**3GPP TSG-CT WG1 Meeting #122-eC1-200412**

**Electronic meeting, 20-28th February 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.282** | **CR** | **0101** | **rev** | **1** | **Current version:** | **16.2.0** |  |
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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:*** | IP Connectivity | | | | | | | | | |
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| ***Source to WG:*** | Kontron Transportation | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MONASTERY2 | | | | |  | ***Date:*** | | | 02/2720 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Stage 2 specs 3GPP TS 23.282 describes in 5.11 and 6.8 the Functional Model for IP Connectivity.  Previous discussion paper C1-198480 describes the intended functionalites to be introduced in the MC Data Signaling Procedures, MC Data User Profile and MC Data User Profile Management Object | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. MC Data Overview – Clause 4.1 2. Warning fields – Clause 4.9.2 3. Invite Request – Clause 6.3.1.2 4. Authorization – Clause 11.1 5. Addition of IP Connectivity Procedures – Clause 20. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 1 & stage 2 requirements on IP Connectivity are not supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.1, 4.9.2, 6.3.1.2, 11.1,20(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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

## 4.1 MCData overview

The MCData service supports communication between a pair of users (i.e. one-to-one communication) and several users (i.e. group communication), where each user has the ability to:

- share data using Short Data Service (SDS);

- share files using File Distribution (FD) service; and

- exchange Data using IP Connectivity service.

SDS is provided in both, on-network and off-network while FD and IP Connectivity is provided only in on-network in this release of the present document.

The present document provides the signalling control protocol enhancements to support the MCData architectural procedures specified in 3GPP TS 23.282 [2].

For on-network communications, the present document makes use of the existing IMS procedures specified in 3GPP TS 24.229 [5].

The on-network procedures in this document allow an MCData user to:

- send a standalone SDS using signalling control plane;

- send a standalone SDS using media plane;

- initiate a SDS session;

- send a file using HTTP;

- send a file using media plane; and

- establish an IP Connectivity session to exchange Data.

For off-network, the present document utilises the procedures for ProSe direct discovery for Public Ssafety and the procedures for one-to-one ProSe direct communication for Public Safety and one-to-many ProSe direct communication for Public Safety, as specified in 3GPP TS 24.334 [25], and allows an MCData user to:

- send a standalone SDS using signalling control plane.

The MCData procedures provided by the present document refer to:

- the media plane procedures defined in 3GPP TS 24.582 [15];

- the group management procedures defined in 3GPP TS 24.481 [11];

- the identity management procedures defined in 3GPP TS 24.482 [24]; and

- the security procedures defined in 3GPP TS 33.180 [26].

The MCData procedures provided by the present document access the configuration parameters provided by 3GPP TS 24.483 [42] and 3GPP TS 24.484 [12].

The following procedures are provided within this document:

- common procedures are specified in clause 6;

- procedures for registration in the IM CN subsystem and service authorisation are specified in clause 7;

- procedures for affiliation are specified in clause 8;

- procedures for on-network and off-network SDS are specified in clause 9;

- procedures for on-network FD are specified in clause 10;

- procedures for transmission and reception control are specified in clause 11;

- procedures for dispositions and notifications are specified in clause 12;

- procedures for communication release are specified in clause 13;

- procedures for location reporting are specified in clause 17;

- procedure for using MBMS transmission are specified in clause 19; and

- procedures for establishing an IP Connectivity session are specified in clause  20.

The MCData UE primarily obtains access to the MCData service via E-UTRAN, using the procedures defined in 3GPP TS 24.301 [43].

\* \* \* Second Change \* \* \* \*

### 4.9.2 Warning texts

The text string included in a Warning header field consists of an explanatory text preceded by a 3-digit text code, according to the following format in Table 4.4.2-1.

Table 4.9.2-1 ABNF for the Warning text

warn-text =/ DQUOTE mcdata-warn-code SP mcdata-warn-text DQUOTE

mcdata-warn-code = DIGIT DIGIT DIGIT

mcdata-warn-text = \*( qdtext | quoted-pair )

Table 4.4.2-2 defines the warning texts that are defined for the Warning header field when a Warning header field is included in a response to a SIP INVITE request as specified in subclause 4.4.1.

