**3GPP TSG-SA WG6 Meeting #45-e S6-211xxx**

**e-meeting, 21st – 9th March 2021 (revision of S6-211860)**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.379** | **CR** | **0295** | **rev** | **3** | **Current version:** | **17.7.0** |  |
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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:*** | Update to the temporary group call regrouping procedures | | | | | | | | | |
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| ***Source to WG:*** | Huawei, Hisilicon | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | enh3MCPTT | | | | |  | ***Date:*** | | | 2021-08-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The procedures specified in clauses 10.6.2.5.3 (Temporary group – broadcast group call procedure) and 10.6.2.8 (Temporary group call – user regroup) were approved vide S6-150466 and S6-161268 which are related to the stage 1 requirements for Temporary Group-Broadcast Group and User regroup.  Further, SA3 sent an LS (S6-180975) to SA6 to communicate that there are no security solutions for 10.6.2.8 and 10.6.2.5.3 in Rel.14. Hence,  SA3 kindly requests that SA6 removes these call flows from its Release 14 and Release 15 specifications.  Subsequently, SA6 aligned the specifications by removing the procedures in Releases 14, 15 and 16 where SA3 had no security solutions for these procedures.  During Rel.16, a working agreement (#33) was established with a compromise - "The SA6 Chairman declared during the SA6#34 meeting that the Rel-16 Change Request in TDoc S6-192217 be agreed as a working agreement due to objections from only 2 companies while 12 companies were in favour of the CR. The CR removes the ‘temporary re-group procedures’ from Rel-16 due to no progress on corresponding security solution. As a compromise, the procedures have been included in Rel-17 to allow for potential resolution during Rel-17 timeframe."  Hence, this proposal provides the corrections to the procedures in 10.6.2.8 and 10.6.2.5.3 for alleviating the security issues. It is expected that SA3 will investigate these corrections to the procedures and provide the corresponding security solution.  Further, the procedures are corrected to clarify the overall temporary group operations associated with these procedures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | (1) Corrections to the procedures in clauses 10.6.2.8 and 10.6.2.5.3 to use the pre-configured group to form the temporary group at the MCPTT server to alleviate the security issue identified by SA3 and also to clarify the temporary group operations associated with these procedures.  (2) Removed the NOTE "This procedure has no security solution in 3GPP TS 33.180 [19]" as the procedures in 10.6.2.5.3 and 10.6.2.8 are corrected for alleviating security issues and will further need evaluation from SA3.  (3) Updated the missing information elements for the group call request information flow to support the procedures specified in clause 10.6.2.5.3 and 10.6.2.8; | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | These procedures will lack further security analysis and implementation from SA3 and stage 3 groups. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.6.2.2.7, 10.6.2.2.8, 10.6.2.2.9, 10.6.2.5.3, 10.6.2.8.1, 10.6.2.8.2, 10.6.2.8.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev3 – The changes are highlighed in green | | | | | | | | |

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1st of change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

##### 10.6.2.2.7 Group call request (MCPTT client – MCPTT server)

Table 10.6.2.2.7-1 describes the information flow group call request from the MCPTT client to the MCPTT server.

Table 10.6.2.2.7-1 Group call request information elements

|  |  |  |
| --- | --- | --- |
| Information Element | Status | Description |
| MCPTT ID | M | The MCPTT ID of the calling party |
| Functional alias | O | The functional alias of the calling party |
| MCPTT group ID (NOTE 1) | M | The MCPTT group ID of the group on which the call is requested |
| Preconfigured MCPTT group ID | O (NOTE 2) | MCPTT group ID of the MCPTT group from which configuration is to be taken |
| MCPTT group ID list | O (NOTE 2) (NOTE 3) | The list of MCPTT group ID of the groups on which the call is requested |
| MCPTT ID list | O(NOTE 2) (NOTE 3) | The list of MCPTT IDs on which the call is requested. |
| SDP offer | M | Media parameters of MCPTT clients |
| Implicit floor request | O | When originating client requests the floor, this element shall be included |
| Broadcast indicator | O | Indicates that the group call request is for a broadcast group call |
| MCPTT ID list | O | The MCPTT ID of users being invited to the temporary group call - user regroup |
| Temporary group indicator | O | Indicates that the group call request is for a temporary group call |
| Location information | O | Location of the calling party. |
| Requested priority | O | Application priority level requested for this call |
| NOTE 1: If the temporary group indicator IE is present then the MCPTT group ID IE indicates the identity of the temporary group.  NOTE 2: Only present when temporary group indicator IE is present.  NOTE 3: Either MCPTT group ID list IE or MCPTT ID list IE is present. | | |

