**3GPP TSG-CT WG1 Meeting #133-eC1-21abcd**

**E-meeting, 11-19 November 2021 *(was* *C1-216798)***

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.282** | **CR** | **0268** | **rev** | **1** | **Current version:** | **17.4.0** |  |
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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:*** | Add MCData procedures for on-network private communication emergency for pre-established session | | | | | | | | | |
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| ***Source to WG:*** | AT&T | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMCData3 | | | | |  | ***Date:*** | | | Nov 3, 2021 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) … Rel-15 (Release 15)* *Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This CR adds/updates support for *on-network* private (one-to-one) **emergency** communications when a pre-established session for SDS is used. | | | | | | | | |
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| ***Summary of change:*** | | Check authorization for procedures, detail response processing, update state variables, add functional alias support, add clarifying NOTEs. Described functionality, when appropriate, aligns pre-established session procedures with coresponding procedures for on-demand sessions. | | | | | | | | |
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| ***Consequences if not approved:*** | | The specified emergency related functionalities will not be available, and harmonization across the services would not be possible. | | | | | | | | |
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| ***Clauses affected:*** | | 9.2.5.2.1.1, 9.2.5.2.1.2, 9.2.5.2.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \* \* \*

###### 9.2.5.2.1.1 Client originating procedures

Upon receiving a request from an MCData user to initiate one-to-one standalone SDS using media plane or one-to-one SDS session within the pre-established session:

If the MCData user has requested the origination of an MCData emergency one-to-one communication or the MCData emergency state is already set, but this is an unauthorised request for an MCData emergency one-to-one communication as determined by the procedures of subclause 6.2.8.3.1.1, the MCData client should indicate to the MCData user that they are not authorised to initiate an MCData emergency one-to-one communication and shall exit the procedure.

The MCData client shall generate a SIP REFER request outside a dialog as specified in IETF RFC 3515 [51], as updated by IETF RFC 6665 [36] and IETF RFC 7647 [52], and in accordance with the UE procedures specified in 3GPP TS 24.229 [5].The MCData client:

1. shall set the Request URI of the SIP REFER request to the session identity of the pre-established session;

1a) If the MCData user has requested the origination of an MCData emergency one-to-one communication or the MCData emergency state is already set:

a) shall include an application/vnd.3gpp.mcdata-info+xml MIME body in the SIP REFER request; and

b) shall execute the procedures in subclause 6.2.8.3.2;

2) shall set the Refer-To header field of the SIP REFER request as specified in IETF RFC 3515 [51] with a Content-ID ("cid") Uniform Resource Locator (URL) as specified in IETF RFC 2392 [33] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [18], and with the Content-ID header field set to this "cid" URL;

3) if an end-to-end security context needs to be established and the security context does not exist or if the existing security context has expired, then:

i) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [26];

ii) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [26];

iii) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect one-to-one communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [26];

iv) shall encrypt the PCK to a UID associated to the MCData client using the MCData ID of the invited user and a time related parameter as described in 3GPP TS 33.180 [26];

v) shall generate a MIKEY-SAKKE I\_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [26];

vi) shall add the MCData ID of the originating MCData user to the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [26]; and

vii) shall sign the MIKEY-SAKKE I\_MESSAGE using the originating MCData user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [26];

4) shall include in the application/resource-lists MIME body a single <entry> element containing a "uri" attribute set to MCData ID of the called user, extended with the following parameters in the headers portion of the SIP URI:

NOTE: Characters that are not formatted as ASCII characters are escaped in the following parameters in the headers portion of the SIP URI.

a) an hname "body" parameter populated with:

i) an application/sdp MIME body containing an SDP offer with media attributes specified in subclause 9.2.3.2.1, if a one-to-one standalone SDS message is requested;

ii) an application/vnd.3gpp.mcdata-info MIME body with:

A) if a one-to-one standalone SDS message is requested, the <request-type> element set to a value of "one-to-one-sds". If a one-to-one SDS session is requested, the <request-type> element set to a value of "one-to-one-sds-session";

B) the <mcdata-client-id> element set to the MCData client ID of the originating MCData client; and

C) if the MCData client is aware of active functional aliases and if an active functional alias is to be included in the SIP REFER request, the <functional-alias-URI> element set to the URI of the used functional alias;

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

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

7) shall include the following according to IETF RFC 4488 [53]:

a) the option tag "norefersub" in the Supported header field; and

b) the value "false" in the Refer-Sub header field;

8) shall include a Target-Dialog header field as specified in IETF RFC 4538 [54] identifying the pre-established session;

9) shall include the g.3gpp.mcdata.sds media feature tag in the Contact header field of the SIP REFER request according to IETF RFC 3840 [16]; and10) shall send the SIP REFER request according to 3GPP TS 24.229 [5].

