\_MBSSession StatusSubscribe

**Description:** Invoked by AF/NEF on the MBSF, when it needs to create a subscription to monitor at least one event relevant to the service, session and/or file(s). The AF may subscribe to multiple events in a subscription.

**Input, Required:** MBS Service ID, Event ID(s), notification target address.

**Input, Optional:** MBS Session ID.

**Output, Required:** When the subscription is accepted: Subscription correlation ID.

#### 8.2.2.6 Nmbsf\_MBSSession\_StatusUnsubscribe operation

The Unsubscribe service operation is invoked by MBSF, towards the MBSTF, to remove an existing subscription previously created by itself at the MBSTF.

**Service operation name:** Nmbsf\_MBSSession StatusUnsubscribe.

**Description:** The Unsubscribe service operation is to remove an existing subscription.

**Input, Required:** Subscription correlation ID.

**Output, Required:** Result Indication.

#### 8.2.2.7 Nmbsf\_MBSSession\_StatusNotify operation

The Notify service operation is invoked by the MBSTF, to send an event notification, towards the notification URI, when certain event included in the subscription has taken place.

**Service operation name:** Nmbsf\_MBSSession\_StatusNotify

**Description:** This service operation is used by the MBSTF to notify MBSF about the status change of the session or the status of the file.

**Input, Required:** MBS Service ID, Event ID(s).

**Input, Optional:** MBS Session ID, fileUrl, Status information.

**Output, Required:** Result Indication.

## 8.3 MBSTF Services

### 8.3.1 General

The following table illustrates the set of NF services exposed by the MBSTF.

Table 8.3-1: NF services provided by MBSTF

|  |  |  |  |
| --- | --- | --- | --- |
| Service name | Service operation name | Operation semantics | Example consumer(s) |
| **Nmbstf\_MBSSession** | Create | Request/Response | MBSF |
| Retrieve | Request/Response | MBSF |
| Update | Request/Response | MBSF |
| Destroy | Request/Response | MBSF |
| StatusSubscribe | Subscribe/Notify | MBSF |
| StatusUnsubscribe | MBSF |
| StatusNotify | MBSF |

### 8.3.2 Nmbstf\_MBSSession service

#### 8.3.2.1 Nmbstf\_MBSSession\_Create service operation

**Service operation name:** Nmbstf\_MBSSession\_Create

**Description:** Create a new multicast session or broadcast session during MBS session configuration.

**Input, Required:** MBS Session ID.

**Input, Optional:** MBS activation time, MBS termination time, QoS flow information, Bandwidth, unicast Address of MB-UPF, TSI if object delivery object is used, IP multicast address is sourced by MBSTF.

**Output, Required:** Result indication.

**Output, Optional:** Cause, Sourcing of IP Multicast if multicast is used.

#### 8.3.2.4 Nmbstf\_MBSSession\_Retrieve service operation

**Service operation name:** Nmbstf\_MBSSession\_Retrieve

**Description:** Retrieve an existing MBS Session.

**Input, Required:** None.

**Input, Required:** MBS Session ID.

**Output, Required:** Result indication.

**Output, Optional:** Cause, the properties of MBS session(s).

#### 8.3.2.2 Nmbstf\_MBSSession\_Update service operation

**Service operation name:** Nmbstf\_MBSSession\_Update

**Description:** Update an existing MBS Session, for example to change the session stop time, object delivery session, application session, packets delivery session, files, and ancillary information.

**Input, Required:** MBS Session ID.

**Input, Optional:** MBS termination time, unicast Address of MB-UPF list, object delivery session, application session, packets delivery session, ancillary info of the session.

**Output, Required:** Result indication.

**Output, Optional:** Cause, additional info (input parameters)

#### 8.3.2.3 Nmbstf\_MBSSession\_Destroy service operation

**Service operation name:** Nmbstf\_MBSSession\_Update

**Description:** delete a multicast session or broadcast session during MBS session configuration

**Input, Required:** MBS Session ID.

**Output, Required:** Result indication.

**Output, Optional:** Cause.

#### 8.3.2.5 Nmbstf\_MBSSession\_StatusSubscribe operation

The Status Subscription Operation is used by the MBSF to subscribe to a status(s) of one session, and/or files.

**Service operation name:** Nmbstf\_MBSSession\_StatusSubscribe

**Description:** The Subscribe service operation is invoked by MBSF, towards the MBSTF, when it needs to create a subscription to monitor at least one event relevant to the delivery session and/or file(s). The MBSF may subscribe to multiple events in a subscription.

**Input, Required:** MBS Session ID, Event ID(s), notification target address.

**Output, Required:** When the subscription is accepted: Subscription correlation ID.

#### 8.3.2.6 Nmbstf\_MBSSession\_StatusUnsubscribe operation

The Unsubscribe service operation is invoked by the MBSF, towards the MBSTF, to remove an existing subscription previously created by itself at the MBSTF.

**Service operation name:** Nmbstf\_MBSSession\_StatusUnsubscribe

**Description:** The Unsubscribe service operation is to remove an existing subscription.

**Input, Required:** Subscription correlation ID.

**Output, Required:** Result indication.

#### 8.3.2.7 Nmbstf\_MBSSession\_StatusNotify operation

The Notify service operation is invoked by the MBSTF to send an event notification towards the notification URI when an event included in the subscription has occurred.

**Service operation name:** Nmbstf\_MBSSession\_StatusNotify

**Description:** This service operation is used by the MBSTF to notify MBSF about the status change of the session or the status of the file.

**Input, Required:** MBS Session ID, Event ID(s).

**Input, Optional:** Status information.

**Output, Required:** Result indication.

\*\*\*\* Last Change \*\*\*\*