**3GPP TSG-CT WG1 Meeting #125-eC1-204628**

**Electronic meeting, 20-28 August 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.486** | **CR** | **0004** | **rev** | **1** | **Current version:** | **16.0.0** |  |
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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:*** | Application level location tracking procedure correction | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | V2XAPP | | | | |  | ***Date:*** | | | 2020-08-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | The stage 2 requirements for client subscribe/unsubscribe to V2X AS messages for specific geographical areas are specified in 23.286. The corresponding stage 3 requirements in subclause 6.4 and the coding on subclause 8.1 are not fully clear and correct.  It is proposed to correct and clarify the stage 3 requirements following the stage 2 requirements. | | | | | | | | |
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| ***Summary of change:*** | | 1) Clarify that subscribed messages come from V2X AS  2) Clarify that unsubscribe optionally occurs after optional subscribe if the UE had previously successfully subscribed to messages for the exited geographical area.  3) Add requirements for the server to handle associations between geographical area and UE Id for geographically subscribed messages.  4) Add that UE identity element is included in server response messages  5) Correct the coding requirements for included subelements in the <location-tracking-info> element.  Correct that <geo-id> element contains either a polygon or an ellipsoid area, and not both. | | | | | | | | |
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| ***Consequences if not approved:*** | | The stage 3 requirements for subscribe/unsubscribe to V2X AS messages for specific geographical areas are unclear and not correct following stage 2 requirements, which results in non-implementable procedure. | | | | | | | | |
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| ***Clauses affected:*** | | 6.4.1, 6.4.2, 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:*** | |  | | | | | | | | |

\*\*\* First change \*\*\*

### 6.4.1 Client procedure

Upon entering a new geographical area if the V2X UE has been provisioned with geographical identifier groups (see clause 7) and the V2X UE has subscribed to a certain geographical area identifier group in order to receive V2X messages from the V2X AS for this area, the VAE-C shall send an HTTP POST request according to procedures specified in IETF RFC 2616 [19]. In the HTTP POST request, the VAE-C:

a) shall set the Request-URI to the URI included in the received HTTP response message for V2X UE registration procedure (see clause 6.2);

b) shall include a Content-Type header field set to "application/vnd.3gpp.vae-info+xml";

c) shall include an application/vnd.3gpp.vae-info+xml MIME body and in the <location-tracking-info> root element:

1) shall include a <identity> element with a <V2X-UE-id> child element set to the identity of the UE which requests the registration;

2) shall include a <geographical-identifier> element with a <geo-id> child element set to the identity of the geographical area to be subscribed, i.e. the new geographical area where the UE entered; and

3) shall include an <operation> element set to "subscribe".

Upon a successful subscription to a geographical area, the VAE-C shall send an HTTP POST request according to procedures specified in IETF RFC 2616 [19]. In the HTTP POST request, the VAE-C:

a) shall set the Request-URI to the URI included in the received HTTP response message for the successful subscription of the geographical area;

b) shall include a Content-Type header field set to "application/vnd.3gpp.vae-info+xml";

c) shall include an application/vnd.3gpp.vae-info+xml MIME body and in the <location-tracking-info> root element:

1) shall include a <identity> element with a <V2X-UE-id> child element set to the identity of the UE which requests the registration;

2) shall include a <geographical-identifier> element with a <geo-id> child element set to the identity of the geographical area to be unsubscribed, i.e. the old geographical area where the UE exited; and

3) shall include an <operation> element set to "unsubscribe".

\*\*\* Next change \*\*\*

### 6.4.2 Server procedure

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

b) an application/vnd.3gpp.vae-info+xml MIME body with a <location-tracking-info> root element with an <identity> element and an <operation> element set to "subscribe", the VAE-S:

1) shall store the received geographical area information and associate this area with the UE identity provided in the <identity> element; and

2) shall reply with a HTTP response with a <result> element of the <location-tracking-info> element set to a value "success" or "fail" and the <operation> element set to "subscribe".

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.vae-info+xml"; and

b) an application/vnd.3gpp.VAE-registration-+xml MIME body with a <location-tracking-info> root element with an <identity> element and an <operation> element set to "unsubscribe", the VAE-S:

1) shall remove the received geographical area information associated with the UE identity provided in the <identity> element; and

2) shall reply with a HTTP response with a <result> element of the <location-tracking-info> element set to a value "success" or "fail" and the <operation> element set to "unsubscribe".

\*\*\* Next change \*\*\*

## 8.3 Structure

The VAE document shall conform to the XML schema described in clause 8.4.

The <VAE-info> element shall be the root element of the VAE document.