Table 4.9.2-2: Warning texts defined for the Warning header field

|  |  |  |
| --- | --- | --- |
| Code | Explanatory text | Description |
| 101 | service authorisation failed | The service authorisation of the MCData ID against the IMPU failed at the MCData server. |
| 102 | too many simultaneous affiliations | The MCData user already has N2 maximum number of simultaneous affiliations. |
| 104 | isfocus not assigned | A controlling MCData function has not been assigned to the MCData session. |
| 113 | group document does not exist | The group document requested from the group management server does not exist. |
| 114 | unable to retrieve group document | The group document exists on the group management server but the MCData server was unable to retrieve it. |
| 115 | group is disabled | The group has the <disabled> element set to "true" in the group management server. |
| 116 | user is not part of the MCData group | The group exists on the group management server but the requesting user is not part of this group. |
| 120 | user is not affiliated to this group | The MCData user is not affiliated to the group. |
| 136 | authentication of the MIKEY-SAKKE I\_MESSAGE failed | Security context establishment failed. |
| 139 | integrity protection check failed | The integrity protection of an XML MIME body failed. |
| 140 | unable to decrypt XML content | The XML content cannot be decrypted. |
| 141 | user unknown to the participating function | The participating function is unable to associate the public user identity with an MCData ID. |
| 142 | unable to determine the controlling function | The participating function is unable to determine the controlling function for the group call or private call. |
| 145 | unable to determine called party | The participating function was unable to determine the called party from the information received in the SIP request. |
| 198 | no users are affiliated to this group | No users in the group are affiliated. |
| 199 | expected MIME bodies not in the request" | The expected MIME bodies were not received in the SIP request. |
| 200 | user not authorised to transmit data | The MCData user is not authorised to transmit data. |
| 201 | user not authorised to transmit data on this group identity | The MCData user is not authorised to transmit data on the group identity included in the request. |
| 202 | user not authorised for one-to-one MCData communications due to exceeding the maximum amount of data that can be sent in a single request | The MCData user is not authorised for one-to-one MCData communications due to exceeding the maximum amount of data that can be sent in a single request |
| 203 | message too large to send over signalling control plane | The MCData client sent data that is greater than the size that can be handled by the signalling control plane. |
| 204 | unable to determine targeted user for one-to-one SDS | The MCData server is unable to determine the targeted user for one-to-one SDS. |
| 205 | unable to determine targeted user for one-to-one FD | The MCData server is unable to determine the targeted user for one-to-one FD. |
| 206 | short data service not allowed for this group | SDS is not allowed on the group indicated in the SDS request. |
| 207 | SDS services not supported for this group | SDS services not supported for this group |
| 208 | user not authorised for MCData communications on this group identity due to exceeding the maximum amount of data that can be sent in a single request | The MCData user is not authorised for group MCData communications due to exceeding the maximum amount of data that can be sent in a single request. |
| 209 | one FD SIGNALLING PAYLOAD or FD HTTP TERMINATION message only must be present in FD request | Only one FD SIGNALLING PAYLOAD or FD HTTP TERMINATION message must be present in FD request |
| 210 | Only one File URL must be present in the FD request | Only one File URL must be present in the FD request. |
| 211 | payload for an FD request is not FILEURL | The payload in the FD request did not contain a FILEURL |
| 212 | file referenced by file URL does not exist | The MCData server was unable to locate the file referenced by the file URL. |
| 213 | file distribution not allowed for this group | FD is not allowed on the group indicated in the FD request. |
| 214 | FD services not supported for this group | FD services not supported for this group |
| 215 | request to transmit is queued by the server | The MCData request was queued by the server for later transmission. |
| 216 | unable to correlate the disposition notification | The MCData server was unable to correlate the disposition notification to a MCData message. |
| 217 | user not authorised for SDS communications on this group identity due to message size | The size of the message exceeded the maximum data allowed for SDS communications on this group identity |
| 218 | user not authorised for one-to-one SDS communications due to message size | The size of the message exceeded the maximum data allowed for one-to-one SDS communications. |
| 219 | user not authorised for FD communications on this group identity due to file size | The size of the file exceeded the maximum data allowed for FD communications on this group identity |
| 220 | user not authorised for FD communications due to file size | The size of the file exceeded the maximum data allowed for one-to-one FD communications. |
| 221 | user not authorised to initiate one-to-one SDS session | The MCData user is not authorised to initiate a one-to-one SDS session. |
| 222 | user not authorised to initiate group SDS session on this group identity | The MCData user is not authorised to initiate a SDS session on the group identity included in the request. |
| 223 | No Conversation ID or Message ID present | Conversation ID and Message ID required to identify transmission |
| 224 | No Transmission available | No transmission identified with given Conversation ID, Message Id and file URL |
| 225 | User not authorized to initiate pre-established session | The MCData user is not authorised to initiate a pre-established MCData session. |
| 226 | function not allowed due to pre-established session not supported | Pre-established session is not supported by MCData participating function |
| xxx | unable to determine targeted user for one-to-one IP Connectivity | The MCData server is unable to determine the targeted user for one-to-one IP Connectivity. |

