**3GPP TSG-WG SA4 Meeting #121 *S4-221362***

**Toulouse, France, November 14 – 18, 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.517** | **CR** | **0002** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | CR to TS 26.517 Add FSA ID into the USD | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | SA4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBP3 | | | | |  | ***Date:*** | | | 2022-11-04 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | The MBS FSA ID used for broadcast MBS session to guide the frequency selection of the UEs is missing in stage 3 specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the FSA ID to the MBS Distribution Session Description metadata. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment between stage 2 and stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.4, A.1.1, A.2.1, B, 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 \* \* \* \*

### 5.2.4 MBS Distribution Session Description metadata unit

Each MBS User Service Description metadata unit shall reference at least one MBS Distribution Session Description.

ThedistributionSessionDescription element shall contain a @conformanceProfileattribute indicating the set of features that the MBS Distribution Session conforms to and which the MBS Client needs to support in order to fully receive the MBS Distribution Session. The value of this attribute shall be a fully-qualified term identifier URI from the controlled vocabulary defined in annex C.

The distributionSessionDescription element shall contain a @sessionDescriptionURI attribute which references a Session Description document. The element may also contain an @objectRepairParametersURIattribute referencing an Object Repair Parameters document.

ThedistributionSessionDescription element may contain a @dataNetworkNameattribute indicating a Data Network Name (DNN) as defined in TS 23.003 [10]. When this attribute is present, the MBS Client shall use the given DNN for interactions with the MBSF at reference point MBS‑5 and with the MBS AS at reference point MBS‑4‑UC. If this attribute is not present, the MBS UE shall use a default PDU Session for these network interactions.

The userServiceDescription element may include an availabilityInfo child element providing additional information pertaining to the availability of the MBS Distribution Session within the 5G Network. If present, the availabilityInfo element shall include one or more infoBinding child elements. The infoBinding element shall contain the child elements serviceArea, mbsFSAId and radiofrequency:

- The serviceArea element declares the one or more service areas in which the MBS Session corresponding to this MBS Distribution Session is currently available.

- In the case of a broadcast MBS Session corresponding to this MBS Distribution Session, the mbsFSAId element identifies a preconfigured area within which, and in proximity to, the cell(s) announce the MBS FSA ID and its associated frequency.

NOTE: This is used to guide frequency selection by the UE for a broadcast MBS Session.

- The radioFrequencyelement indicates the one or more radio frequencies in the NG-RAN downlink which transmit the MBS Session corresponding to this MBS Distribution Session in the service area(s) identified by the serviceArea element.

\* \* \* \* Second change \* \* \* \*

Annex A (normative)  
Syntax for Service Announcement

### 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 ref="appService" minOccurs="0" maxOccurs="unbounded"/>  <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:element name="appService" type="appServiceType"/>  <xs:complexType name="appServiceType">  <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="mbsFSAId" type="xs:unsignedShort" minOccurs="0"/>  <xs:element name="radioFrequency" type="xs:unsignedInt" maxOccurs="unbounded"/>  </xs:sequence>  </xs:complexType>  </xs:element>  </xs:sequence>  </xs:complexType>  <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 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 name="ncgiTai">  <xs:complexType>  <xs:sequence>  <xs:element ref="tai"/>  <xs:element ref="ncgi"/>  </xs:sequence>  </xs:complexType>  <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:schema> |

