**3GPP TSG-SA WG6 Meeting #30 S6-190803**

**Newport Beach, CA, USA, 8th – 12th April 2019 (revision of S6-190562, 190689)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v11.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.282** | **CR** | **0138** | **rev** | **2** | **Current version:** | **16.2.0** |  |
|  | | | | | | | | |
| *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 | **x** | Radio Access Network |  | Core Network | **x** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Interconnection for file distribution | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Motorola Solutions | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMCSMI | | | | |  | | ***Date:*** | | 2019-04-09 |
|  |  | | | |  | | |  | |  |
| ***Category:*** | **B** |  | | | | | | ***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:*** | | Addition of interconnection to MCData file distribution | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Additional reference points and procedures added to allow file to be sent from an MCData user in the primary MCData system to an MCData user in a partner MCData system.  Minor typographical errors corrected. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Interconnection of MCData file distribution is not specified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.6.1, 6.6.1a (new), 7.5.2.4.1, 7.5.2.4.2, 7.5.2.4.3 (new), 7.5.2.8.2, 7.5.2.8.3 (new), 7.5.2.1.5, 7.5.2.1.6, 7.5.2.1.7, 7.5.2.1.14, 7.5.2.1.15, 7.5.2.1.16, 7.5.2.1.17, 7.5.2.1.x (new), 7.5.2.1.y (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* 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 1: 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.

Editor's note: It is FFS if the name of "MCData-FD-5" reference point should be renamed to use a different number (such as MCData-FD-9) to avoid conflicting with the existing MCData base reference points (MCData-1, MCData-2 …) in numbering.

- MCData content server is a repository area in the MCData trust domain that allows authorized MCData user 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 peoridically 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.

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

\* \* \* Next Change \* \* \* \*

### 6.6.1a On-network functional model for interconnection

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



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

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

- MCData-FD-1, MCData-FD-2, MCData-FD-3, MCData-FD-4, MCData-FD-5 reference points are described in subclause 6.6.1.

- MCData-7 and MCData-8 reference points are described in subclause 6.4.4.1.

- The MC gateway server is described in subclause 6.4.3.1.5.

- MCData-3 and MCData-9 allow the MCData server in the primary MCData system to share URLs related to files for upload and download with the MCData server in the partner MCData system.

- MCData-FD-6 allows file contents and metadata to be shared between the MCData content server in the primary MCData system and the MCData content server in the partner MCData system. MCData‑FD‑6 is based on HTTP.

- The HTTP proxies are contained in the signalling plane. They provide topology and IP address hiding between MCData systems.

\* \* \* Next Change \* \* \* \*

#### 7.5.2.4 One-to-one file distribution using HTTP

##### 7.5.2.4.1 General

The MCData client uses HTTP file distribution to download a file that is uploaded by another MCData client. The procedure is appropriate for both mandatory and non-mandatory download cases.

##### 7.5.2.4.2 Procedure for single MCData system

The procedure in figure 7.5.2.4.2-1 describes the case where a MCData user is initiating one-to-one data communication for sending file to the other MCData user, with or without download completed report request.

Pre-conditions:

1. The MCData users on the MCData client 1 and the MCData client 2 are already registered for receiving MCData service.

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



Figure 7.5.2.4.2-1: One-to-one file distribution using HTTP

1. The user at the MCData client 1 initiates a file distribution request to the chosen MCData user.

2. The MCData client 1 sends a MCData FD request towards the MCData server. The MCData FD request contains content payload in the form of file URL and may contain the file metadata information. The MCData FD request contains one MCData user for one-to-one data communication as selected by the user at MCData client 1. The MCData FD request contains conversation identifier for message thread indication. If MCData user at MCData client 1 has requested to mandatory download at the recipient side, then MCData FD request contains mandatory download indication. The MCData FD request may contain download completed report indication if selected by the user at MCData client 1.

3. MCData server checks whether the MCData user at MCData client 1 is authorized to send MCData FD request and that the size of the file is below maximum data size for FD from the service configuration.

4. The MCData server also applies transmission and reception control and the necessary policy control to ensure that appropriate data is transmitted between the MCData users.