\* \* \* Third Change \* \* \* \*

#### 6.3.1.2 SIP INVITE request

The MCData server needs to distinguish between the following SIP INVITE requests for originations and terminations:

- SIP INVITE requests routed to the participating MCData function with the Request-URI set to a public service identity of the participating MCData function and contain in an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdataInfo> element containing the <mcdata-Params> element with the <anyExt> element an <pre-established-session-ind> element set to a value of "true". Such requests are known as "SIP INVITE request for establishing a pre-established session" in the procedures in the present document;

- SIP INVITE request routed to the originating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-sds" or "group-sds" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for standalone SDS over media plane for originating participating MCData function";

- SIP INVITE request routed to the terminating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-sds" or "group-sds" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for standalone SDS over media plane for terminating participating MCData function";

- SIP INVITE request routed to the controlling MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-sds" or "group-sds" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for controlling MCData function for standalone SDS over media plane";

- SIP INVITE request routed to the originating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-sds-session" or "group-sds-session" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for SDS session for originating participating MCData function";

- SIP INVITE request routed to the terminating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-sds-session" or "group-sds-session" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for SDS session for terminating participating MCData function";

- SIP INVITE request routed to the controlling MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.sds" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-sds-session" or "group-sds-session" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for controlling MCData function for SDS session";

- SIP INVITE request routed to the originating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-fd" or "group-fd" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for file distribution for originating participating MCData function";

- SIP INVITE request routed to the terminating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-fd" or "group-fd" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for file distribution for terminating participating MCData function";

- SIP INVITE request routed to the controlling MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.fd" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-fd" or "group-fd" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for controlling MCData function for file distribution";

- SIP INVITE request routed to the originating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-ipconn" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for IP Connectivity session for originating participating MCData function;.

- SIP INVITE request routed to the terminating participating MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-ipconn" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for IP Connectivity session for terminating participating MCData function"; and

- SIP INVITE request routed to the controlling MCData function with an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn", and an ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" in a P-Asserted-Service header field and a <request-type> element set to "one-to-one-ipconn" contained in an application/vnd.3gpp.mcdata-info+xml MIME body. Such requests are known as "SIP INVITE request for controlling MCData function for IP Connectivity session".

\* \* \* Fourth Change \* \* \* \*

# 11 Transmission and Reception Control

## 11.1 General

The MCData functional entities (as specified in subclause 5.2 and subclause 5.3) check if the MCData user is allowed to initiate MCData communications by following the procedures specified below:

1) if the MCData user wishes to send one-to-one MCData communications and the <allow-transmit-data> element of an <actions> element is not present in the MCData user profile document or is present with the value "false" (see the MCData user profile document in 3GPP TS 24.484 [12]), , the MCData client and participating MCData function shall determine that the MCData user is not allowed to send MCData communications and shall not continue with the rest of the steps;

2) if the MCData user wishes to send group MCData communications on an MCData group identity and the <mcdata-allow-transmit-data-in-this-group> element of an <actions> element is not present in the MCData group document or is present with the value "false" as specified in 3GPP TS 24.481 [11], the MCData client and controlling MCData function shall determine that the MCData user is not allowed to send group MCData communications on this group identity, and shall not continue with the rest of the steps;

3) if the MCData user wishes to send one-to-one SDS communications and the size of the payload is greater than the value contained in the <max-data-size-sds-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], the MCData client and controlling MCData function shall determine that the MCData user is not allowed to send SDS communications due to message size and shall not continue with the rest of the steps;

4) if the MCData user wishes to send one-to-one FD communications and the size of the data that the MCData user wishes to send is greater than the value contained in the <max-data-size-fd-bytes> element in the MCData service configuration document as specified in 3GPP TS 24.484 [12], the MCData client and controlling MCData function shall determine that the MCData user is not allowed to send FD communications due to file size and shall not continue with the rest of the steps;

5) if the MCData user wishes to send group SDS communications on an MCData group identity and the size of the data that the MCData user wishes to send is greater than the value contained in the <mcdata-on-network-max-data-size-for-SDS> element in the MCData group document for the MCData group ID as specified in 3GPP TS 24.481 [11], then the MCData client and the controlling MCData function shall determine that the MCData user is not allowed to send SDS communications on this group identity due to message size and shall not continue with the rest of the steps;

6) if the MCData user wishes to send group FD communications on an MCData group identity and the size of the data that the MCData user wishes to send is greater than the value contained in the <mcdata-on-network-max-data-size-for-FD> element in the MCData group document for the MCData group ID as specified in 3GPP TS 24.481 [11], then the MCData client and the controlling MCData function shall determine that the MCData user is not allowed to send FD communications on this group identity due to file size and shall not continue with the rest of the steps;