On receiving a final SIP 2xx response to the SIP REFER request, the MCData client:

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

On receiving a SIP 4xx response, SIP 5xx response or a SIP 6xx response to the SIP REFER request for an MCData emergency one-to-one communication:

1) if the MCData emergency private communication state is set to "MDEPC 2: emergency-pc-requested", the MCData client shall perform the actions specified in clause 6.2.8.3.5; and

2) shall skip the remaining steps.

On receiving a SIP re-INVITE request within the pre-established session targeted by the sent SIP REFER request, the MCData client:

1) if the <mcdata-communication-state> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP re-INVITE request is set to a value of "establish-success":

i) shall notify the MCData user about the successful MCData communication establishement;

2) if the <mcdata-communication-state> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP re-INVITE request is set to a value of "establish-fail":

i) shall notify the MCData user about the MCData communication establishement failure, restore the state variables to the values they held prior to the processing of the origination attempt and exit the procedure;

3) if the sent SIP REFER request was a request for an MCData emergency one-to-one communication:

a) if the MCData emergency private communication state is set to "MDEPC 2: emergency-pc-requested" or "MDEPC 3: emergency-pc-granted":

i) shall set the MCData emergency private priority state of the communication to "MDEPP 2: in-progress" if it was not already set;

ii) shall set the MCData emergency private communication state to "MDEPC 3: emergency-pc-granted";

iii) if the MCData private emergency alert state is set to "MDPEA 2: emergency-alert-confirm-pending":

A) if the received SIP re-INVITE request contains an <alert-ind> element set to a value of "true" or does not contain an <alert-ind> element, shall set the MCData private emergency alert state to "MDPEA 3: emergency-alert-initiated"; and

B) if the received SIP re-INVITE request contains an <alert-ind> element set to a value of "false", shall set the MCData private emergency alert state to "MDPEA 1: no-alert "; and

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

###### On communication release, if the sent SIP REFER request was a request for an MCData emergency one-to-one communication, the MCData client shall perform the procedures specified in subclause 6.2.8.1.18.9.2.5.2.1.2 Client terminating procedures

Upon receiving a SIP re-INVITE request within a pre-established session, the MCData client:

Editor’s note: The ability of the terminating client to determine if there is an associated session or not needs to be verified.

1) if the pre-established session has an associated MCData one-to-one communication session, shall execute the procedure in subclause 6.2.8.4.2; or

2) if the pre-established session does not have an associated MCData session and the <mcdata-communication-state> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP re-INVITE request is set to a value of "establish-request":

i) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP re‑INVITE request is set to a value of "one-to-one-sds", shall follow the procedures in subclause 9.2.3.2.4; and

ii) if the <request-type> element in the application/vnd.3gpp.mcdata-info+xml MIME body of the SIP re‑INVITE request is set to a value of "one-to-one-sds-session", shall follow the procedures in subclause 9.2.4.2.4.

\* \* \* \* \* \* NEXT CHANGE \* \* \* \* \* \*

###### 9.2.5.2.2.1 Originating procedures

Editor’s note: Clarifications on the identity of the pre-established session may be necessary.

Upon receiving a SIP REFER request, with:

1) the Request-URI set to a public service identity identifying the pre-established session on the participating MCData function;

2) the Refer-To header field containing a Content-ID ("cid") URL as specified in IETF RFC 2392 [33] that points to an application/resource-lists MIME body as specified in IETF RFC 5366 [18] containing one or more <entry> element(s) with a "uri" attribute containing a SIP URI set to the MCData ID of the called user(s);

3) an hname "body" parameter in the headers portion of the SIP URI specified above containing an application/vnd.3gpp.mcdata-info MIME body with the <request-type> element set to "one-to-one-sds" or "one-to-one-sds-session"; and

4) a Content-ID header field set to the "cid" URL;

the participating function:

1) if unable to process the request due to a lack of resources or a risk of congestion exists, may reject the SIP REFER 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;

NOTE 1: If the application/vnd.3gpp.mcdata-info MIME body included in the SIP REFER request contains an <emergency-ind> element or <imminentperil-ind> element set to a value of "true", and this is an authorised request for originating a priority communication, as determined by clause 6.3.7.2.6, the participating MCData function can, according to local policy, choose to accept the request.