5. MCData server initiates the MCData FD request towards the MCData user.

6. The receiving MCData client 2 notifies the user about the incoming MCData FD request (including file metadata, if present) which may be either accepted or rejected or ignored.

7. MCData user 2 may provide a response (accept or reject) or not (ignore) to the notification, then MCData client 2 sends the MCData FD response to the MCData server. MCData client 2 automatically sends accepted MCData FD response when the incoming request includes mandatory download indication.

8. The MCData server forwards the MCData FD response to the MCData client 1.

9. Media storage client of MCData client 2 downloads the file using the procedures defined in subclause 7.5.2.3, either automatically (for mandatory download) or based upon the MCData user 2 subsequent action. The MCData client 2 records file download completed and notifies MCData user 2.

10. MCData client 2 initiates a MCData download completed report for reporting file download completed, if requested by the user at MCData client 1.

11. The MCData file download completed report from MCData user may be stored by the MCData server for download history interrogation from the authorized MCData users. MCData download completed report is sent by the MCData server to the MCData user at MCData client 1.

\* \* \* Next Change \* \* \* \*

##### 7.5.2.4.3 Procedure with interconnection between MCData systems

The procedure in figure 7.5.2.4.3-1 describes the case where a MCData user initiates a one-to-one data communication for sending a file to another MCData user where that other MCData user is receiving MCData service on a partner MCData system, and where interconnection is in use between the two MCData systems. In this procedure, the file has not previously been downloaded in the partner MC system.

Pre-conditions:

1. The MCData users on the MCData client 1 and the MCData client 2 are already service authorized and receiving MCData service. MCData client 1 is receiving service on its primary MCData system, and MCData client 2 is receiving MCData service in the partner MCData system of MCData client 1.

2. The file to be distributed has been uploaded to the media storage function on the MCData content server in the primary MCData system of MCData client 1 using the procedures defined in subclause 7.5.2.2.

3. There is a service agreement between the primary and partner MCData systems to allow files to be shared between MCData content servers in the two systems.



Figure 7.5.2.4.3-1: One-to-one file distribution using HTTP with interconnection

1. The user at the MCData client 1 initiates a file distribution request to the MCData user at MCData client 2.

2. MCData client 1 sends an MCData FD request towards the primary MCData server. The MCData FD request contains content payload in the form of a file URL with the necessary access authorization information and may contain the file metadata information. The MCData FD request indicates the target MCData user for the one-to-one data communication. The MCData FD request contains a conversation identifier for message thread indication. If the MCData user at MCData client 1 has requested to mandatory download at the recipient side, then the MCData FD request contains the mandatory download indication. The MCData FD request may contain a request for a download completed report indication if selected by the user at MCData client 1.

3. MCData server checks whether the MCData user at MCData client 1 is authorized to send the MCData FD request and that the size of the file is below maximum data size for FD from the service configuration.

4. The MCData server in the primary MCData system initiates the MCData FD request towards the MCData server in the partner MCData system, which contains the URL of the file which is stored in the primary MCData content server. The request includes the necessary access authorization information as MCData client 2 will retrieve the file while receiving service in the partner MCData system.

NOTE 1: The contents of and mechanisms to use the authorization information are outside the scope of the present document.

5, The partner MCData server sends the MCData FD request to MCData client 2.

6. The receiving MCData client 2 may notify the user about the incoming MCData FD request (including file metadata, if present) which may be either accepted, rejected or ignored.

7. MCData user 2 may provide a response (accept or reject) or not (ignore) to the notification, then MCData client 2 sends the MCData FD response to the partner MCData server. MCData client 2 automatically sends an accepted MCData FD response when the incoming request includes mandatory download indication.

8. The partner MCData server forwards the MCData FD response to the MCData server in the primary MCData system.

9. The primary MCData server forwards the MCData FD response to MCData client 1.

10. MCData client 2 requests the file from the partner MCData content server. The URL provided in step 5 is prepended with server URI of the partner MCData content server, such that the URL identifies a file location in the partner MCData content server.

NOTE 2: Step 10 may occur any time after step 7, before or after steps 8 and 9.

11. The partner MCData content server checks whether the file is stored locally, and if this is not the case, sends an MCData file retrieve request to the primary MCData content server. The MCData file retrieve request contains the URL of the file location in the primary MCData system, generated by removing the prepended local path from the requested URL.

