**3GPP TSG-SA WG6 Meeting #36-e S6-200xxx**

**E-meeting, 24th – 28th Feb 2020 (revision of S6-200378)**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.282** | **CR** | **0207** | **rev** | **1** | **Current version:** | **16.5.0** |  |
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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:*** | Clarifications for MCData file distribution over MBMS | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMCData2 | | | | |  | ***Date:*** | | | 2020-02-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It is defined that a file to be distributed based on the MBMS download delivery method is stored in the MCData content server. Therefore, the MCData content server, which should be defined as a functional entity, also needs to provide the file to be distributed over the associated MBMS session.  Also, it is defined in section 7.5.2.3 that the media storage client can perform partial downloads related to an incomplete file. However, it needs to be clarified that it only applies for incomplete files delivered over MBMS. Files that are fully downloaded based on HTTP are already based on reliable transmissions.  Besides, a further clarification is needed for file repair for the delivery of files over MBMS. The MBMS download delivery method consists of distributing a file, which is provided by the MCData service, over MBMS. Therefore, file repair could be implemented within the MBMS user service architecture based on the file provided by the MCData service. Fully encrypted files can be also used for file repair. For the case that a file cannot be fully recovered by the MBMS user service architecture and if the MCData client supports the reception of partial files, the missing parts can still be downloaded by the MCData client. Otherwise, the MCData client can download the complete file based on HTTP. | | | | | | | | |
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| ***Summary of change:*** | | * The MCData content server description is moved to clause 6.6.3.1 as a new functional entity, including that it provides the stored file associated to an established MBMS session. * HTTP-based file downloads do not require file repair mechanisms. So, it is clarified that the media storage client can perform partial download of missing parts of a file delivered over MBMS. * It is included that the MBMS user service architecture may handle recovery of lost packets as described in 3GPP TS 26.346 during file distribution based on the MBMS download delivery method. | | | | | | | | |
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| ***Consequences if not approved:*** | | The implementation of MCData file distribution over MBMS can be unclear and would lead to misunderstandings. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.6.1, (new) 6.6.3.1.4, (new) 6.6.3.1.5, 7.5.2.3.2, 7.5.2.10.1, 7.5.2.10.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \*

### 6.6.1 On-network functional model

Figure 6.6.1-1 shows the application plane functional model for file distribution.



Figure 6.6.1-1: Application plane functional model for file distribution

In the model shown in figure 6.6.1-1, the following apply:

- MCData-FD-1 reference point is used for MCData application signalling for establishing a session in support of MCData file distribution. The bearer is also used for both uplink and downlink unicast data (e.g., URL associated to file, file download completed report).

- MCData-FD-2 reference point carries uplink and downlink unicast file data between the FD functions of the MCData server and the MCData UE.

- MCData-FD-3 reference point carries downlink multicast file data from the FD function of the MCData server to the FD function of the MCData UE.

- MCData-FD-4 reference point carries uplink and downlink unicast file data between the media storage function of the MCData Content server and the media storage client of the MCData UE.

- MCData-FD-5 reference point supports the MCData server to access the stored files in the MCData content server for certain file distribution functions, such as retrieval a file to be distributed through multicast etc. This reference points also supports any necessary operational requirements.

NOTE: The security aspects of MCData-FD-5 reference point are the responsibility of SA3 and thus outside the scope of the present document.

Editor's note: It is FFS on what the operational requirements (such as QoS control of file upload and download) are needed to be supported by this reference point.

\* \* \* Next change \* \* \*

#### 6.6.3.1 Application plane

##### 6.6.3.1.1 FD function

FD function of the MCData client and the MCData server is responsible to handle file distribution capability related requests and responses.

The FD function of the MCData server is responsible for the distribution of file to the MCData communication participants. The FD function of the MCData server provides the following functionality:

- reception of uplink file data by means of the MCData-FD-2 reference point;

- replicate the file data as needed for distribution to those MCData communication participants using unicast transport;

- distribute downlink file data by IP unicast transmission to those MCData communication participants utilizing unicast transport by means of the MCData-FD-2 reference point; and

- distribute downlink file data using multicast downlink transport by means of the MCData-FD-3 reference point.

##### 6.6.3.1.2 Media storage client

The media storage client is used to support FD function of the MCData client for file distribution capability. FD function of the MCData client interacts with media storage client for uploading and downloading file to or from the media storage function of the MCData content server.

##### 6.6.3.1.3 Transmission/Reception control

This functional entity is responsible for transmission and reception control of MCData file data between the sending MCData UE, the MCData server, and the receiving MCData UE. Transmission and reception control function is used to provide arbitration between multiple data requests and apply the necessary policy to ensure that appropriate data is transmitted between the MCData UE. However, when the file distribution requests are exceeding a certain size, it may be necessary to control the data that is transmitted or received by the MCData UEs. The control is subject to criteria like application level priorities (e.g. user priority, group priority), service type, emergency nature of the communication, etc.

##### 6.6.3.1.4 Media storage function

The media storage function is responsible for the storing of media uploaded by the media storage client of the MCData UE in case of MCData file distribution. It also supports download of stored media by the MCData UE in case of file distribution via media storage client.

