**3GPP TSG-SA4 Meeting #128 *S4-241255***

**Jeju, Korea (Republic Of), 20th May 2024 - 24th May 2024 revision of S4-241153**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.517** | **CR** | **0016** | **rev** | **2** | **Current version:** | **17.5.1** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | [5MBP3] Correction of Frequency Parameters and Other Corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated, BBC, Huawei, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBP3 | | | | |  | ***Date:*** | | | 2024-05-22 |
|  |  | | | |  | |  | | |  |
| ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RAN2 sent an LS to 3GPP SA4 in November 2022 in 3gpp.org/ftp/TSG\_SA/WG4\_CODEC/TSGS4\_121\_Toulouse/Docs/S4-221229.zip asking that the following two parameters are to be added: "In NR, the frequency parameter is coded as combination of FreqBandIndicatorNR and ARFCN-ValueNR as defined in 3GPP TS 38.331 and TS 38.101." Recently 26.517 was significantly updated in CR 0001 in order to address the removal of XML and only use JSON.  There was an oversight to address the request from RAN2 and only one of the requested parameters is added.  This issue was also raised by 5G-MAG here: <https://github.com/5G-MAG/Standards/issues/127>  Syntax error in OpenAPI schema for MBS User Service Announcement. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The radio frequency parameter is changed to address the RAN2 format  Replacement OpenAPI schema with:   * Syntax correction. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | * The information required for RAN configuration cannot be signaled. * Paper specification is out of step with schema committed to 3GPP Forge. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 5.2.1, 5.2.9, A.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | CR0016rev2: merges CR0018rev2 | | | | | | | | |

FIRST CHANGE

# 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".

[7] 3GPP TS 26.346: "MBMS; Protocols and Codecs".

[8] IETF RFC 8866: "Session Description Protocol".

[9] Void.

[10] 3GPP TS 23.003: "Numbering, addressing and identification".

[11] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[12] IETF RFC 3926: "FLUTE - File Delivery over Unidirectional Transport".

[13] Void.

[14] OpenAPI: "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.

[15] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[16] 3GPP TS 29.501: "5G System: Principles and Guidelines for Services Definition; Stage 3".

[17] 3GPP TS 29.580: "5G System; Multicast/Broadcast Service Function services; Stage 3".

[18] 3GPP TS 29.581: "5G System; Multicast/Broadcast Service transport services; Stage 3".

[19] IETF RFC 9110: "HTTP Semantics", June 2022.

[20] IETF RFC 9111: "HTTP Caching", June 2022.

[21] IETF RFC 9112: "HTTP/1.1", June 2022.

[22] IETF RFC 9113: "HTTP/2", June 2022.

[23] Reserved for future use.

[24] IETF RFC 8446: "The Transport Layer Security (TLS) Protocol Version 1.3", August 2018.

[25] Open Mobile Alliance: "OMNA BCAST Service Class Registry", https://technical.openmobilealliance.org/OMNA/bcast/bcast-service-class-registry.html.

[26] IETF RFC 3629: "UTF-8, a transformation format of ISO 10646".

[27] IETF RFC 8141: "Uniform Resource Names (URNs)".

[28] ISO 639-2: "Codes for the representation of names of languages - Part 2: Alpha-3 code".

[29] IETF RFC 6381: "The 'Codecs' and 'Profiles' Parameters for "Bucket" Media Types".

[30] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[31] 3GPP TS 26.512: "5G Media Streaming (5GMS); Protocols".

[32] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[33] 3GPP TS 33.246: "3G Security; Security of Multimedia Broadcast/Multicast Service (MBMS)".

[34] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

[35] 3GPP TR 26.946: "Multimedia Broadcast/Multicast Service (MBMS) user service guidelines".

[36] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[37] IETF RFC 2046, "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types".

[38] IETF RFC 2387: "The MIME Multipart/Related Content-type".

[39] IETF RFC 2557: "MIME Encapsulation of Aggregate Documents, such as HTML (MHTML)".

[40] IETF RFC 2017: "Definition of the URL MIME External-Body Access-Type".

[41] IETF RFC 1952: "GZIP file format specification version 4.3".

[42] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

NEXT CHANGE

### 5.2.1 General

The following description in this clause presumes a JSON encoding of the information comprising the MBS User Service Announcement as specified in clause 5.1A.

The data types in table 5.2.1-1 from other 3GPP specifications are reused in the remainder of the present document.