\* \* \* \* Third change \* \* \* \*

### 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/distributionMethod'  appService:  $ref: '#/components/schemas/mbsAppService'  availabilityInfo:  $ref: '#/components/schemas/availabilityInfo'  required:  - distributionMethod  - serviceId  distributionSessionDescription:  type: object  properties:  conformanceProfile:  type: string  sessionDescriptionURI:  type: string  objectRepairParametersURI:  type: string  dataNetworkName:  type: string  mbsAppService:  type: array  items:  $ref: '#/components/schemas/appService'  unicastAppServices:  type: array  items:  unicastAppService:  type: object  properties:  $ref: '#/components/schemas/appService'  required:  - sessionDescriptionURI  mbsAppService:  type: object  properties:  MediaManifestDescriptionURI:  type: string  mimeType:  type: string  identicalContents:  type: array  items:  identicalContent:  type: array  items:  $ref: '#/components/schemas/appService'  alternativeContents:  type: array  items:  alternativeContent:  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:  type: array  items:  $ref: '#/components/schemas/NcgiTai'  minItems: 1  description: List of NR cell Ids  taiList:  type: array  items:  $ref: '#/components/schemas/Tai'  minItems: 1  description: List of tracking area Ids  NcgiTai:  description: List of NR cell ids, with their pertaining TAIs  type: object  properties:  tai:  $ref: '#/components/schemas/Tai'  cellList:  type: array  items:  $ref: '#/components/schemas/Ncgi'  minItems: 1  description: List of List of NR cell ids  required:  - tai  - cellList  Tai:  description: Contains the tracking area identity as described in 3GPP 23.003  type: object  properties:  plmnId:  $ref: '#/components/schemas/PlmnId'  tac:  $ref: '#/components/schemas/Tac'  nid:  $ref: '#/components/schemas/Nid'  required:  - plmnId  - tac  Ncgi:  description: Contains the NCGI (NR Cell Global Identity), as described in 3GPP 23.003  type: object  properties:  plmnId:  $ref: '#/components/schemas/PlmnId'  nrCellId:  $ref: '#/components/schemas/NrCellId'  nid:  $ref: '#/components/schemas/Nid'  required:  - plmnId  - nrCellId  PlmnId:  type: object  properties:  mcc:  $ref: '#/components/schemas/Mcc'  mnc:  $ref: '#/components/schemas/Mnc'  description: When PlmnId needs to be converted to string (e.g. when used in maps as key), the string shall be composed of three digits "mcc" followed by "-" and two or three digits "mnc".  required:  - mcc  - mnc  Mcc:  type: string  pattern: '^\d{3}$'  description: Mobile Country Code part of the PLMN, comprising 3 digits, as defined in clause 9.3.3.5 of 3GPP TS 38.413.  Mnc:  type: string  pattern: '^\d{2,3}$'  description: Mobile Network Code part of the PLMN, comprising 2 or 3 digits, as defined in clause 9.3.3.5 of 3GPP TS 38.413.  Tac:  type: string  pattern: '(^[A-Fa-f0-9]{4}$)|(^[A-Fa-f0-9]{6}$)'  description: 2 or 3-octet string identifying a tracking area code as specified in clause 9.3.3.10 of 3GPP TS 38.413, in hexadecimal representation. Each character in the string shall take a value of "0" to "9", "a" to "f" or "A" to "F" and shall represent 4 bits. The most significant character representing the 4 most significant bits of the TAC shall appear first in the string, and the character representing the 4 least significant bit of the TAC shall appear last in the string.  Nid:  type: string  pattern: '^[A-Fa-f0-9]{11}$'  description: This represents the Network Identifier, which together with a PLMN ID is used to identify an SNPN (see 3GPP TS 23.003 and 3GPP TS 23.501 clause 5.30.2.1).  NrCellId:  type: string  pattern: '^[A-Fa-f0-9]{9}$'  description: 36-bit string identifying an NR Cell Id as specified in clause 9.3.1.7 of 3GPP TS 38.413, in hexadecimal representation. Each character in the string shall take a value of "0" to "9", "a" to "f" or "A" to "F" and shall represent 4 bits. The most significant character representing the 4 most significant bits of the Cell Id shall appear first in the string, and the character representing the 4 least significant bit of the Cell Id shall appear last in the string.  availabilityInfo:  type: array  properties:  $ref: '#/components/schemas/infoBinding'  infoBinding:  type: object  properties:  mbsServiceArea:  type: array  items:  $ref: '#/components/schemas/MbsServiceArea'  mbsFSAId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsFsaId'  radioFrequency:  type: array  items:  type: integer  minimum: 0    associatedProcedureDescription:  type: object  properties:  postFileRepair:  $ref: '#/components/schemas/postFileRepair'  mbsFileRepair:  $ref: '#/components/schemas/mbsFileRepair'  postFileRepair:  type: object  items:  serviceURI:  type: array  items:  type: string  offsetTime:  type: integer  randomTimePeriod:  type: integer  mbsFileRepair:  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'  fileSchedule:  $ref: '#/components/schemas/fileSchedule'  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    fileSchedule:  type: array  items:  type:object  properties:  fileURI:  type: string  sessionId:  type: string  fileEtag:  type: string  unicastOnly:  type: boolean  deliveryInfo:  type: array  items:  type: object  properties:  start:  type: string  stop:  type: string |

# Annex B (informative) Service Announcement examples

\* \* \* \* Forth 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/"}]  }  ]  },  "appService":{  "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"  }  }  ]  }  ],  "FSAID":[  "25532"  ],  "radioFrequency":[  "9410"  ]  }  }  ]  }  }  ]  } |

# Annex C (normative) Controlled vocabulary of conformance profiles

The controlled vocabulary is for future study.

# Annex <X> (informative): Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |
| S4-220285 |  |  |  | Revised skeleton document | 0.1.0 |
| 2022-03 | SA4#117-e | SP-220249 |  |  |  | Presentation for information at SA#95-e | 1.0.0 |
| 2022-04 | SA4#118-e | S4-220521 |  |  |  | S4-220570: Service Announcement specification and schemas.  S4-220470: Packet Distribution Method initial specification.  S4-220471: Object Distribution Method initial specification | 1.1.0 |
| 2022-05 | SA4#119-e | S4-220867 |  |  |  | S4-220864: Service Announcement corrections.  S4-220865: Object Distribution Method updates.  S4-220866: Packet Distribution Method updates. | 1.2.0 |
| 2022-06 | SA#96 | SP-220605 |  |  |  | For presentation to Plenary | 2.0.0 |
| 2022-06 | SA#96 | SP-220605 |  |  |  | Under Change Control | 17.0.0 |

\* \* \* \* End of changes \* \* \* \*