**3GPP TSG-CT WG1 Meeting #130-eC1-21abcd**

**E-meeting, 20-28 May 2021** (*was C1-212928*)

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.582** | **CR** | **0025** | **rev** | **1** | **Current version:** | **16.3.0** |  |
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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:*** | MCData media plane control for FD using MBMS delivery via MB2 | | | | | | | | | |
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| ***Source to WG:*** | AT&T | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMCData3 | | | | |  | ***Date:*** | | | May 10, 2021 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | MCData group SDS delivery using MBMS is already present in this spec (see clause 6.5). This CR proposes a very similar way to support MCData group FD using MBMS delivery via MB2 interface. (The use of the other MCData MBMS delivery method also defined in TS 23.282, namely TS 26.348 MBMS User Services architecture, is not addressed by this CR).  This capability may reduce over-the-air resource consumption by allowing the release or significant bandwidth reduction of the user plane downlink unicast bearer, which becomes unnecessary when MBMS bearer is used for delivery. | | | | | | | | |
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| ***Summary of change:*** | | Newly added clause 7.4 and its subclauses for FD closely follows the structure and text of existing subclause 6.5 and its subclauses for SDS.    New clauses are added to perform necessary media plane encapsulations and decapsulations of data between the terminating participating function and the terminating client, to enable MBMS delivery. The procedures for the originating client, originating participating function and the controlling function are those established for unicast FD delivery via media plane, unchanged.  For more details, refer to the discussion paper in C1-198341.  Some related, descriptive small updates to signalling plane are in C1-212929. | | | | | | | | |
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| ***Consequences if not approved:*** | | Incomplete functionality leading to inability to implement a desirable feature. | | | | | | | | |
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| ***Clauses affected:*** | | New: 7.4, 7.4.1, 7.4.2, 7.4.2.1, 7.4.2.2, 7.4.2.3, 7.4.3, 7.4.3.1, 7.4.3.2, 7.4.3.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \* \***

## 7.4 FD using MBMS delivery via MB2 interface

### 7.4.1 General Description

The procedures for group FD using MBMS delivery via the MB2 interface can be seen as extensions of the procedures for group FD media delivery using unicast. The procedures of the originating client, originating participating function and controling function are those used for unicast session delivery for group FD. Only the terminating participating function and the terminating client are involved in MBMS delivery over MB2 interface functionality for group FD.

The procedures assume that consistent with 3GPP TS 24.282 [8], an MSRP session has already been established and the originating and terminating MCData clients have already completed successfully the SDP offer/answer negotiation. It is further assumed that the terminating MCData participating function has already sent an MBMS bearer announcement message providing information about the MBMS bearer and subchannel intended for MBMS delivery and that the terminating MCData client has received and processed the MBMS bearer announcement message, as described in 3GPP TS 24.282 [8].

During the session, the terminating MCData participating function intercepts MSRP SEND messages arriving from the originating side, and, after eliminating duplicates, encapsulates them unchanged as payload in (S)RTP/UDP/IP (see IETF RFC 3711 [17]) packets and transmits them on an MBMS bearer towards the terminating MCData client. Upon reception, the terminating MCData client decapsulates the payload and processes it as an MSRP SEND message within the MSRP session, arriving from the originating side.

NOTE 1: Since MSRP chunking is supported for unicast delivery, it is also supported for MBMS delivery.

NOTE 2: If SRTP (see IETF RFC 3711 [17]), rather than RTP, is used to securely protect packets sent on MBMS bearer, MuSiK (see 3GPP TS 24.282 [8] and 3GPP TS 33.180 [15]) may be employed to provide protection in addition to the security mechanisms that protect the unicast MSRP traffic.

NOTE 3: The terminating participating function, which can use listening status reports from the MCData clients, the presence, absence or content of the FILE DOWNLOAD COMPLETED report, as well as other information, decides whether to use unicast or MBMS delivery on an individual MCData client and file basis. At any time during a session, the terminating participating server can toggle between unicast and MBMS delivery.

### 7.4.2 Procedures for the terminating MCData client

#### 7.4.2.1 Handling the MSRP connection

The terminating MCData client shall execute the procedure for MSRP connection establishment described in subclause 7.1.3.1.

#### 7.4.2.2 Receiving Map Group To Bearer and Unmap Group To Bearer

While MBMS delivery is expected, the terminating MCData client shall monitor the general purpose MBMS subchannel.