NOTE 3: The means of proving authorization for the request is outside the scope of the present document.

12. The primary MCData content server responds to the partner MCData content server with an MCData file retrieve response which contains the content of the file to be retrieved. File metadata may include the lifetime of the file. The primary MCData content server records that the file has been sent to the indicated partner MCData system.

NOTE 4: The partner MCData content server may store the local copy of the file in case future requests arise until the nominated expiry time for the file is reached or until an expiry time dictated by local policy arises if shorter than the expiry time sent from the primary MCData system, or until a request is received to delete the file.

13. The partner MCData content server sends the file to MCData client 2 in the MCData download data response. MCData client 2 records file download completed and notifies MCData user 2.

14. MCData client 2 initiates an MCData download complete report for reporting file download completed, if this was requested by the user at MCData client 1 in the initial MCData FD request.

15. The MCData download complete report is sent to the primary MCData server. The partner MCData server may store the download complete report for download history interrogation from authorized MCData users in the partner MCData system.

16. The MCData download completed report is sent by the primary MCData server to the MCData user at MCData client 1. The MCData file download completed report from MCData user may be stored by the primary MCData server for download history interrogation from authorized MCData users in the primary MCData system.

\* \* \* Next Change \* \* \* \*

#### 7.5.2.8 File removal using HTTP by authorized user

##### 7.5.2.8.1 General

The media storage client uses HTTP to remove a file that was previously uploaded to the MCData content server.

##### 7.5.2.8.2 Procedure for single MCData system

The procedure in figure 7.5.2.8.2-1 describes the case where a MCData user is removing the file that was previously uploaded to the MCData content server.

Pre-conditions:

1. The MCData user on the media storage client is registered for receiving MCData service.
2. The file has been successfully uploaded by the MCData user using the procedures defined in subclause 7.5.2.2.



Figure 7.5.2.8.2-1: File removal using HTTP by authoried user

1. The user on the media storage client decides to remove a file that was previously uploaded.

2. The URL of the file to be removed is included in the request sent to the media storage function on the MCData content server.

3. The MCData content server removes the file indicated by the URL.

4. The MCData content server informs the media storage client if the file is successfully removed.

Editor's note: It is FFS if and how the recipients of the file URL need to be notified if the file is no longer available to be downloaded

##### 7.5.2.8.3 Procedure for interconnection between MCData systems

The procedure in figure 7.5.2.8.3-1 describes the case where an MCData user removes the file that was previously uploaded to the primary MCData system MCData content server, and where the file has been made available in the partner MCData system MCData content server.

Pre-conditions:

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

2. The file has previously been uploaded to the MCData content server in the primary MCData system of MCData client 1.

3. The file has been successfully transferred to the MCData content server in the partner MCData system.



Figure 7.5.2.8.3-1: File removal using HTTP by authorized user

1. The user on the media storage client decides to remove a file that was previously uploaded.

2. The URL of the file to be removed is included in the request sent to the media storage function on the primary MCData content server.

3. The primary MCData content server removes the file indicated by the URL.

NOTE: Step 3 may occur at any time following step 2 and before step 6.

4. As the primary MCData content server has recorded that the file has previously been sent to the partner MCData system, the primary MCData content server sends the MCData remove file request by user to the partner MCData content server, containing the URL of the file which was stored on the primary MCData content server.

5. The partner MCData content server removes the file indicated by the URL.

6. The partner MCData content server informs the primary MCData content server that the file has been successfully removed.

7. The primary MCData content server informs the media storage client if the file is successfully removed.

Editor's note: It is FFS if and how the recipients of the file URL need to be notified if the file is no longer available to be downloaded

\* \* \* Next Change \* \* \* \*

##### 7.5.2.1.5 MCData FD request (using HTTP)

Table 7.5.2.1.5-1 describes the information flow for the MCData FD request (in subclause 7.5.2.4.2) sent from the MCData client to the MCData server, from the MCData server to another MCData client and from an MCData server to a partner MCData server.

