**3GPP TSG-SA4 Meeting #128 *S4-240897***

**Jeju, Korea (Republic Of), 20th May 2024 - 24th May 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  | **26.517** | **CR** | **0014** | **rev** | **-** | **Current version:** | **18.0.1** |  |
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| *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:***  | Support for RedCap UEs in MBS Broadcast |
|  |  |
| ***Source to WG:*** | Qualcomm Germany, Huawei |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | TEI18, 5MBS\_Ph2 |  | ***Date:*** | 2024-05-13 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *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 canbe 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)* |
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| ***Reason for change:*** | In order for RedCap UEs to be able to receive 5MBS service in broadcast mode, NG-RAN needs to be able to determine the specific broadcast MBS service identified by the MBS Session ID and it should be received by RedCap UEs.In order for NG-RAN to know that the MBS Service is to be received by RedCap UEs, information needs to be provided by the AF to the NEF/MBSF at the MBS Session Creation. With respect to how to communicate the information about the support for RedCap UEs to NG-RAN, it is proposed to use explicit optional information in N2 SM Information from MB-SMF to AMF and from AMF to NG-RAN to indicate whether the broadcast MBS session is intended only for NR RedCap UEs, both for NR RedCap UEs and non-RedCap UEs, or only by non-RedCap UEs.SA2 has approved 23247-CR0341 to address the issue.A stage-2 CR for TS 26.502 has been prepared in 26502-0029.Stage-3 extensions are needed. |
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| ***Summary of change:*** | Addition of NR RedCap UE Information to MBS User Service Announcement |
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| ***Consequences if not approved:*** | “NR RedCap UE Information” is not available to MBS UEs |
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| ***Clauses affected:*** | 5.2.9, A.2.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS/TR 26502 CR 0029  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** | An alternative solution may be the definition of a new conformance profile for RedCap UEs.As another CR is created also affecting 5.2.9, the two should be combined in one. |
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| ***This CR's revision history:*** |  |

FIRST 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.

- The nrRedCapUEInfo property indicates which classes of UE the MBS Distribution Session is suitable for consumption by.

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]. |
| radio‌Frequency | array(Uinteger) | M | 1..N | The transmission frequency (expressed in Hertz) associated with the *MBS Frequency Selection Area (FSA) Identifier* in the parent service area. |
| nrRedCapUEInfo | NrRedCapUeInfo | O | 0..1 | Indicates whether the MBS session is suitable for consumption by NR RedCap UEs and/or non-RedCap UEs as defined by *Target UE classes* in TS 26.502 [6]. The data type and its enumerated values are specified in TS 29.571 [30].If omitted, no information is known and the value NON\_REDCAP\_UE\_ONLY may be assumed. |

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.

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| openapi: 3.0.0info: title: 'MBS User Service Announcement' version: 2.0.0 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 V18.1.0; 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' radioFrequency: type: array items: $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger' minItems: 1 nrRedCapUEInfo: $ref: 'TS29571\_CommonData.yaml#/components/schemas/NrRedCapUeInfo' required: - radioFrequency 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/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 |

END OF CHANGES