##### 10.6.2.2.8 Group call request (MCPTT server – MCPTT server)

Table 10.6.2.2.8-1 describes the information flow group call request between the MCPTT servers.

Table 10.6.2.2.8-1 Group call request information elements

|  |  |  |
| --- | --- | --- |
| Information Element | Status | Description |
| MCPTT ID | M | The MCPTT ID of the calling party |
| Functional alias | O | The functional alias of the calling party |
| MCPTT group ID (NOTE 1) | M | The MCPTT group ID of the group on which the call is initiated |
| Preconfigured MCPTT group ID | O (NOTE 2) | MCPTT group ID of the MCPTT group from which configuration is to be taken |
| Temporary group indicator | O | Indicates that the group call request is for a temporary group call |
| MCPTT group ID list | O (NOTE 2) (NOTE 3) | The list of MCPTT group ID of the groups which the call is requested |
| MCPTT ID list | O(NOTE 2) (NOTE 3) | The list of MCPTT IDs on which the call is requested. |
| SDP offer | M | Media parameters of MCPTT server |
| Broadcast indicator | O | Indicates that the group call request is for a broadcast group call |
| Implicit floor request (NOTE 4) | O | Indicates that the originating client requests the floor. |
| Requested priority | O | Priority level requested for the call. |
| Location information | O | Location of the calling party |
| NOTE 1: If the temporary group indicator IE is present then the MCPTT group ID IE indicates the identity of the temporary group.  NOTE 2: Only present when temporary group indicator IE is present.  NOTE 3: Either MCPTT group ID list IE or MCPTT ID list IE is present.  NOTE 4: This element shall be included only when the originating client requests the floor. | | |

##### 10.6.2.2.9 Group call request (MCPTT server – MCPTT client)

Table 10.6.2.2.9-1 describes the information flow group call request from the MCPTT server to the MCPTT client.

Table 10.6.2.2.9-1 Group call request information elements

|  |  |  |
| --- | --- | --- |
| Information Element | Status | Description |
| MCPTT ID | M | The MCPTT ID of the calling party |
| Functional alias | O | The functional alias of the calling party |
| MCPTT group ID (NOTE 1) | M | The MCPTT group ID of the group on which the call is initiated |
| Preconfigured MCPTT group ID | O (NOTE 2) | MCPTT group ID of the MCPTT group from which configuration is to be taken |
| SDP offer | M | Media parameters of MCPTT server |
| Broadcast indicator | O | Indicates that the group call request is for a broadcast group call |
| Temporary group indicator | O | Indicates that the group call request is for a temporary group call |
| NOTE 1: If the temporary group indicator IE is present then the MCPTT group ID IE indicates the identity of the temporary group.  NOTE 2: Only present when temporary group indicator IE is present. | | |

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##### 10.6.2.5.3 Temporary group – broadcast group call procedure

Figure 10.6.2.5.3-1 illustrates the procedure for temporary group-broadcast group call procedure. The protocol used may be SIP.

Pre-conditions:

1. The security aspects of sharing the user information between primary and partner MCPTT systems shall be governed as per the service provider agreement between them. In this case, we consider the partner MCPTT system does not share their users' information to the primary MCPTT system.

2. The authorized MCPTT user/dispatcher belongs to the primary MCPTT system.

3. The MCPTT server of the primary MCPTT system is where the authorized MCPTT user/dispatcher created the temporary group.