7) if the MCData user wishes to send one-to-one MCData communications to another MCData user and the size of the payload is greater than the maximum amount of data that the MCData user can transmit in a single request during one-to-one communications contained in the <MaxData1To1> element of the MCData user profile document (see the MCData user profile document in 3GPP TS 24.484 [12]), the MCData client and participating MCData function shall determine that the MCData user is not allowed to send one-to-one MCData communications due to exceeding the maximum amount of data that can be sent in a single request and shall not continue with the rest of the steps;

8) if the MCData user wishes to send group MCData communications on an MCData group identity and the size of the payload is greater than the maximum amount of data that the MCData user can transmit in a single request during group communications in the group identified by the MCData group identity in the request contained in the <mcdata-max-data-in-single-request> element of the <entry> element of the MCData group document as specified in 3GPP TS 24.481 [11], the MCData client and the controlling MCData function shall determine that the MCData user is not allowed to send group MCData communications on this group identity due to exceeding the maximum amount of data that can be sent in a single request and shall not continue with the rest of the steps;

9) if the MCData user wishes to initiate a SDS session for later use with one-to-one MCData communications there are no further checks for the MCData client which shall continue at step 11). If, for either the originating user or the terminating user, the <allow-transmit-data> element of an <actions> element is not present in the MCData user profile document or is present with the value "false" (see the MCData user profile document in 3GPP TS 24.484 [12]), the participating MCData function shall determine that the MCData user is not allowed to initiate a SDS session and shall not continue with the rest of the steps;

10) if the MCData user wishes to initiate a SDS session on an MCData group identity and the <mcdata-allow- short-data-service> element of a <list-service> element is not present in the MCData group document or is present with the value "false" as specified in 3GPP TS 24.481 [11], the MCData client and controlling MCData function shall determine that the MCData user is not allowed to initiate a SDS session on this group identity and shall not continue with the rest of the steps;

11) if the MCData user wishes to initiate an IP Connectivity session with one-to-one MCData communications and the <allow-transmit-data> element of an <actions> element is not present in the MCData user profile document or is present with the value "false" as specified in 3GPP TS 24.484 [12], the MCData client and controlling MCData function shall determine that the MCData user is not allowed to initiate an IP Connectivity session and shall not continue with the rest of the steps; and

12) the MCData functional entity shall determine that the MCData user is allowed to initiate MCData communications.

\* \* \* Fifth Change \* \* \* \*

# 20 IP Connectivity

## 20.1 General

This subclause describes the IP Connectivity procedures between two MCData clients for on-network. Included are the procedures for MCData client procedures, participating MCData function procedures and controlling MCData function procedures.

### 20.1.1 MC Data client SDP offer/answer generation

When a MCData client decides to establish an IP Connectivity session, or is answering an IP Connectivity request the MCData client shall include an SDP offer/answer according to subclause 6.1.2 of 3GPP TS 24.229 [5] with the following clarifications:

Editor's note: How a data host using the MCData client IP Connectivity capabilities triggers a new IP Connectivity session is FFS.

1) shall set the IP address of the MC Data client to the IP address to be used in the IP Connectivity session; and

NOTE: The MC service operator policy determines if the MC Data client should use an already assigned IP address or should request a new IP address following the procedures defined in 3GPP TS 24.301 [43].

2) shall add a zero port number value to the media descriptions of the SDP offer, in order to inform network entities that media resources are not requested for the session.

### 20.1.2 MC Data participating server SDP offer/answer generation

The SDP offer/answer is generated based on the received SDP offer/answer. The SDP offer/answer generated by the MC Data participating function:

1. shall replace the IP address for the offered media stream in the received SDP offer with the IP address of the participating or controlling MC Data function, if required; and
2. shall ensure the port number is zero.

### 20.1.3 MC Data controlling server SDP offer/answer generation

The SDP offer/answer is generated based on the received SDP offer/answer. The SDP offer/answer generated by the MC Data controlling function:

1. shall replace the IP address for the offered media stream in the received SDP offer with the IP address of the participating or controlling MC Data function, if required; and

NOTE: Requirements can exist for the MC Data controlling server to be in the path of the data exchange between authorized MC Data users in order to limit the exchange in terms of volume or time limits.

1. shall ensure the port number is zero.

## 20.2 MCData Client Procedures

### 20.2.1 MCData client originating procedures

When a MCData client receives the request by a user or user application to establish a IP Connectivity session with another MCData client the MCData client shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5] with the clarifications given below.

