**3GPP TSG-SA4 Meeting # 121S4-221395**

**Toulouse, Fr, 14. Nov. - 18. Nov. 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **Draft CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.517** | **CR** | **0003** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *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 | **x** | Radio Access Network |  | Core Network | **x** |

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|  | | | | | | | | | | |
| ***Title:*** | [5MBP3] Alignment of User Service Announcement with Stage 2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MB3 | | | | |  | ***Date:*** | | | 11.8.2022 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | During the discussions with CT3 and CT4, a couple of inconsistencies of MBS User Service Announcement between Stage 3 and Stage 2 was detected. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Stage 3 text is clarified and aligned to stage 2 text. The json and xml schemas for Service Announcement are corrected. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Inconsistent Specification | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5, Annex A.1.1, Annex A.1.2, Annext A.2, Annex B.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

# 5 MBS User Service Announcement

## 5.1 Data model

### 5.1.1 General

MBS User Service Announcement is needed in order to advertise MBS User Services in advance of, and potentially during, the MBS User Service Sessions described. MBS User Service Announcement (as defined in clauses 4.5.7 and 4.5.8 of TS 26.502 [3]) is provided by means of MBS User Service Descriptions, which is further defined in this clause. An MBS User Service Description is described by a set of metadata documents that are delivered as described in clause 4.3.2 of TS 26.502 [3].

The data model defined in this specification is further subdivision the parameters from TS 26.502 and grouping the parameters into metadata documents. Each metadata document is divided into *metadata units*. A metadata unit is a single uniquely identifiable block of metadata. The metadata itself describes details of services. An obvious example of a metadata unit would be a single SDP document [8].

The metadata consists of:

- An (mandatory) *MBS User Service Bundle Description* metadata unit (see clause 5.2.2) describing a bundle of one or more MBS User Services, and containing one or more:

- *MBS User Service Description* metadata unit (see clause 5.2.3) describing an MBS User Service Session that is associated with:

- One or more *MBS Distribution Session Description* metadata units (see clause 5.2.4), each of which references a Session Description document [8] that may be packaged with the MBS User Service Bundle Description, and each of which may optionally reference an Object Repair Parameters document (see clause 5.2.7) describing the object repair parameters for the MBS Distribution Session.

- Zero or more *MBS Application Service Description* metadata units (see clause 5.2.5), each of which references an Application Service Entry Point document that may be packaged with the MBS User Service Bundle Description. Additional resources referenced by the entry point document may also be packaged with the MBS User Service Bundle Description.

- Zero or one *MBS Schedule Description* metadata unit (see clause 5.2.6) advertising the delivery schedule for the MBS User Service Session.

Figure 5.1‑1 illustrates the relationships between these metadata units using UML for a single MBS User Service Bundle.



NOTE: “N” means any number in each instance.

Figure 5.1-1: User Service Data Model simple description

An MBS User Service Bundle Description document shall contain one or more instances of the MBS User Service Description metadata unit, each of which describes a single MBS User Service Session within the MBS User Service Bundle.

Each instance of the MBS User Service Description metadata unit shall include at least one *MBS Distribution Service Description* metadata unit describing the set of MBS Distribution Sessions currently associated with the MBS User Service Session.

- The MBS Distribution Session Description metadata unit shall refer to one *Session Description document*.

- Each MBS Distribution Session Description metadata unit may contain a reference to an *Object Repair Parameters document*.

Each instance of the MBS User Service Description metadata unit may include zero or more *MBS Application Service Description* metadata units, each one referencing an Application Service Entry Point document (e.g. a DASH MPD, HLS Master Playlist or HTML document) which describes the root of the Application Service associated with this MBS User Service. When multiple Application Service Entry Point documents are referenced, an MBS Client shall select only one on the basis of a distinct MIME content type indicated in the Application Service Description.

Each instance of the MBS User Service Description metadata unit may include an *MBS Schedule Description* metadata unit. If included, the MBS Schedule Description shall refer to a *Schedule Description document*, and the UE can expect to receive MBS User Service data during the time periods described in the Schedule Description document.

In the case of the Object Distribution Method, the Schedule Description document may include an object transmission schedule for objects associated with the MBS User Service Session. The UE may select which objects to receive based on the object transmission schedule information published in the Schedule Description document.