4. Other groups in the temporary group – broadcast group may belong to partner MCPTT systems.

5. The MCPTT group identity and group configuration for the regroup MCPTT group have been preconfigured in MCPTT client and other group members who are involved and have also received the relevant security related information to allow them to communicate in the regroup MCPTT group.

6. The call initiating MCPTT client is aware of a suitable preconfigured regroup group whose configuration has been preconfigured in the MCPTT UEs of the group members who will be regrouped.7. In order to be aware whether the group is regrouped, the MCPTT server is subscribed to the group configuration in GMS.



Figure 10.6.2.5.3-1: Temporary group – broadcast group call

1. The MCPTT client of authorized user initiates a group call with multiple groups from primary and partner MCPTT systems. A group call request message with the MCPTT group IDs (group1's MCPTT group ID, group2's MCPTT group ID) is routed to the MCPTT server of the primary MCPTT system, which is where the authorized MCPTT user/dispatcher created the temporary group.

2. The MCPTT server also checks that none of the MCPTT groups that are requested for regrouping are already regrouped. The MCPTT server of the primary MCPTT system forms the temporary group by using the configuration of the preconfigured MCPTT group and the groups' information received. It resolves the MCPTT group IDs and identifies the appropriate MCPTT server responsible for the groups. The affiliated members of group 1 and group 2 are automatically affiliated to the temporary group. It further triggers a temporary group – broadcast group call via a group call request message to the affiliated group members of group1's MCPTT group ID of the MCPTT server of the primary MCPTT system.

NOTE 1: The temporary group information is not notified to the group members of the constituent groups.

NOTE 2: The list of groups included in the regroup is held in dynamic data in the MCPTT server, and is not used to update group configuration information in the group management server.

3. The MCPTT server of the primary MCPTT system sends the group call request to the affiliated group members of the group1.

4. The affiliated group members of the group 1 respond with the group call response.

5. A group call request message is further initiated with the MCPTT server of the partner MCPTT system for group2's MCPTT group ID.

6. Upon receiving the group call request message from the MCPTT server of the primary MCPTT system, the MCPTT server of the partner MCPTT system resolves the group id and initiates a call invitation to their affiliated group members. Alternatively, the MCPTT server of the partner MCPTT system notifies the group members via a notification message containing the group call session identity information. Upon receipt of the notification message, the group members may perform a late call entry.

7. The MCPTT server of the partner MCPTT system sends the group call request to the affiliated group members of the group 2.

8. The group members upon receipt of the invitation may accept or reject the call, and respond with the group call response.

9. The MCPTT server of the partner MCPTT system provides a group call response message to the MCPTT server of the primary MCPTT system with success or failure result and/or detailed reason information in case of failure.

10. The MCPTT server of the primary MCPTT system provides a group call response message to the MCPTT client of the authorized MCPTT user upon receiving response to the corresponding group call request with the MCPTT server of the partner MCPTT system. The group call response will consist of the success or failure result and/or detailed reason information in case of failure.

NOTE 3: The group call response message is triggered depending on the conditions to proceed with the call.

11. Upon successful group call setup, a group call is established amongst the multiple group members from primary and partner MCPTT systems. The call originating MCPTT user starts transmitting media to other group call participants.

NOTE 4: Only the call originating MCPTT user is allowed to transmit media on broadcast group call.

NOTE 5: A broadcast group call transmitted on a temporary group-broadcast group has priority over group calls on its subordinate groups.

At the completion of the media transmission, the broadcast group call is released.

NOTE 6: The temporary group formed by regrouping is persisted at the MCPTT server until explicitly cancelled by the authorized user (MCPTT client) as specified in clause 10.6.2.9.2.2 or clause 10.6.2.9.3.2.

NOTE 7: After temporary group creation, the normal affiliation/de-affiliation process applies.