The MCData client:

1) shall include the g.3gpp.mcdata.ipconn media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" in the Contact header field of the SIP INVITE request according to IETF RFC 3840 [16];

2) shall include an Accept-Contact header field containing the g.3gpp.mcdata.ipconn media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];

3) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];

4) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" (coded as specified in 3GPP TS 24.229 [5]), in a P-Preferred-Service header field according to IETF RFC 6050 [7] in the SIP INVITE request;

5) should include the "timer" option tag in the Supported header field;

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) shall insert in the SIP INVITE request a MIME resource-lists body with the MCData ID of the invited MCData user, according to rules and procedures of IETF RFC 5366 [18];

8) shall contain an application/vnd.3gpp.mcdata-info+xml MIME body with the <mcdatainfo> element containing the <mcdata-Params> element with:

a) the <request-type> element set to a value of "one-to-one-ipconn"

9) shall set the Request-URI of the SIP INVITE request to the public service identity identifying the participating MCData function serving the MCData user;

NOTE 1: The MCData client is configured with public service identity identifying the participating MCData function serving the MCData user.

10) may include a P-Preferred-Identity header field in the SIP INVITE request containing a public user identity as specified in 3GPP TS 24.229 [5];

11) shall include an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 20.1.1; and

12) shall send the SIP INVITE request towards the MCData server according to 3GPP TS 24.229 [5].

On receipt of a SIP 2xx response to the SIP INVITE request, the MCData client:

1) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5];

2) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38]; and

3) shall interact with MC Data user or user application.

On receipt of a SIP 4xx response, a SIP 5xx response or a SIP 6xx response to the SIP INVITE request, the MCData client:

1) shall indicate to the MCData user or user application that the IP Connectivity session could not be established; and

2) shall send a SIP ACK request as specified in 3GPP TS 24.229 [5].

On receipt of an indication from the media plane indicating that the IP Connectivity session could not be established, the MCData client:

1) shall generate a SIP BYE request according to 3GPP TS 24.229 [5] with:

a) Reason code set to "FAILURE\_CAUSE";

b) cause set to "1"; and

c) text set to "Media bearer or QoS lost";

2) shall set the Request-URI to the MCData session identity to release; and

3) shall send a SIP BYE request towards MCData server according to 3GPP TS 24.229 [5].

### 20.2.2 MCData client terminating procedures

Upon receipt of an initial SIP INVITE request, the MCData client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [5] with the clarifications below.

The MCData client:

1) may reject the SIP INVITE request if either of the following conditions are met:

a) MCData client does not have enough resources to handle the IP Connectivity session; or

b) any other reason outside the scope of this specification;

and skip the rest of the steps after step 2;

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCData function either with appropriate reject code as specified in 3GPP TS 24.229 [5] and warning texts as specified in subclause 4.9 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure and skip the rest of the steps of this subclause;

3) shall interact with the MCData user or user application providing the MCData ID of the inviting MCData user;

4) shall accept the SIP INVITE request and generate a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [5];

5) shall include the option tag "timer" in a Require header field of the SIP 200 (OK) response;

6) shall include the Session-Expires header field in the SIP 200 (OK) response and start the SIP session timer according to IETF RFC 4028 [38]. The "refresher" parameter in the Session-Expires header field shall be set to "uas";

7) shall include the g.3gpp.mcdata.ipconn media feature tag in the Contact header field of the SIP 200 (OK) response;

8) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" in the Contact header field of the SIP 200 (OK) response;

9) shall include an SDP answer in the SIP 200 (OK) response to the SDP offer in the incoming SIP INVITE request according to 3GPP TS 24.229 [5] with the clarifications given in subclause 20.1.1; and

10) shall send the SIP 200 (OK) response towards the MCData server according to rules and procedures of 3GPP TS 24.229 [5].

On receipt of an SIP ACK message to the sent SIP 200 (OK) message, the MCData client shall:

1) shall interact with MC Data user or user application.

## 20.3 Participating MCData function procedures

### 20.3.1 Originating participating MCData function procedures

Upon receipt of a "SIP INVITE request for IP Connectivity session for originating participating MCData function", the participating MCData function:

1) if unable to process the request, may reject the SIP INVITE request with a SIP 500 (Server Internal Error) response. The participating MCData function may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [4] and skip the rest of the steps;

2) shall determine the MCData ID of the calling user from the public user identity in the P-Asserted-Identity header field of the SIP INVITE request, and shall authorise the calling user;

NOTE: The MCData ID of the calling user is bound to the public user identity at the time of service authorisation, as documented in subclause 7.3.

