**3GPP TSG-SA WG6 Meeting #42-bis-e S6-210803**

**e-meeting, 12th – 20th April 2021 (revision of S6-21xxxx)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | - | **Current version:** | **17.6.0** |  |
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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:***  |  |
|  |  |
| ***Source to WG:*** | BDBOS |
| ***Source to TSG:*** | S6 |
|  |  |
| ***Work item code:*** | enh3MCPTT |  | ***Date:*** | 2021-04-07 |
|  |  |  |  |  |
| ***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 canbe 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:*** | An authorized user, e.g. a dispatcher, needs to be able to configure the MC service UE label of an MC service UE to allow ad-hoc changes based on operational requirements. The solution offers changing of a MC service UE label without having to modify the MC service UEs initial MC service UE label. The same applies in a migration scenario, where a MC service UE from a partner MC system has migrated into the primary MC system.  |
|  |  |
| ***Summary of change:*** | A temporary MC service UE label can be configured in the Location Management Server to replace the initial MC service UE label. The temporary MC service UE label is transmitted instead of the initial MC service UE label with location information reports. |
|  |  |
| ***Consequences if not approved:*** | The MC service UE label can not be configured by authorized users based on operational requirements and identification of individual MC service UEs sending information location reports under the changed operational requirements will not be possible. |
|  |  |
| ***Clauses affected:*** | 10.9.2.2, 10.9.2.7, 10.9.2.10, 10.9.2.14, 10.9.2.17 (new), 10.9.2.18 (new), 10.9.2.19 (new), 10.9.2.20 (new), 10.9.3.1, 10.9.3.2, 10.9.3.9.2.1, 10.9.3.10 (new) |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **N** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **N** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **N** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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

#### 10.9.2.2 Location information report

Table 10.9.2.2-1 describes the information flow from the location management client to the location management server for the location information reporting.

Table 10.9.2.2-1: Location information report

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Set of MC service IDs | M | Set of identities of the reporting MC service user on the MC service UE (e.g. MCPTT ID, MCVideo ID, MCData ID) |
| Functional alias(es) (see NOTE 1) | O | Functional alias that corresponds to the MC service ID. |
| MC service UE label | O | The MC service UE label, as initially configured in the MC service UE |
| Triggering event | M | Identity of the event that triggered the sending of the report |
| Location Information (see NOTE 2) | M | Location information of the individual MC service user |
| NOTE 1: Each functional alias corresponds to an individual MC service ID.NOTE 2: This may contain multiple sets of elements for the MC service user. The following elements shall accompany the location information elements: time of measurement and optional accuracy. The following location information elements shall be optional (configurable) present: longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs, with at least one provided. |

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

#### 10.9.2.7 Location information notification

Table 10.9.2.7-1 describes the information flow from the location management server to the MC service server.

Table 10.9.2.7-1: Location information notification

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID list | M | List of the MC service IDs (e.g. MCPTT ID, MCData ID, MCVideo ID) of the MC service users whose location information needs to be notified |
| MC service ID | M | Identity of the MC service user subscribed to location information of another MC service user (see NOTE 1) |
| Triggering event | M | Identity of the event that triggered the sending of the notification |
| Location Information (see NOTE 2) | M | Location information |
| MC service UE label list (see NOTE 3) | O | List of MC service UE labels |
| NOTE 1: This is only used when the location management server sends location information notification to the MC service user who has subscribed the location information. NOTE 2: This may contain multiple sets of elements for the MC service user. The following elements shall accompany the location information elements: time of measurement and optional accuracy. The following location information elements shall be optional (configurable) present: longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs, with at least one provided.NOTE 3 This may contain a list of MC service UE labels, corresponding to the order of MC service ID list. |

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

#### 10.9.2.10 Location report response

Table 10.9.2.10-1 describes the information flow from the location management server to the requesting location management client for the location information reporting when using functional alias. This information flow combines individually recorded location information reports of the all involved location management clients.