\*\*\*\* Next Change \*\*\*\*

# A.1 XML-based representation

### A.1.1 MBS User Service Description schema

|  |
| --- |
| <?xml version="1.0" encoding="UTF-8"?>  <xs:schema xmlns="urn:3GPP:metadata:2022:MBS:userServiceDescription" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="urn:3GPP:metadata:2022:MBS:userServiceDescription" elementFormDefault="qualified">  <xs:element name="bundleDescription" type="bundleDescriptionType"/>  <xs:complexType name="bundleDescriptionType">  <xs:sequence>  <xs:element name="userServiceDescription" type="userServiceDescriptionType" maxOccurs="unbounded"/>  <xs:any namespace="##other" minOccurs="0" maxOccurs="unbounded" processContents="lax"/>  </xs:sequence>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  <xs:complexType name="userServiceDescriptionType">  <xs:sequence>  <xs:element name="name" type="nameType" minOccurs="0" maxOccurs="unbounded"/>  <xs:element name="serviceLanguage" type="xs:language" minOccurs="0" maxOccurs="unbounded"/>  <xs:element name="distributionSessionDescription" type="distributionSessionDescriptionType" maxOccurs="unbounded"/>  <xs:element name="appService" type="appServiceDescriptionType" minOccurs="0" maxOccurs="unbounded"/>  <xs:element name="scheduleDescription" type="scheduleDescriptionType" minOccurs="0"/>  <xs:element ref="availabilityInfo" minOccurs="0"/>  <xs:any namespace="##other" minOccurs="0" maxOccurs="unbounded" processContents="lax"/>  </xs:sequence>  <xs:attribute name="serviceId" type="xs:anyURI" use="required"/>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  <xs:complexType name="distributionSessionDescriptionType">  <xs:sequence>  <xs:element ref="mbsAppService" minOccurs="0" maxOccurs="unbounded"/>  <xs:element ref="unicastAppService" minOccurs="0"/>  <xs:any namespace="##other" minOccurs="0" maxOccurs="unbounded" processContents="lax"/>  </xs:sequence>  <xs:attribute name="conformanceProfile" type="xs:anyURI" use="required"/>  <xs:attribute name="sessionDescriptionURI" type="xs:anyURI" use="required"/>  <xs:attribute name="objectRepairParametersURI" type="xs:anyURI" use="optional"/>  <xs:attribute name="dataNetworkName" type="xs:anyURI" use="optional" />  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  <xs:complexType name="nameType">  <xs:simpleContent>  <xs:extension base="xs:string">  <xs:attribute name="lang" type="xs:language" use="optional"/>  </xs:extension>  </xs:simpleContent>  </xs:complexType>  <xs:complexType name="appServiceDescriptionType">  <xs:sequence>  <xs:element name="identicalContent" minOccurs="0" maxOccurs="unbounded">  <xs:complexType>  <xs:sequence>  <xs:element name="basePattern" type="xs:anyURI" minOccurs="2" maxOccurs="unbounded"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  </xs:element>  <xs:element name="alternativeContent" minOccurs="0" maxOccurs="unbounded">  <xs:complexType>  <xs:sequence>  <xs:element name="basePattern" type="xs:anyURI" minOccurs="2" maxOccurs="unbounded"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  </xs:element>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:attribute name="mediaManifestDescriptionURI" type="xs:anyURI" use="required"/>  <xs:attribute name="mimeType" type="xs:string" use="required"/>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  <xs:element name="mbsAppService">  <xs:complexType>  <xs:sequence>  <xs:element name="basePattern" type="xs:anyURI" maxOccurs="unbounded"/>  <xs:element name="serviceArea" type="xs:unsignedShort" minOccurs="0" maxOccurs="unbounded"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  </xs:element>  <xs:element name="unicastAppService">  <xs:complexType>  <xs:sequence>  <xs:element name="basePattern" type="xs:anyURI" maxOccurs="unbounded"/>  <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  <xs:anyAttribute processContents="skip"/>  </xs:complexType>  </xs:element>  <xs:element name="availabilityInfo">  <xs:complexType>  <xs:sequence>  <xs:element name="infoBinding" maxOccurs="unbounded">  <xs:complexType>  <xs:sequence>  <xs:element ref="mbsServiceArea" minOccurs="0" maxOccurs="unbounded"/>  <xs:element name="radioFrequency" type="xs:unsignedInt" maxOccurs="unbounded"/>  </xs:sequence>  </xs:complexType>  </xs:element>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="mbsServiceArea">  <xs:complexType>  <xs:sequence>  <xs:element name="taiList" minOccurs="0" maxOccurs="unbounded">  <xs:complexType>  <xs:sequence>  <xs:element ref="tai" maxOccurs="unbounded"/>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="ncgiList" minOccurs="0" maxOccurs="unbounded">  <xs:complexType>  <xs:sequence>  <xs:element ref="ncgiTai" maxOccurs="unbounded">  </xs:sequence>  </xs:complexType>  </xs:element>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="tai">  <xs:complexType>  <xs:sequence>  <xs:element name="plmnId">  <xs:complexType>  <xs:sequence>  <xs:element name="mcc" type="xs:string"/>  <xs:element name="mnc" type="xs:string"/>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="tac" type="xs:string"/>  <xs:element name="nid" type="xs:string" minOccurs="0"/>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="ncgiTai">  <xs:complexType>  <xs:sequence>  <xs:element ref="tai"/>  <xs:element ref="ncgi"/>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="ncgi">  <xs:complexType>  <xs:sequence>  <xs:element name="plmnId">  <xs:complexType>  <xs:sequence>  <xs:element name="mcc" type="xs:string"/>  <xs:element name="mnc" type="xs:string"/>  </xs:sequence>  </xs:complexType>  </xs:element>  <xs:element name="nrCellId" type="xs:string"/>  <xs:element name="nid" type="xs:string" minOccurs="0"/>  </xs:sequence>  </xs:complexType>  </xs:element>  </xs:schema> |