3) if the participating MCData function cannot find a binding between the public user identity and an MCData ID or if the validity period of an existing binding has expired, then the participating MCData function shall reject the SIP INVITE request with a SIP 404 (Not Found) response with the warning text set to "141 user unknown to the participating function" in a Warning header field as specified in subclause 4.9, and shall not continue with any of the remaining steps;

4) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP INVITE request is:

a) set to a value of "one-to-one-ipconn", shall determine the public service identity of the controlling MCData function hosting the one-to-one IP Connectivity service for the calling user.

5) if unable to identify the controlling MCData function for IP Connectivity session, shall reject the SIP INVITE request with a SIP 404 (Not Found) response with the warning text "142 unable to determine the controlling function" in a Warning header field as specified in subclause 4.9, and shall not continue with any of the remaining steps;

6) shall determine whether the MCData user identified by the MCData ID is authorised for MCData communications by following the procedures in subclause 11.1;

7) if the procedures in subclause 11.1 indicate that the user identified by the MCData ID is not allowed to initiate MCData communications, shall reject the "SIP INVITE request for IP Connectivity session for originating participating MCData function" with a SIP 403 (Forbidden) response to the SIP INVITE request, with warning text set to "200 user not authorised to transmit data" in a Warning header field as specified in subclause 4.9, and shall not continue with the rest of the steps in this subclause;

8) shall generate a SIP INVITE request in accordance with 3GPP TS 24.229 [5];

9) shall include the option tag "timer" in the Supported header field;

10) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

11) shall set the Request-URI of the outgoing SIP INVITE request to the public service identity of the controlling MCData function as determined by step 4) in this subclause;

12) shall include the MCData ID of the originating user in the <mcdata-calling-user-identity> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP INVITE request;

13) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" (coded as specified in 3GPP TS 24.229 [5]), into the P-Asserted-Service header field of the outgoing SIP INVITE request;

14) shall set the P-Asserted-Identity in the outgoing SIP INVITE request to the public user identity in the P-Asserted-Identity header field contained in the received SIP INVITE request;

15) shall include an SDP offer according to 3GPP TS 24.229 [5] based on the clause  20.1.2; and

16) shall send the SIP INVITE request as specified to 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the SIP INVITE request in step 16):

1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5];

2) shall include the option tag "timer" in a Require header field;

3) shall include the Session-Expires header field according to rules and procedures of IETF RFC 4028 [38], "UAS Behavior". If the "refresher" parameter is not included in the received request, the "refresher" parameter in the Session-Expires header field shall be set to "uac";

4) shall include the following in the Contact header field:

a) the g.3gpp.mcdata.ipconn media feature tag;

b) the g.3gpp.icsi-ref media feature tag containing the value of “urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn”; and

c) the isfocus media feature tag;

5) shall include Warning header field(s) that were received in the incoming SIP 200 (OK) response;

6) shall include an MCData session identity mapped to the MCData session identity provided in the Contact header field of the received SIP 200 (OK) response;

7) if the incoming SIP 200 (OK) response contained an application/vnd.3gpp.mcdata-info+xml MIME body, shall copy the application/vnd.3gpp.mcdata-info+xml MIME body to the outgoing SIP 200 (OK) response.

8) shall include the public service identity received in the P-Asserted-Identity header field of the incoming SIP 200 (OK) response into the P-Asserted-Identity header field of the outgoing SIP 200 (OK) response; and

9) shall interact with the media plane as specified in 3GPP TS 24.582 [15];

Editor's note: The media plane procedures for IP Connectivity is FFS.

10) shall send the SIP 200 (OK) response to the MCData client according to 3GPP TS 24.229 [5]; and

11) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP INVITE request in step 15) the participating MCData function:

1) shall generate a SIP response according to 3GPP TS 24.229 [5];

2) shall include Warning header field(s) that were received in the incoming SIP response; and

3) shall forward the SIP response to the MCData client according to 3GPP TS 24.229 [5].

### 20.3.2 Terminating participating MCData function procedures

Upon receipt of a "SIP INVITE request for IP Connectivity session for terminating participating MCData function", the participating MCData function:

1) if unable to process the request, may reject the SIP INVITE request with a SIP 500 (Server Internal Error) response. The participating MCData function may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [4] and skip the rest of the steps;

2) shall check the presence of the isfocus media feature tag in the URI of the Contact header field and if it is not present then the participating MCData function shall reject the request with a SIP 403 (Forbidden) response with the warning text set to "104 isfocus not assigned" in a Warning header field as specified in subclause 4.4, and shall not continue with the rest of the steps;

3) shall use the MCData ID present in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP INVITE request to retrieve the binding between the MCData ID and public user identity of the terminating MCData user;

4) if the binding between the MCData ID and public user identity of the terminating MCData user does not exist, then the participating MCData function shall reject the SIP INVITE request with a SIP 404 (Not Found) response, and shall not continue with the rest of the steps;