Table 10.9.2.10-1: Location report response

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| Combined set of MC service IDs | M | List of identities of the reporting MC service users (e.g. MCPTT ID, MCVideo ID, MCData ID). |
| Functional alias | O | Functional alias that corresponds to the MC service IDs. |
| Triggering event | M | Identity of the event that triggered the sending of the report. |
| Set of Location Information(see NOTE 1, see NOTE 2) | M | List of location information for the corresponding functional alias and its MC service ID. |
| MC service UE label list | O | List of MC service UE labels for the corresponding functional alias and its MC service ID. |
| NOTE 1: This is the location information corresponding to the MC service and the respective associated functional alias if present. NOTE 2: This may contain multiple sets of elements for the MC service user. The following elements shall accompany the location information elements: time of measurement and optional accuracy. The following location information elements shall be optional (configurable) present: longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs, with at least one provided. |

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

#### 10.9.2.14 Location information history report

The location management client stored location information, while not reporting location information to the location management server, and subsequently the reporting may start following the reestablishment of a communication link between the location management client and the location management server.

Table 10.9.2.14-1 describes the information flow from the location management client to the location management server for the location information history reporting of stored location information.

Table 10.9.2.14-1: Location information history report (LMC – LMS)

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID list | M | List of identities of the reporting MC service user (e.g. MCPTT ID, MCData ID, MCVideo ID) |
| Triggered event | M | Identifies the criterion when the location management client generated location information, while not reporting location information |
| Location Information (see NOTE 1) | M | Location information |
| History report (see NOTE 2) | O | Location information history report indicator |
| MC service UE label | O | MC service UE label, as initially configured in the MC service UE |
| NOTE 1: This may contain multiple sets of elements for the MC service user. The following elements shall accompany the location information elements: time of measurement and optional accuracy. The following location information elements shall be optional (configurable) present: longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs, with at least one provided.NOTE 2: Only present, if triggering criteria in emergency cases or triggering criteria in non-emergency cases used. |

Table 10.9.2.14-2 describes the information flow from the location management server to the location management client for the location information history reporting of stored location information.

Table 10.9.2.14-2: Location information history report (LMS – LMC)

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID | M | Identity of the reporting MC service user |
| MC service ID | M | Identity of the MC service user, who has requested location information |
| Triggered event | M | Identifies the criterion when the location management client generated location information, while not reporting location information |
| Location Information(see NOTE 1) | M | Location information |
| History report (see NOTE 2) | O | Location information history report indicator |
| MC service UE label | O | MC service UE label, as configured in the LMS |
| NOTE 1: This may contain multiple sets of elements for the MC service user. The following elements shall accompany the location information elements: time of measurement and optional accuracy. The following location information elements shall be optional (configurable) present: longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs, with at least one provided.NOTE 2: Only present, if triggering criteria in emergency cases or triggering criteria in non-emergency cases used. |

Table 10.9.2.14-3 describes the information flow from the location management server to the MC service server for the location information history reporting of stored location information.

Table 10.9.2.14-3: Location information history report (LMS - MC service server)

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID | M | Identity of the reporting MC service user |
| Triggered event | M | Identifies the criterion when the location management client generated location information, while not reporting location information |
| Location Information (see NOTE 1) | M | Location information |
| History report (see NOTE 2) | O | Location information history report indicator |
| MC service UE label | O | MC service UE label, as configure in the LMS |
| NOTE 1: This may contain multiple sets of elements for the MC service user. The following elements shall accompany the location information elements: time of measurement and optional accuracy. The following location information elements shall be optional (configurable) present: longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs, with at least one provided.NOTE 2: Only present, if triggering criteria in emergency cases or triggering criteria in non-emergency cases used. |

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

#### 10.9.2.17 MC service UE label configuration

Table 10.9.2.17-1 describes the information flow from the location management client to the location management server for configuration of the MC service UE label.

Table 10.9.2.17-1: MC service UE label configuration

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID | M | Identity of the MC service user who initiates the configuration of MC service UE label |
| Set of MC service IDs | O | Set of identities of the reporting MC service user on the MC service UE (i.e. MCPTT ID, MCVideo ID, MCData ID) for whom the temporary MC service label should be configured |
| Initial MC service UE label  | O | The MC service UE label, as initially configured in the MC service UE |
| Temporary MC service UE label | O | The temporary MC service UE label to be used in location information reports, instead of the initial MC service UE label |
| Timeout (see NOTE) | O | The Timeout defines the duration of how long this MC service UE label configuration shall remain active. |
| NOTE: The timeout timer shall start immediately with the MC service UE label configuration. |

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

10.9.2.18 MC service UE label configuration response

Table 10.9.2.18-1 describes the information flow from the location management server to the location management client for MC service UE label configuration response.