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##### 10.6.2.8.1 General

The temporary group call performed by user regroup can be initiated by an authorized user inviting a list of MCPTT users. The group ID for this temporary group may be obtained during call setup, or prior to call setup. The users being invited are implicitly affiliated to this temporary group during call setup, and can be implicitly de-affiliated with the release of the group call. The group call is terminated by either the MCPTT server releasing the call or the authorized user ending the call. The release of the call may be followed by release of the temporary group ID.

##### 10.6.2.8.2 Group call setup

Figure 10.6.2.8.2-1 below illustrates the group call setup procedure initiated by an authorized user.

Pre-conditions:

1. The authorized user is aware of the MCPTT users who will be invited to the temporary group call.

2. The MCPTT server is allowed to perform implicit affiliation/de-affiliation operation for this type of group call based on relevant configurations.

3. The MCPTT users being invited have relevant configurations that allow them to be implicitly affiliated for this type of group call.

4. A group ID may be available prior to group call setup.

5. The MCPTT group identity and group configuration for the regroup MCPTT group have been preconfigured in MCPTT clients who are involved in the call and have also received the relevant security related information to allow them to communicate in the regroup MCPTT group.

6. The call initiating MCPTT client is aware of a suitable preconfigured regroup group whose configuration has been preconfigured in the MCPTT UEs who will be regrouped.



Figure 10.6.2.8.2-1: Group call setup for temporary group call – user regroup

1. MCPTT client 1 (of an authorized user) initiates the group call by sending the group call request to the MCPTT server.

2. The MCPTT server checks whether the MCPTT client 1 can initiate the group call. The MCPTT server forms the temporary group by using the configuration of the preconfigured MCPTT group and the users' information received.

NOTE 1: The list of users included in the regroup is held in dynamic data in the MCPTT server, and is not used to update group configuration information in the group management server.

3. The MCPTT server implicitly affiliates the clients to the group.

4. The MCPTT server sends the group call requests towards the MCPTT clients. The message contains the temporary group indicator.

5. The receiving MCPTT clients are notified about the incoming group call. The users verify they are authorized to participate in the temporary group call.

6. The receiving MCPTT clients accept the group call requests and send group call responses to the MCPTT server. This response may contain an acknowledgement. The conditions for sending acknowledgement may be based on configuration.

7. The MCPTT server sends the group call response to MCPTT client 1 through the signalling path to inform about successful call establishment.

NOTE 2: Step 7 can occur at any time following step 6a, and prior to step 8 depending on the conditions to proceed with the call.

8. MCPTT client 1, client 2 and client 3 establish media plane and floor control resources.

NOTE 3: After temporary group creation, the normal affiliation/de-affiliation process applies. The temporary group call follows the floor control mechanism of a normal group call.

##### 10.6.2.8.3 Group call end (by authorized user)

Figure 10.6.2.8.3-1 below illustrates the group call end requested by the authorized user.

Pre-conditions:

1. The MCPTT server is allowed to perform implicit affiliation/de-affiliation operation for this type of group call.

2. MCPTT users on MCPTT client 1, client 2 and client 3 are already part of the ongoing temporary group call.



Figure 10.6.2.8.3-1: Group call end (by authorized user) for temporary group call – user regroup

1. The MCPTT client 1 (of an authorized user) requests to end the group call by sending group call release request to MCPTT server.

2. The MCPTT server checks whether the MCPTT client 1 can end the on-going group call.

3. The MCPTT server sends group call release requests to MCPTT clients of the group members.

4. The MCPTT clients are notified about the group call release.

5. The MCPTT clients send the group call release responses to MCPTT server to acknowledge the group call release. For a multicast call scenario, these acknowledgements are not sent.

6. The MCPTT server sends the group call release response to MCPTT client 1 to confirm the call is released.

NOTE: Step 6 can occur at any time following step 5a, and prior to step 7 depending on the conditions to release the call.

7. MCPTT client 1, client 2 and client 3 released the floor control and media plane resources associated with the group call.

NOTE: The temporary group formed by regrouping is persisted at the MCPTT server until explicitly cancelled by the authorized user as specified in clause 10.6.2.12.2.2.

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/