The media storage function supports partial download requests of stored media by the MCData UE via media storage client.

##### 6.6.3.1.5 MCData content server

The MCData content server functional entity provides a repository area in the MCData trust domain allowing authorized MCData users to temporarily store files that are intended to share to other MCData users. It provides common pool of storage area (i.e. size) to all authorized MCData users to use, no personal space is allocated. An authorized MCData user can use the supported operations on the defined reference point to upload shared files and download the files that are shared to him. The MCData server will use the defined reference point to access the files stored in the MCData content server and support the necessary operational supports. As part of the file life cycle management the temporarily stored files will be removed periodically based on the Mission Critical service provider policy. An MCData content server may share files with another MCData content server in another MCData system to support interconnection.

If the MBMS user service architecture described in 3GPP TS 26.346 [21] is utilized for file distribution, the MCData content server provides the stored file associated to the established MBMS session.

NOTE 1: How the stored file in the MCData content server is provided for distribution over MBMS is out of the scope of the present specification.

NOTE 2: The security aspects of the MCData content server and its operational supports are the responsibility of SA3 and thus outside the scope of the present document.

Next change \* \* \*

##### 7.5.2.3.2 Procedure

The procedure in figure 7.5.2.3.2-1 describes the case where an MCData user is downloading a file from the media storage function of the MCData content server.

Pre-conditions:

1. The MCData user on the media storage client is registered for receiving MCData service.



Figure 7.5.2.3.2-1: File download using HTTP

1. The user at the media storage client initiates a file download request available at the indicated URL.

2. The file available at the URL (received in MCData FD request or MCData group standalone FD request) is requested to be downloaded by the media storage client from the media storage function on the MCData content server using a MCData download data request. If emergency indicator is set in received in MCData FD request or MCData group standalone FD request, the media storage client sets emergency indicator in MCData download data request.

NOTE: The media storage client may perform partial download requests to complete the missing parts after an incomplete file transmission.

3. The media storage function on the MCData content server may apply reception control policy and provides a MCData download data response including the file to the media storage client.

Next change \* \* \*

#### 7.5.2.10 Group standalone file distribution using the MBMS download delivery method

##### 7.5.2.10.1 General

The initiation of a group standalone FD to a selected group results in affiliated group members receiving the file data over MBMS.

The first steps of the procedure are identical to the procedure Group standalone file distribution using HTTP (7.5.2.6). Based on the density and distribution of target group members, the MCData server may decide to deliver the file over MBMS.

The MBMS download delivery method is described in 3GPP TS 26.346, clause 7 [21].

##### 7.5.2.10.2 Procedure

The procedure in figure 7.5.2.10.2-1 describes the case where a MCData user is initiating group standalone data communication for sending file to multiple MCData users, with or without download completed report request.

Pre-conditions:

1. The MCData users on the MCData client 1 to n belong to the same group and are already registered for receiving MCData service and affiliated.

2. The file to be distributed is uploaded to the media storage function on the MCData content server using the procedures defined in subclause 7.5.2.2.



Figure 7.5.2.10.2-1: Group standalone FD using the MBMS download delivery method

1-4. Steps 1-4 are the same as in the procedure for Group standalone FD using HTTP (7.5.2.6).

5. The MCData server executes the procedure described in subclause 7.3.5. The MCData server provides, in the MBMS session properties (subclause 5.4 of 3GPP TS 26.348 [19]), the file location on the media storage function and sets the earlier fetch time with a long enough delay so that steps 6 to 8 are executed before the delivery over MBMS.

6. The MCData server initiates the MCData group standalone FD over MBMS request towards each MCData user determined in step 3. The request is sent over unicast or within an MBMS bearer for application level control signalling.

7. The receiving MCData clients 2 to n notify the users about the incoming MCData group standalone FD request (including file metadata, if present).

8. The MCData client 2 to n automatically send accepted MCData group standalone FD response when the incoming request included mandatory download indication.

NOTE 1: When the UE is in idle mode, MCData clients may skip step 8.

9. The MCData server forwards the MCData group standalone FD responses to the MCData client 1.

NOTE 2: Step 8 can occur at any time following step 6, and prior to step 10 depending on the conditions to proceed with the file transmission.

10. The MCData client receives the file delivered over MBMS.

11. If losses occurred after the end of the file delivery over MBMS, the MCData client may download the missing parts using the procedures defined in subclause 7.5.2.3.

Editor's note: Whether any enhancements are required on MCData-FD5 are FFS.

NOTE 3: If the file is not successfully received over MBMS, e.g. due to a poor MBMS reception quality, the media storage client of the MCData client(s) can download the complete file using the procedures defined in subclause 7.5.2.3.

12. The MCData clients, after a successful reception, initiate a MCData download completed report for reporting file download completed, if requested by the user at MCData client 1.

13. The MCData file download completed reports from the MCData clients may be stored by the MCData server for download history interrogation from authorized MCData users. The MCData file download completed report from each MCData user may be aggregated.

14. Aggregated or individual MCData download completed report is sent by the MCData server to the MCData user at MCData client 1.