Table 7.5.2.1.5-1: MCData FD request (using HTTP)

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MCData ID | M | The identity of the MCData user sending file |
| MCData ID | M | The identity of the MCData user receiving file |
| Conversation Identifier | M | Identifies the conversation |
| Transaction Identifier | M | Identifies the MCData transaction |
| Reply Identifier | O | Identifies the original MCData transaction to which the current transaction is a reply to |
| Disposition indication | O | Indicates whether file download completed reported is expected or not |
| Download indication | O | Indicates mandatory download |
| Content reference | M | URL reference to the content and file metadata information |

##### 7.5.2.1.6 MCData FD response (using HTTP)

Table 7.5.2.1.6-1 describes the information flow for the MCData FD response (in subclause 7.5.2.4.2) sent from the MCData client to the MCData server, from the MCData server to another MCData client and from an MCData server to a partner MCData server.

Table 7.5.2.1.6-1: MCData FD response (using HTTP)

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MCData ID | M | The identity of the MCData user sending FD request |
| MCData ID | M | The identity of the MCData user sending response |
| Conversation Identifier | M | Identifies the conversation |

##### 7.5.2.1.7 MCData download completed report

Table 7.5.2.1.7-1 describes the information flow for the MCData download completed report sent from the MCData client to the MCData server, from the MCData server to another MCData client and from an MCData server to a partner MCData server.

Table 7.5.2.1.7-1: MCData download completed report

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MCData ID | M | The identity of the MCData user sending FD request |
| MCData ID | M | The identity of the MCData user sending response |
| Conversation Identifier | M | Identifies the conversation |
| Transaction Identifier | M | Identifies the MCData transaction |
| Reply Identifier | M | Identifies the original MCData transaction to which the current transaction is a reply to |
| Disposition confirmation | M | An indication that the client has completed downloading file |

\* \* \* Next Change \* \* \* \*

##### 7.5.2.1.14 MCData remove file request by user

Table 7.5.2.1.14-1 describes the information flow for the MCData remove file request by user sent from the media storage client to the media storage function of the MCData content server, and from the MCData content server to another MCData content server in a partner MCData system.

Table 7.5.2.1.14-1: MCData remove file request by user

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MCData ID (NOTE 1) | O | The identity of the MCData user removing file |
| Partner MCData system identity (NOTE 2) | O | The identity of the partner MCData system where the file has also been downloaded |
| Content reference | M | URL of the content to be removed |
| NOTE 1: The identity of the MCData user removing the file is present when sent from MCData client to MCData content server  NOTE 2: The identity of the partner MCData system is present when sent from MCData content server to MCData content server. | | |

##### 7.5.2.1.15 MCData remove file response by user

Table 7.5.2.1.15-1 describes the information flow for the MCData remove file response by user sent from the media storage function of the MCData content server to the media storage client, and from the MCData content server to another MCData content server in a partner MCData system.

Table 7.5.2.1.15-1: MCData remove file response by user

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MCData ID (NOTE 1) | O | The identity of the MCData user removing file |
| Partner MCData system identity (NOTE 2) | O | The identity of the partner MCData system where the file has also been downloaded |
| Result | M | Indicates the success or failure of the file removal |
| NOTE 1: The identity of the MCData user removing the file is present when sent from MCData content server to MCData client  NOTE 2: The identity of the partner MCData system is present when sent from MCData content server to MCData content server. | | |

\* \* \* Next Change \* \* \* \*

##### 7.5.2.1.x MCData file retrieve request

Table 7.5.2.1.x-1 describes the information flow for the MCData file retrieve request sent from an MCData content server in a partner MCData system to an MCData content server in the primary MCData system of the source of the content.

Table 7.5.2.1.x-1: MCData file retrieve request

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Content reference | M | URL reference to the content to download |

##### 7.5.2.1.y MCData file retrieve response

Table 7.5.2.1.y-1 describes the information flow for the MCData file retrieve response sent from the MCData content server in the primary MCData system of the source of the content to an MCData content server in a partner MCData system.

Table 7.5.2.1.y-1: MCData file retrieve response

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Content (see NOTE) | O | Requested content to download |
| Result | M | Indicates success or failure of MCData download data request |
| NOTE: Content shall be present when the result of the MCData file retrieve request indicates success. | | |