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

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 REFER 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 skip the rest of the steps;

4) shall determine whether the MCData user identified by the MCData ID is authorised for MCData communications, as follows:

i) 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 REFER request with a SIP 403 (Forbidden) response 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; and

ii) if the MCData user is not allowed to initiate emergency MCData communications, as determined in subclause 6.7.3.2.6, shall reject the SIP request with a SIP 403 (Forbidden) response including warning text set to "MNP user not authorised to initiate emergency communication" in a Warning header field as specified in subclause 4.9 and shall not continue with the rest of the steps;

5) if the received SIP REFER request does not contain an application/resource-lists MIME body referenced by a "cid" URL in the Refer-To header field, shall reject the SIP REFER request with a SIP 403 (Forbidden) response including warning text set to "145 unable to determine called party" in a Warning header field as specified in subclause 4.9, and skip the rest of the steps;

6) if the received SIP REFER request contains an application/resource-lists MIME body referenced by a "cid" URL in the Refer-To header field with more than one <entry> element each with an application/vnd.3gpp.mcdata-info MIME body with the <request-type> element set to "one-to-one-sds" or "one-to-one-sds-session", determine that the communication type is one-to-one standalone SDS or one-to-one SDS session;

7) shall determine the public service identity of the controlling MCData function associated with the originating user's MCData ID;

i) if the participating MCData function is unable to identify the controlling MCData function, it shall reject the REFER 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 skip the rest of the steps;

NOTE 2: How the participating MCData function discovers the public service identity of the controlling MCData function is out of the scope of the present document.

8) if the SIP REFER request contained a Refer-Sub header field containing "false" value and a Supported header field containing "norefersub" value, shall handle the SIP REFER request as specified in 3GPP TS 24.229 [5], IETF RFC 3515 [51] as updated by IETF RFC 6665 [36], and IETF RFC 4488 [53] without establishing an implicit subscription;

9) shall generate a final SIP 200 (OK) response to the SIP REFER request according to 3GPP TS 24.229 [5];

NOTE 3: In accordance with IETF RFC 4488 [53], the participating MCData function inserts the Refer-Sub header field containing the value "false" in the SIP 200 (OK) response to the SIP REFER request to indicate that it has not created an implicit subscription.

10) shall send the response to the SIP REFER request towards the MCData client according to 3GPP TS 24.229 [5];

11) shall generate SIP INVITE request as described in subclause 9.2.5.1.1;

12) if the communication is a one-to-one communication and if the received SIP REFER request contains a <functional-alias-URI> element of the application/vnd.3gpp.mcdata-info+xml MIME body, then shall check if the status of the functional alias is activated for the MCData ID. If the functional alias status is activated, then the participating MCData function shall set the <functional-alias-URI> element of the application/vnd.3gpp.mcdata-info+xml MIME body in the outgoing SIP INVITE request to the received value, otherwise shall not include a <functional-alias-URI> element;

13) shall set the Request-URI of the SIP INVITE request to the public service identity of the controlling MCData function serving the calling MCData user as determined above in step 7); and

14) shall forward the SIP INVITE request according to 3GPP TS 24.229 [5].

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

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

2) if the received SIP 2xx response does not contain a Warning header field as specified in subclause 4.9 with the warning text containing the mcdata-warn-code set to "149":

a) shall generate a SIP re-INVITE request as specified in subclause 9.2.5.1.2 and set the Request-URI to a public service identity identifying the pre-established session;

b) shall send the SIP re-INVITE request towards the originating MCData client according to 3GPP TS 24.229 [5];

c) upon receipt of a SIP 2xx response to the SIP re-INVITE, shall interact with the media plane as specified in 3GPP TS 24.582 [15]; and

d) shall skip the remaining steps of the procedure; and

3) if the received SIP 2xx response contains a Warning header field as specified in subclause 4.9 with the warning text containing the mcdata-warn-code set to "149", shall wait for the receipt of a SIP INFO request from the controlling MCData function, and

a) Upon receipt of a SIP INFO request from the controlling MCData function within the dialog of the SIP INVITE request for an MCData emergencyone-to-one communication, the participating MCData function:

i) shall generate a SIP re-INVITE request according to 3GPP TS 24.229 [5] to be sent within the SIP dialog of the pre-established session;

ii) shall include in the SIP re-INVITE request an SDP offer based upon the previously negotiated SDP for the pre-established session;

iii) shall include in the SIP re-INVITE request a Resource-Priority header field with the contents set as in the Resource-Priority header field included in the SIP INVITE request sent to the controlling MCData function;

iv) shall include in the SIP re-INVITE request an application/vnd.3gpp.mcdata-info+xml MIME body containing an <alert-ind> element, if also included in the application/vnd.3gpp.mcdata-info+xml MIME body contained in the received SIP INFO request, set to the value of the <alert-ind> in the SIP INFO request; and

v) send the SIP re-INVITE request towards the originating MCData client according to 3GPP TS 24.229 [5] and wait for the response; and

b) Upon receiving a SIP 200 (OK) response from the originating MCData client for the SIP re-INVITE request, the participating MCData function:

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

\* \* \* \* \* \* END CHANGE \* \* \* \* \* \*