Table 5.2.1 1: Externally defined data types used by User Service Description schema

|  |  |  |
| --- | --- | --- |
| Data type | Comments | Reference |
| Uri | A Uniform Resource Locator | TS 29.571 [30] |
| DateTime | A date–time value. |  |
| MbsServiceArea | An MBS Service Area. |  |
| MbsFsaId | An MBS Frequency Selection Area identifier. |  |
| DurationSec | A time duration expressed in seconds. |  |
| AbsoluteUrl | An absolute URL | TS 29 512 [31] |

The data types in table 5.2.1-2 are defined in the present document.

Table 5.2.1 2: User Service Description schema data types defined in the present document

|  |  |
| --- | --- |
| Data type | Clause |
| User‌Service‌Descriptions | 5.2.2 |
| User‌Service‌Description | 5.2.3 |
| Distribution‌Session‌Description | 5.2.4 |
| Application‌Service‌Description | 5.2.6 |
| Service‌Schedule‌Description | 5.2.7 |
| Object‌Repair‌Parameters | 5.2.8 |
| Availability‌Information | 5.2.9 |
| NrParameterSet | 5.2.9 |
| Security‌Description | 5.2.10 |

NEXT CHANGE

### 5.2.9 Availability Information data type

The AvailabilityInformation data type provides additional information pertaining to the availability of the MBS Distribution Session within the 5G Network:

- The serviceArea property 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 property identifies a preconfigured area within which, and in proximity to, the cell(s) announce the MBS Frequency Selection Area (FSA) ID and its associated frequency.

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

- The radioFrequencyproperty 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 property.

Table 5.2.9-1 provides the detailed semantics for the AvailabilityInformation data type.

Table 5.2.9-1: Semantics of AvailabilityInformation data type

| Property name | Type | P | Cardinality | Description |
| --- | --- | --- | --- | --- |
| mbsService‌Area | array(Mbs‌Service‌Area) | O | 1..N | The *Target service areas* of this MBS Distribution Session, as defined in table 4.5.8‑1 of TS 26.502 [6]. |
| mbs‌FSA‌Id | MbsFsaId | O | 0..1 | The *MBS Frequency Selection Area (FSA) Identifier* of the (broadcast) MBS Distribution Session in the parent service area, as defined in table 4.5.8‑1 of TS 26.502 [6]. |
| nrParameters | array(Nr‌ParameterSet) | M | 1..N | The New Radio transmission parameters associated with mbsFSAId in the parent service area, expressed using the data type specified in table 5.2.9-2. |

Table 5.2.9-2 provides the detailed semantics for the NrParameterSet data type.

Table 5.2.9-2: Semantics of NrParameterSet data type

| Property name | Type | P | Cardinality | Description |
| --- | --- | --- | --- | --- |
| freqBandIndicator | Uinteger | M | 1 | NR frequency band number, corresponding to the FreqBandIndicatorNR parameter in clause 6.3.2 of TS 38.331 [42]. |
| aRFCNValue | Uinteger | M | 1 | ARFCN applicable to a downlink NR global frequency raster, corresponding to the ARFCN-ValueNR parameter specified in clause 6.3.2 of TS 38.331 [42]. |

NEXT CHANGE

## A.2.1 MBS User Service Announcement schema

Below is the schema specifying the format of User Service Descriptions instance documents using a JSON-based representation. Documents following this schema shall be identified with the MIME type application/mbs-user-service-descriptions+json as registered in clause E.2.1. The schema filename is TS26517\_MBSUserServiceAnnouncement.yaml.