### A.1.2 Object Repair Parameters schema

Below is the formal XML syntax of associated distribution procedure description instances. Documents following this schema can be identified with the MIME type "application/mbs‑object-repair-parameters+xml". The schema filename of distribution procedure description is objectrepairparameters.xsd.

|  |
| --- |
| <?xml version="1.0" encoding="UTF-8"?>  <xs:schema  xmlns="urn:3gpp:metadata:2020:MBS:associatedProcedure"  xmlns:xs="http://www.w3.org/2001/XMLSchema"  targetNamespace="urn:3gpp:metadata:2022:MBS:associatedProcedure"  elementFormDefault="qualified"  version="1">  <xs:element name="associatedProcedureDescription" type="associatedProcedureType"/>  <xs:complexType name="associatedProcedureType">  <xs:sequence>  <xs:element name="postObjectRepair" type="basicProcedureType" minOccurs="0"/>  <xs:element name="mbsObjectRepair" type="mbsObjectRepairType" minOccurs="0"/>  <xs:any namespace="##other" processContents="skip" minOccurs="0" maxOccurs="unbounded"/>  </xs:sequence>  </xs:complexType>  <xs:complexType name="basicProcedureType">  <xs:sequence>  <xs:element name="serviceURI" type="xs:anyURI" maxOccurs="unbounded"/>  </xs:sequence>  <xs:attribute name="offsetTime" type="xs:unsignedLong" use="optional"/>  <xs:attribute name="randomTimePeriod" type="xs:unsignedLong" use="required"/>  </xs:complexType>  <xs:complexType name="mbsObjectRepairType">  <xs:attribute name="sessionDescriptionURI" type="xs:anyURI" use="required"/>  </xs:complexType>  </xs:schema> |