5) shall generate a SIP INVITE request accordance with 3GPP TS 24.229 [5];

6) should include the Session-Expires header field according to IETF RFC 4028 [38]. It is recommended that the "refresher" header field parameter is omitted. If included, the "refresher" header field parameter shall be set to "uac";

7) shall include the option tag "timer" in the Supported header field;

8) shall include the following in the Contact header field:

a) the g.3gpp.mcdata.ipconn media feature tag;

b) the g.3gpp.icsi-ref media feature tag containing the value of “urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn”;

c) the isfocus media feature tag;

d) an MCData session identity mapped to the MCData session identity provided in the Contact header field of the incoming SIP INVITE request; and

e) any other uri-parameter provided in the Contact header field of the incoming SIP INVITE request;

9) shall include in the SIP INVITE request all Accept-Contact header fields and all Reject-Contact header fields, with their feature tags and their corresponding values along with parameters according to rules and procedures of IETF RFC 3841 [8] that were received (if any) in the incoming SIP INVITE request;

10) shall set the Request-URI of the outgoing SIP INVITE request to the public user identity associated to the MCData ID of the terminating MCData user;

11) shall populate the outgoing SIP INVITE request with the MIME bodies that were present in the incoming SIP INVITE request;

12) shall copy the contents of the P-Asserted-Identity header field of the incoming SIP INVITE request to the P-Asserted-Identity header field of the outgoing SIP INVITE request;

13) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 20.1.2; and

14) shall send the SIP INVITE request as specified in 3GPP TS 24.229 [5].

Upon receipt of a SIP 200 (OK) response in response to the above SIP INVITE request, the participating MCData function:

1) shall generate a SIP 200 (OK) response as specified in 3GPP TS 24.229 [5];

2) shall include the option tag "timer" in a Require header field;

3) shall include the Session-Expires header field according to rules and procedures of IETF RFC 4028 [38], "UAS Behavior". If no "refresher" parameter was included in the SIP INVITE request, the "refresher" parameter in the Session-Expires header field shall be set to "uas";

4) shall include the following in the Contact header field:

a) the g.3gpp.mcdata.ipconn media feature tag;

b) the g.3gpp.icsi-ref media feature tag containing the value of “urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn”; and

c) an MCData session identity mapped to the MCData session identity provided in the Contact header field of the received SIP INVITE request from the controlling MCData function;

5) if the incoming SIP response contained an application/vnd.3gpp.mcdata-info+xml MIME body, shall copy the application/vnd.3gpp.mcdata-info+xml MIME body to the outgoing SIP 200 (OK) response.

6) shall copy the P-Asserted-Identity header field from the incoming SIP 200 (OK) response to the outgoing SIP 200 (OK) response;

7) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38];

8) shall interact with the media plane as specified in 3GPP TS 24.582 [15]; and

Editor's note: The media plane procedures for IP Connectivity is FFS.

9) shall send the SIP 200 (OK) response to the controlling MCData function according to 3GPP TS 24.229 [5].

Upon receipt of a SIP 4xx, 5xx or 6xx response to the above SIP INVITE request, the participating MCData function:

1) shall generate a SIP response according to 3GPP TS 24.229 [5];

2) shall include Warning header field(s) that were received in the incoming SIP response; and

3) shall forward the SIP response to the controlling MCData function according to 3GPP TS 24.229 [5].

## 20.4 Controlling MCData function procedures

### 20.4.1 Originating procedures

This subclause describes the procedures for inviting an MCData client to an MCData session. The procedure is initiated by the controlling MCData function as the result of an action in subclause 20.4.2.

The controlling MCData function:

1) shall generate a SIP INVITE request according to 3GPP TS 24.229 [5];

2) shall include the Supported header field set to "timer";

3) should include the Session-Expires header field according to rules and procedures of IETF RFC 4028 [38]. The refresher parameter shall be omitted;

4) shall include an Accept-Contact header field containing the g.3gpp.mcdata.ipconn media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [8];

5) shall include an Accept-Contact header field with the media feature tag g.3gpp.icsi-ref with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" along with parameters "require" and "explicit" according to IETF RFC 3841 [8];

6) shall include a Referred-By header field with the public user identity of the inviting MCData client;

7) shall include in the Contact header field an MCData session identity for the MCData session with the g.3gpp.mcdata.ipconn media feature tag, the isfocus media feature tag and the g.3gpp.icsi-ref media feature tag with the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" according to IETF RFC 3840 [16];

8) shall include in the application/vnd.3gpp.mcdata-info+xml MIME body in the outgoing SIP INVITE request:

a) the <mcdata-request-uri> element set to the MCData ID of the terminating user; and

9) shall set the Request-URI to the public service identity of the terminating participating MCData function associated to the MCData user to be invited;

NOTE 1: How the controlling MCData function finds the address of the terminating participating MCData function is out of the scope of the current release.