Table 10.9.2.18-1: MC service UE label configuration response

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID | M | Identity of the requesting MC service user |
| Configuration status | M | Indicates the configuration result, if applicable includes the status for each provided MC service ID, as requested in the MC service UE label configuration. |

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

#### 10.9.2.19 MC service UE label information request

Table 10.9.2.19-1 describes the information flow from the location management client to the location management server to retrieve the MC service UE label configuration information.

Table 10.9.2.19-1: MC service UE label information request

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID | M | Identity of the MC service user who requests the MC service UE label information |
| Set of MC service ID(s) | O (see NOTE) | Set of identities of the reporting MC service user on the MC service UE (i.e. MCPTT ID, MCVideo ID, MCData ID) for whom existing MC service UE label information is requested |
| Set of MC service UE label(s) | O (see NOTE) | Set of MC service UE label(s) for whom existing MC service UE label information is requested. The information element can either be the initial or temporary MC Service UE label |
| NOTE: Either one needs to be present.  |

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

#### 10.9.2.20 MC service UE label information response

Table 10.9.2.20-1 describes the information flow from the location management server to the location management client to provide a combined set of MC service IDs and MC service UE label(s).

Table 10.9.2.20-1: MC service UE label information response

|  |  |  |
| --- | --- | --- |
| Information element | Status | Description |
| MC service ID | M | Identity of the requesting MC service user |
| Combined set of MC service ID(s) and MC service UE label(s) | M (see NOTE) | Set of MC service ID(s) and their corresponding initial/temporary MC service UE label(s) configured on the location management server |
| NOTE: In case an empty set is returned, no MC service UE label has been configured. If the initial and temporary MC service UE label are returned, no MC service ID(s) have been configured.  |

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

### 10.9.3 Procedure

#### 10.9.3.1 Event-triggered location reporting procedure

NOTE 1: This procedure is valid for single MC system operation only.

The location management server provides location reporting configuration to the location management clients, indicating what information the location management server expects and what events will trigger the sending of this information to the location management server. The decision to report location information can be triggered at the location management client by different conditions. The conditions could include, for example, the reception of the location reporting configuration, initial registration, distance travelled, elapsed time, cell change, MBMS SAI change, MBMS session change, leaving a specific MBMS bearer service area, tracking area change, PLMN change, call initiation, or other types of events such as emergency alert, emergency call or imminent peril calls. The location report can include information described as time of measurement, accuracy, longitude, latitude, speed, bearing, altitude, ECGI, MBMS SAIs.



Figure 10.9.3.1-1: Event-triggered location reporting procedure

1. The location management server sends location reporting configuration message to the location management client(s) containing the initial configuration (or a subsequent update) for reporting the location of the MC service UE. This message can be sent over a unicast bearer to a specific location management client or as a group message over an MBMS bearer to update the location reporting configuration for multiple location management clients at the same time.

NOTE 2: The location reporting configuration information can be made part of the user profile, in which case the sending of the message is not necessary.

NOTE 3: Different location management clients may be given different location reporting criteria.

2. A location reporting event occurs, triggering step 3.

3. The location management client sends a location information report to the location management server, containing location information identified by the location management server and available to the location management client.

4. Upon receiving the report, the location management server updates location of the reporting location management client. If the location management server does not have location information of the reporting location management client before, then just stores the reporting location information for that location management client. When a temporary MC service UE label is provided with an initial MC service UE label or/and an optional set of MC service IDs, the location management server replaces the initial MC service UE label in the location information report with the temporary MC service UE label and stores it. The configuration is removed, if no temporary MC service UE label is present.

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

#### 10.9.3.2 On-demand location reporting procedure

NOTE: This procedure is valid for single MC system operation only.