\*\*\*\* Next Change \*\*\*\*

## A.2 JSON-based representation

### A.2.1 MBS User Service Bundle Description schema

|  |
| --- |
| openapi: 3.0.0  info:  title: 'MBS User Service Announcement Element units’ definition'  version: 1.0.0  description: |  MBS User Service Announcement Element units.  © 2022, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  externalDocs:  description: 3GPP TS 26.517 V0.1.0; 5G System; 5G MBSF; Stage 3.  url: http://www.3gpp.org/ftp/Specs/archive/26\_series/26.517/  paths: {}  components:  schemas:  bundleDescription:  type: array  items:  $ref: '#/components/schemas/userServiceDescription'  minItems: 1  userServiceDescription:  type: object  properties:  name:  type: array  items:  type: string  serviceLanguage:  type: array  items:  type: string  serviceId:  type: string  distributionSessionDescription:  $ref: '#/components/schemas/distributionSessionDescription  appServiceDescription:  $ref: '#/components/schemas/mbsAppService'  scheduleDescription:  $ref: '#/components/schemas/scheduleDescription'  availabilityInfo:  $ref: '#/components/schemas/availabilityInfo'  required:  - distributionMethod  - serviceId  distributionSessionDescription:  type: object  properties:  conformanceProfile:  type: string  sessionDescriptionURI:  type: string  objectRepairParameters:  $ref: '#/components/schemas/associatedProcedureDescription'  dataNetworkName:  type: string  mbsAppService:  type: array  items:  $ref: '#/components/schemas/appService'  unicastAppServices:  type: array  items:  type: object  properties:  unicastAppService:  type: array  items:  $ref: '#/components/schemas/appService'  required:  - sessionDescriptionURI  mbsAppService:  type: object  properties:  MediaManifestDescriptionURI:  type: string  mimeType:  type: string  identicalContents:  type: array  items:  type: object properties:  unicastAppService:  type: array  items:  $ref: '#/components/schemas/appService'  minItems: 2  alternativeContents:  type: array  items:  type: array  items:  $ref: '#/components/schemas/appService'    appService:  type: object  properties:  basePattern:  type: string  required:  - basePattern    MbsServiceArea:  description: MBS Service Area  type: object  properties:  ncgiList:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/ncgiList'  taiList:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/trackingAreaList'  availabilityInfo:  type: array  items:  $ref: '#/components/schemas/infoBinding'  infoBinding:  type: object  properties:  mbsServiceArea:  type: array  items:  $ref: '#/components/schemas/MbsServiceArea'  radioFrequency:  type: array  items:  type: integer  minimum: 0    associatedProcedureDescription:  type: object  properties:  postObjectRepair:  $ref: '#/components/schemas/postObjectRepair'  mbsObjectRepair:  $ref: '#/components/schemas/mbsObjectRepair'  postObjectRepair:  type: object  properties:  serviceURI:  type: array  items:  type: string  offsetTime:  type: integer  randomTimePeriod:  type: integer  mbsObjectRepair:  type: object  properties:  "sessionDescriptionURI":  type: string  scheduleDescription:  type: array  items:  $ref: '#/components/schemas/serviceSchedule'    serviceSchedule:  type: object  properties:  sessionSchedule:  $ref: '#/components/schemas/sessionSchedule'  sessionScheduleOverride:  $ref: '#/components/schemas/sessionScheduleOverride'  objectSchedule:  $ref: '#/components/schemas/objectSchedule'  serviceId:  type: string  serviceClass:  type: string  required:  - serviceId  - serviceClass  - serviceSchedule  sessionSchedule:  type: array  items:  type: object  properties:  start:  type: string  stop:  type: string  reoccurencePattern:  type: string  numberOfTimes:  type: integer  reoccurenceStopTime:  type: string  index:  type: integer  FDTInstanceURI:  type: string  required:  - start  - stop  sessionScheduleOverride:  type: array  items:  type: object  properties:  start:  type: string  stop:  type: string  index:  type: integer  cancelled:  type: boolean  sessionDescriptionURI:  type: string    objectSchedule:  type: array  items:  type: object  properties:  objectURI:  type: string  sessionId:  type: string  objectEtag:  type: string  unicastOnly:  type: boolean  deliveryInfo:  type: array  items:  type: object  properties:  start:  type: string  stop:  type: string |

\*\*\*\* Next Change \*\*\*\*

# B.2 JSON-based representation

|  |
| --- |
| {  "bundleDescription":[  {  "userServiceDescription":{  "name":[  "test1"  ],  "serviceLanguage":[  "en-us"  ],  "serviceId":"urn:test:test:D4-Service:D4-SB:D4-US",  "distributionSessionDescription":{  "conformanceProfile":"urn:3gpp:...",  "sessionDescriptionURI":"http://www.test.com/D4-Service/D4-SB/D4-US.sdp",  "dataNetworkName":"media-dnn",  "mbsAppService":[  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/2048/"},  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"}  ],  "unicastAppServices":[  {"unicastAppService":[  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/1024/"},  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"}]  },  {"unicastAppService":[  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/2048/"},  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"}]  }  ]  },  "mbsAppService":{  "MediaManifestDescriptionURI":"http://www.test.com/D4-Service/D4-SB/D4-US/adpd.xml",  "mimeType":"application/dash+xml;profiles=urn:3GPP:PSS:profile:DASH10",  "identicalContents":[  {  "identicalContent":[  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/1024/"},  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/video/2048/"}  ],  },{  "identicalContent":[  {"basePattern":"http://www.test.com/D4-Service/D4-SB/D4-US/audio/1/"}  ]  }]  },  "availabilityInfo":[  {  "infoBinding":{  "mbsServiceArea":[  {  "ncgiList":[  {  "NcgiTai":{  "tai":{  "plmnId":{  "mcc":"860",  "mnc":"15"  },  "tac":"0fa0"  },  "cellList":[  {  "Ncgi":{  "plmnId":{  "mcc":"860",  "mnc":"15"  },  "nrCellId":"999999999"  }  },  {  "Ncgi":{  "plmnId":{  "mcc":"860",  "mnc":"15"  },  "nrCellId":"999999998"  }  }  ]  }  }  ],  "taiList":[  {  "tai":{  "plmnId":{  "mcc":"860",  "mnc":"15"  },  "tac":"0fa0"  }  },  {  "tai":{  "plmnId":{  "mcc":"860",  "mnc":"15"  },  "tac":"0fa0"  }  }  ]  }  ],  "radioFrequency":[  "9410"  ]  }  }  ]  }  }  ]  } |

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