10) shall set the P-Asserted-Identity header field to the public service identity of the controlling MCData function;

11) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn" (coded as specified in 3GPP TS 24.229 [5]), in a P-Asserted-Service-Id header field according to IETF RFC 6050 [7] in the SIP INVITE request;

12) shall include in the SIP INVITE request an SDP offer according to 3GPP TS 24.229 [5] with the clarifications given in subclause 20.1.2; and

13) shall send the SIP INVITE request towards the terminating client in accordance with 3GPP TS 24.229 [5].

Upon receiving a SIP 200 (OK) response for the SIP INVITE request the controlling MCData function:

1) shall interact with the media plane as specified in 3GPP  TS  24.582  [15].

Editor's note: The media plane procedures for IP Connectivity is FFS.

NOTE 2: The procedures executed by the controlling MCData function prior to sending a response to the inviting MCData client are specified in subclause 20.4.2.

### 20.4.2 Terminating procedures

In the procedures in this subclause:

1) MCData ID in an incoming SIP INVITE request refers to the MCData ID of the originating user from the <mcdata-calling-user-id> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the incoming SIP INVITE request;

2) MCData ID in an outgoing SIP INVITE request refers to the MCData ID of the called user in the <mcdata-request-uri> element of the application/vnd.3gpp.mcdata-info+xml MIME body of the outgoing SIP INVITE request;

Upon receipt of a "SIP INVITE request for controlling MCData function for IP Connectivity session", the controlling MCData function:

1) if unable to process the request may reject the SIP INVITE request with a SIP 500 (Server Internal Error) response. The controlling MCData function may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [4] and skip the rest of the steps;

2) shall reject the SIP request with a SIP 403 (Forbidden) response and not process the remaining steps if:

a) an Accept-Contact header field does not include the g.3gpp.mcdata.ipconn media feature tag; or

b) an Accept-Contact header field does not include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn";

3) shall cache SIP feature tags, if received in the Contact header field and if the specific feature tags are supported;

4) shall start the SIP Session timer according to rules and procedures of IETF RFC 4028 [38];

5) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP INVITE request is set to a value of "one-to-one-ipconn" and the SIP INVITE request:

a) does not contain an application/resource-lists MIME body or contains an application/resource-lists MIME body with more than one <entry> element, shall return a SIP 403 (Forbidden) response with the warning text set to "225 unable to determine targeted user for one-to-one IP Connectivity" in a Warning header field as specified in subclause 4.9, and skip the rest of the steps below; and

b) contains an application/resource-lists MIME body with exactly one <entry> element, shall invite the MCData user identified by the <entry> element of the MIME body, as specified in subclause 20.4.1; and

c) can interact with the media plane, in case routing or transmission control is necessary.

Upon receiving a SIP 200 (OK) response for a SIP INVITE request as specified in subclause 20.4.1 and if the MCData ID in the SIP 200 (OK) response matches to the MCData ID in the corresponding SIP INVITE request. the controlling MCData function:

1) shall generate SIP 200 (OK) response to the SIP INVITE request according to 3GPP TS 24.229 [5];

2) shall include the option tag "timer" in a Require header field;

3) shall include the Session-Expires header field and start supervising the SIP session according to rules and procedures of IETF RFC 4028 [38], "UAS Behavior". The "refresher" parameter in the Session-Expires header field shall be set to "uac";

4) shall include a P-Asserted-Identity header field with the public service identity of the controlling MCData function;

5) shall include a SIP URI for the MCData session identity in the Contact header field identifying the MCData session at the controlling MCData function;

6) shall include the following in the Contact header field:

a) the g.3gpp.mcdata.ipconn media feature tag;

b) the g.3gpp.icsi-ref media feature tag containing the value of “urn:urn-7:3gpp-service.ims.icsi.mcdata.ipconn”; and

c) the isfocus media feature tag;

7) shall include Warning header field(s) received in incoming responses to the SIP INVITE request;

8) shall include in the SIP 200 (OK) response an SDP answer to the SDP offer in the incoming SIP INVITE request as specified in the subclause 20.1.2;

9) shall interact with the media plane as specified in 3GPP TS 24.582 [15]; and

Editor's note: The media plane procedures for IP Connectivity is FFS.

10) shall send a SIP 200 (OK) response to the inviting MCData client according to 3GPP TS 24.229 [5].

\* \* \* End of Change \* \* \* \*