The location management server can request MC service UE location information at any time by sending a location information request to the location management client, which may trigger location management client to immediately send the location report.



Figure 10.9.3.2-1: On-demand location information reporting procedure

1. Based on configurations such as periodical location information timer, or location information request from other entities (e.g., another location management client, MC service server), location management server initiates the immediate request of location information to be sent from the location management client.

2. The location management server sends a location information request to the location management client.

3. MC service user is notified and asked for permission to share location information. MC service user can accept or deny the request.

4. The location management client immediately responds to the location management server with a report containing location information identified by the location management server and available to the location management client.

5. Upon receiving the report, the location management server updates location of the reporting location management client. If the location management server does not have location information of the reporting location management client, the location management server just stores the reporting location information for that location management client. When a temporary MC service UE label is provided with an initial MC service UE label or/and an optional set of MC service IDs, the location management server replaces the initial MC service UE label in the location information report with the temporary MC service UE label and stores it. The configuration is removed, if no temporary MC service UE label is present.

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

##### 10.9.3.9.2 Report location history procedure

###### 10.9.3.9.2.1 On-demand report location history procedure (LMC – LMS)

The location management server can request stored location information at any time from the location management client, following a return to report location information to the location management server.

Figure 10.9.3.9.2.1-1 illustrates the procedure for the on-demand based usage of location information history reporting from the location management client to the location management server.

Pre-conditions:

1. The location management client is configured to store location information, while not reporting location information to the location management server.

2. The location management client has stored location information based on triggering criteria in not reporting location information cases.



Figure 10.9.3.9.2.1-1: On-demand based usage of report location history procedure (LMC – LMS)

1. The location management client returns to report location information while there is a communication link between the location management client and location management server.

2. Location management server requests the stored location information.

NOTE 1: The location management client may provide the status of the stored location information prior to the request from location management server.

3. The location management client responds to the location management server with one or several stored location information history reports.

NOTE 2: The transmission of requested stored location information does not interrupt the reporting of location information.

NOTE 3: The most recent stored location information that qualifies for transmission is transmitted first.

NOTE 4: The transmission may be stopped at any time with the cancel location history reporting procedure, according to the procedure described in clause 10.9.3.9.4 of the present document.

4. The location management server updates the available location information with one or several stored location information from the location management client. When a temporary MC service UE label is provided with an initial MC service UE label or/and an optional set of MC service IDs, the location management server replaces the initial MC service UE label in the location information report with the temporary MC service UE label and stores it. The configuration is removed, if no temporary MC service UE label is present.

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

#### 10.9.3.10 Usage of MC service UE label configuration by the authorized user

##### 10.9.3.10.1 General

An authorized user, e.g. dispatcher, may need to temporarily change an MC service UE label according to operational requirements. E.g. the updated MC service UE label may consist of a new mission identifier, the unchanged device description and the organisational name.

For this purpose, the authorized user configures a temporary MC service UE label in the location management server. The LMS handles the initial MC service UE label and the corresponding temporary MC service UE label together.

If an initial MC service UE label is present in the location information report and the corresponding temporary MC service UE label is configured, the LMS shall replace the initial MC service UE label with the temporary MC service UE label.

##### 10.9.3.10.2 MC service UE label configuration procedure

Figure 10.9.3.10.2-1 illustrates the procedure of the MC service UE label configuration.



Figure 10.9.3.10.2-1: MC service UE label configuration procedure

1. The location management client sends MC service UE label configuration to the location management server.

2. The location management server checks if the requesting MC service user is authorized to configure the temporary MC service UE label.

3. The location management server handles the configuration based on the initial MC service UE label and the corresponding temporary MC service UE label.

4. The location management server replies with a MC service UE label configuration response indicating the configuration status.

##### 10.9.3.10.3 MC service UE label information request procedure

Figure 10.9.3.10.3-1 illustrates the procedure of the MC service UE label information request.



Figure 10.9.3.10.3-1: MC service UE label information request procedure

1. The location management client sends the MC service UE label information request to the location management server.

2. The location management server checks if the requesting MC service user is authorized to request the MC service UE label configuration information.

3. The location management server sends the MC service UE label information response to the location management client.

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