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| 3GPP TS 26.517 V0.1.0 (2022-02) | |
| Technical Specification | |
| 3rd Generation Partnership Project;  Technical Specification Group SA;  5G Multicast–Broadcast User Services;  Protocols and Formats  (Release 17) | |
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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 defines protocols and formats for User Services as defined in TS 26.502 [6] and conveyed using the 5G multicast–broadcast capabilities of the 5G System defined in TS 23.501 [2], TS 23.502 [3] and TS 23.247 [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 (5GS)".

[3] 3GPP TS 23.502: "Procedures for the 5G System (5GS)".

[4] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS); Stage 2".

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

[6] 3GPP TS 26.502: "5G multicast–broadcast services; User Service architecture".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1], TS 23.501 [2], TS 23.502 [3], TS 23.247 [5], TS 26.502 [6] 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].

Editor’s Note: Define any additional terms here.

## 3.2 Symbols

Void.

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1], TS 23.501 [2], TS 23.502 [3], TS 23.247 [4] 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].

MBS Multicast–Broadcast Services

MB‑SMF Multicast–Broadcast Session Management Function

MB‑UPF Multicast–Broadcast User Plane Function

MBSF Multicast–Broadcast Service Function

MBSTF Multicast–Broadcast Service Transport Function

PCF Policy and Charging Function

NEF Network Exposure Function

UE User Equipment

# 4 System overview

# 5 User Service Announcement

Editor’s Note:

* Specify the stage 3 format and protocol for User Service Announcement (between MBSF and MBS Client).
* Agreements per S4-220023
  + Reuse the MBMS User Service Announcement Semantics as is, but
    - Only use the relevant functions identified and required from TS 26.502. At this stage this is:
      * userServiceDescription
      * session Description
      * appService
      * schedule



* Provide a modern Restful APIs and JSON approach.
* Provide a legacy mode reusing and XML-based description

## 5.1 Data model

### 5.1.1 Service types

### 5.1.2 Capabilities

## 5.2 Semantics

### 5.2.1 User Service Description

### 5.2.2 Session Description

### 5.2.3 Application Service

### 5.2.4 Scheduling

## 5.3 Syntax

### 5.3.1 XML-based representation

### 5.3.2 JSON-based representation

## 5.4 Delivery

# 6 Object Delivery Method

Editor’s Note:

* Specify the stage 3 protocols for the MBS distribution methods (between MBSTF and MBS Client) based on existing MBMS delivery methods.
  + Object distribution method, based on or reference to clause 7 of TS 26.346.
* Agreements per S4-220023
* Object delivery Method that includes:
  + Download delivery method, File Delivery as defined in TS 26.346, clause 7.
  + DASH/HLS over MBMS as defined in TS 26.346, clause 5.6 and 5.7.
* For the object delivery method, it is proposed to differentiate two different cases.
  + Non-real-time file delivery including Carouselling
    - Selected properties of this mode include
      * Scheduled delivery
      * File repair
      * Carousel (for example supporting functionalities defined in DSM-CC)
      * Post-delivery reporting
      * File delivery QoS
      * Usage of FEC for file delivery
      * Support of single large file distribution
    - On stage-3 it is expected that we use FLUTE as defined in TS 26.346 with the following proposal:
      * Upgrade to the latest version of ALC, FLUTE and LCT
      * Keep a legacy version
      * Profile/remove any non-used functionalities based on MBMS Download Profile in TS 26.346, Annex L.4
  + Object Streaming addressing DASH/HLS
    - Selected properties of this mode include
      * Timed delivery
      * Object deadline that is relevant for proper application operation.
      * Concurrent metrics reporting
      * Usage of FEC for object delivery
      * Sequence of multiple objects
      * Possibly multiple flows
      * Limited size
      * Partial objects
    - Enhancements are needed beyond the existing FLUTE.
      * Resolve and address object timing model (stage-3).

## 6.1 Session description

## 6.2 Protocols

## 6.3 File delivery

## 6.4 Segment streaming

## 6.5 Object repair

# 7 Packet Delivery Method

Editor’s Note:

* Specify the stage 3 protocols for the MBS distribution methods (between MBSTF and MBS Client) based on existing MBMS delivery methods.
  + Object distribution method, based on or reference to clause 7 of TS 26.346.
* Agreements per S4-220023
  + the relevant delivery aspects of transparent delivery method, group communication delivery method and streaming delivery method as defined in TS 26.346, clause 8B, 8A and 8 respectively.
  + For the packet delivery method, it is proposed to only support the Transparent Delivery Method as defined in clause 8B, both the proxy and the forward-only mode. This includes RTP-based delivery as a special case.
  + The following functions are expected to be included:
    - Packet sequencing.
    - FEC.
    - QoS, bit rates.
    - Multiple flows?
    - Specific protocol support such as RTP/AVP.

## 7.1 Session description

## 7.2 Protocols

Annex <X> (informative):  
Change history

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| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2022-02 | SA4#117-e | S4-200141 |  |  |  | Initial skeleton document. | 0.0.1 |
|  |  |  |  | Revised skeleton document | 0.1.0 |