|  |
| --- |
| openapi: 3.0.0  info:  title: 'MBS User Service Announcement'  version: 1.4.0  description: |  MBS User Service Announcement Element units.  © 2024, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).  All rights reserved.  externalDocs:  description: 3GPP TS 26.517 V17.6.0; 5G Multicast-Broadcast User Services; Protocols and Formats  url: http://www.3gpp.org/ftp/Specs/archive/26\_series/26.517/  paths:  /user-service-descriptions:  get:  operationId: discoverUserServiceDescriptions  summary: 'Discover User Service Descriptions'  description: 'Discover User Service Descriptions that match the supplied query filter(s). At least one filter query parameter must be included in the request URL.'  parameters:  - in: query  name: service-class  schema:  type: string  required: true  description: 'Filter for User Service Descriptions tagged with the supplied service class term identifier expressed as a fully-qualified URI string from a controlled vocabulary'  responses:  '200':  # OK  description: "Success"  content:  multipart/related:  schema:  type: string  '204':  # No Content (no matching User Service Descriptions)  description: "No Matches Found"  '500':  # Internal Server Error  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  # Service Unavailable  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  /user-service-descriptions/{externalServiceId}:  get:  operationId: retrieveUserServiceDescription  summary: 'Retrieve User Service Description'  description: 'Retrieve the User Service Description of a single service by supplying its external service identifier.'  parameters:  - name: externalServiceId  in: path  required: true  schema:  type: string  description: 'The external service identifier of a User Service provisioned in the MBSF.'  responses:  '200':  # OK  description: "Success"  content:  multipart/related:  schema:  type: string  '404':  # Not Found  $ref: 'TS29571\_CommonData.yaml#/components/responses/404'  '500':  # Internal Server Error  $ref: 'TS29571\_CommonData.yaml#/components/responses/500'  '503':  # Service Unavailable  $ref: 'TS29571\_CommonData.yaml#/components/responses/503'  default:  $ref: 'TS29571\_CommonData.yaml#/components/responses/default'  components:  schemas:  UserServiceDescriptions:  description: 'A document announcing one or more MBS User Services.'  type: object  properties:  version:  type: integer  minimum: 1  userServiceDescriptions:  type: array  items:  $ref: '#/components/schemas/UserServiceDescription'  minItems: 1  required:  - userServiceDescriptions  UserServiceDescription:  description: 'A description of a single MBS User Service.'  type: object  properties:  serviceIds:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  minItems: 1  class:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  names:  type: array  items:  type: object  properties:  name:  type: string  lang:  type: string  pattern: '^[a-zA-Z]{3}$'  example: 'eng'  required:  - name  - lang  minItems: 1  descriptions:  type: array  items:  type: object  properties:  description:  type: string  lang:  type: string  pattern: '^[a-zA-Z]{3}$'  example: 'eng'  required:  - description  - lang  minItems: 1  serviceLanguage:  type: string  pattern: '^[a-zA-Z]{3}$'  example: 'eng'  distributionSessionDescriptions:  type: array  items:  $ref: '#/components/schemas/DistributionSessionDescription'  minItems: 1  serviceScheduleDescriptions:  type: array  items:  $ref: '#/components/schemas/ServiceScheduleDescription'  minItems: 1  required:  - serviceIds  - class  - distributionSessionDescriptions  DistributionSessionDescription:  type: object  properties:  distributionMethod:  $ref: '#/components/schemas/DistributionMethod'  conformanceProfiles:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  minItems: 1  sessionDescriptionLocator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  applicationServiceDescriptions:  type: array  items:  $ref: '#/components/schemas/ApplicationServiceDescription'  minItems: 1  postSessionObjectRepairParameters:  $ref: '#/components/schemas/ObjectRepairParameters'  availabilityInfos:  type: array  items:  $ref: '#/components/schemas/AvailabilityInformation'  minItems: 1  securityDescription:  $ref: '#/components/schemas/SecurityDescription'  required:  - distributionMethod  - sessionDescriptionLocator  DistributionMethod:  anyOf:  - type: string  enum:  - OBJECT  - PACKET  - type: string  description: >  This string provides forward-compatibility with future  extensions to the enumeration but is not used to encode  content defined in the present version of this API.  ApplicationServiceDescription:  type: object  properties:  entryPointLocator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  contentType:  type: string  pattern: '^[a-zA-Z]+\/[a-zA-Z]+$'  example: 'application/dash+xml'  required:  - entryPointLocator  - contentType  AvailabilityInformation:  type: object  properties:  mbsServiceArea:  type: array  items:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsServiceArea'  minItems: 1  mbsFSAId:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsFsaId'  nrParameters:  type: array  items:  $ref: ' #/components/schemas/NrParameterSet'  minItems: 1  required:  - nrParameters  NrParameterSet:  type: object  properties:  freqBandIndicator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  aRFCNValue:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'  required:  - freqBandIndicator  - aRFCNValue  ObjectRepairParameters:  type: object  properties:  backOffParameters:  $ref: '#/components/schemas/BackOffParameters'  objectDistributionBaseLocator:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'  objectRepairBaseLocator:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/AbsoluteUrl'  BackOffParameters:  type: object  properties:  offsetTime:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'  randomTimePeriod:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'  anyOf:  - required: [offsetTime]  - required: [randomTimePeriod]  ServiceScheduleDescription:  type: object  properties:  id:  type: string  version:  type: integer  minimum: 1  start:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  stop:  $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'  required:  - id  - version  - start  - stop  SecurityDescription:  type: object  properties:  mBSSFAddresses:  type: array  items:  $ref: 'TS26512\_CommonData.yaml#/components/schemas/AbsoluteUrl'  minItems: 1  mBSServiceKeyInfo:  type: object  properties:  mBSId:  type: string  mBSDomainId:  type: string  required:  - mBSId  - mBSDomainId  uICCKeyManagement:  type: boolean  2GGBAallowed:  type: boolean  backOffParameters:  $ref: '#/components/schemas/BackOffParameters'  required:  - mBSSFAddresses  - mBSSessionKeyInfo |