When receiving a Map Group To Bearer message over the general purpose MBMS subchannel, the MBMS interface in the MCData client:

1) shall associate the TMGI in the TMGI field, the MBMS subchannel for media with the MCData group identity in the MCData Group ID field; and

2) shall start or continue the procedure described in subclause 7.4.2.3.

When receiving the Unmap Group To Bearer message referring to the current communication over a MBMS subchannel, the MBMS interface in the MCData client:

1) shall remove the association between the TMGI, the MBMS subchannel for media in the group session identified by the MCData Group ID field, if such an association exists; and

2) shall cease monitoring the associated MBMS bearer and subchannel for media and, if the MSRP session is still ongoing, shall resume or continue file delivery via media plane over unicast.

#### 7.4.2.3 Receiving media packets

The terminating MCData client shall:

1. while MBMS delivery is expected, monitor the MBMS bearer and subchannel indicated by the Map Group To Bearer message; and

2. for each received (S)RTP media packet, until a SIP BYE is received or until an implementation dependent timeout occurs:

a. decapsulate the payload out of the (S)RTP packet and, if SRTP rather than RTP is used (see IETF RFC 3711 [17]), decrypt and validate the payload; and

b. process the payload as a received MSRP SEND message during the established MSRP session, according to subclause 7.1.3.1, in the context of the media flow formed by previously received MSRP SEND messages, whether delivered via unicast or via MBMS.

### 7.4.3 Procedures for the terminating MCData participating function

#### 7.4.3.1 Establishing MSRP sessions

The terminating MCData participating function:

1. shall establish an MSRP session with the controlling MCData function according to subclause 7.2.5.1; and

2. shall establish an MSRP session with the terminating MCData client according to subclause 7.2.5.2.

#### 7.4.3.2 Sending Map Group To Bearer and Unmap Group To Bearer

The terminating MCData participating function:

1. shall build a Map Group To Bearer message (see subclause 11.2.4) to include:

a. the TMGI of the MBMS bearer to carry the traffic;

b. the identifier of the media stream; and

c. the MCData Group identifier field; and

2. shall send (repetitively, at short, implementation dependent time intervals) the Map Group To Bearer message over the general purpose MBMS subchannel.

When the MSRP session with the terminating MCData client (see subclause 7.4.3.1) ends, the terminating MCData participating function shall build the corresponding Unmap Group To Bearer message (see subclause 11.2.5) and shall send it over the general purpose MBMS subchannel.

#### 7.4.3.3 Receiving media packets intended for a terminating MCData client

When receiving an MSRP SEND message that the terminating participating function considers qualified for MBMS delivery and is destined to one of the MCData clients listening to the MBMS subchannel, the terminating participating MCData function:

NOTE 1: An MSRP SEND message that does not qualify for MBMS delivery or is not destined to an MCData client listening to the MBMS subchannel is handled as an MSRP SEND message to be delivered over unicast (see subclause 7.2.5.3).

1. shall generate and send an MSRP 200 (OK) response for the received MSRP SEND message to the controlling MCData function, according to the rules and procedures of IETF RFC 4975 [11];

2. shall check if the media packet that encapsulates the MSRP SEND message is already sent over the MBMS subchannel or not;

3. if the media packet is already sent over the MBMS subchannel, shall discard the MSRP SEND message; and

4. otherwise:

a. shall build an (S)RTP/UDP/IP (see IETF RFC 3711 [17]) media packet with the IP address and UDP port number indicated in the sent Map Group To Bearer message and with the received MSRP SEND message as payload, security protected if SRTP is used, per IETF RFC 3711 [17] and 3GPP TS 33.180 [15]; and

b. shall transmit the built (S)RTP/UDP/IP packet on the MBMS bearer identified by the TMGI indicated in the sent Map Group To Bearer message.

NOTE 2: To save over-the air resources, the terminating MCData participating function releases or reduces the bandwidth of the unicast downlink bearers used for unicast file delivery. However, to enable the ability of rapid switching between unicast and MBMS delivery, the terminating MCData participating function can keep the unicast bearers intact.

Upon receiving error MSRP responses (see IETF RFC 4975 [11]) from the terminating MCData client, the terminating MCData participating function shall forward the error MSRP responses towards the originating MCData client.

**\* \* \* \* \* END CHANGES \* \* \* \* \***