The <VAE-info> element shall include at least one of the followings:

a) an <identity> element;

b) a <registration-info> element;

c) a <de-registration-info> element;

d) a <location-tracking-info> element;

e) a <message-info> element;

f) a <service-discovery-info> element;

g) a <local-service-info> element;

h) an <announcement> element;

i) a <PC5-parameters-request> element;

j) a <V2X-app-requirement-request> element;

k) a <V2X-app-requirement-result> element;

l) a <V2X-app-requirement-notification> element;

m) a <configure-dynamic-group-request> element;

n) a <configure-dynamic-group-result> element;

o) a <layer2-group-id-mapping> element;

p) an <id-list-notification> element;

q) a <configure-dynamic-group-notification> element;

r) a <subscription-request> element;

s) a <subscription-response> element; or

t) a <network-monitoring-info-notification> element.

The <identity> element shall include a <V2X-UE-id> child element.

The <service-discovery-info> element shall include a <result> element and may include a <service-discovery-data> element.

The <service-discovery-data> element shall include the following:

a) a <V2X-service-mapping-list> element which shall include one or more <V2X-service-map> element. Each <V2X-service-map> element shall include following elements:

1) one or more <V2X-service-id> element(s); and

2) a <V2X-AS-address> element.

The <registration-info> element shall include at least one of the followings:

a) an <identity> element;

b) a <service> element; or

c) a <result> element.

The <service> element shall include a <V2X-service-id> or a <V2X-MSG-type> child element.

The <de-registration-info> element shall include the followings:

a) an <identity> element; and

b) a <service> element.

The <location-tracking-info> element shall include either:

a) the following elements:

- an <identity> element shall include a <V2X-UE-id> element;

- a <geographical-identifier> element shall include a <geo-id> element; and

- an <operation> element; or

b) the following elements:

- a <result> element; and

- an <operation> element.

The <geographical-identifier> element shall include one or more <geo-id> elements which each shall include:

a) a <polygon-area> element; or

b) an <ellipsoid-arc-area> element.

The <message-info> element shall include at least one of the followings:

a) an <identity> element shall include a <V2X-UE-id> element;

b) a <group> element shall include a <V2X-group-id>;

c) a <payload> element;

d) a <service> element shall include a <V2X-service-id>;

e) a <geographical-identifier> element shall include a <geo-id> element;

f) a <message-reception-ind> element; or

g) a <result> element.

The <group> element shall include a <V2X-group-id> child element.

The <local-service-info> element shall include at least one of the following:

a) an <identity> element;

b) a <geographical-identifier> element shall include a <geo-id> element;

c) a <result> element; or

d) a <local-service-info-content> element.

The <announcement> element shall include the followings:

a) a <TMGI> element;

b) a <mbms-service-areas> element;

c) a <frequency> element; and

d) a <V2X-mbms-sdp> element.

The <PC5-parameters-request> element shall include the followings:

a) a <expiration-time> element;

b) a <plmn-list> element which shall include one or more <plmn-id> elements;

c) an <authorized-when-not-served-by-E-UTRAN> element;

d) a <radio-parameters-list> element which shall include the following elements:

1) a <radio-parameters-content> element;

2) a <geographical-identifier> element; and

3) a <operator-managed> element;

e) a <V2X-service-ids-list > element which shall include the following elements:

1) a <V2X-service-id> element; or

2) a <layer-2-id> element.

The <V2X-app-requirement-request> element shall include the followings:

a) an <identity> element which shall include one of the following elements:

1) a <VAL-ue-id> element; or

2) a <VAL-group-id> element;

b) a <V2X-service-id> element;

c) a <V2X-app-requirement> element; and

d) an <endpoint-info> element.

The <configure-dynamic-group-request> element shall include the followings:

a) a <dynamic-group-info> element which shall include the following elements:

1) a <dynamic-group-id> element;

2) a <group-leader-id> element; and

b) an <endpoint-info> element.

The <layer2-group-id-mapping> element shall include the followings:

a) a <dynamic-group-info> element which shall include the following elements:

1) a <dynamic-group-id> element;

2) a <group-leader-id> element; and

b) a <prose-layer2-group-id> element.

The <id-list-notification> element shall include the followings:

a) a <dynamic-group-id> element;

b) one or more <group-member-id> element(s), each of which shall include the followings:

1) a <UE-id> element; and

2) a <group-scope> element.

The <configure-dynamic-group-notification> element shall include the followings:

a) a <dynamic-group-id> element;

b) one or more <group-member-id> element(s), each of which shall include the followings:

1) a <UE-id> element; and

2) a <group-scope> element.

The <subscription-request> element shall include the followings:

a) an <identity> element;

b) a <subscription-events> element which shall include one or more <event> elements; and

c) a <triggering-criteria> element shall include at least one of the following elements:

1) a <cell-change> element shall include one of the following sub-elements:

i) an <any-cell-change> element shall include a <trigger-id> element;

ii) an <enter-specific-cell> element shall include a <trigger-id> element; or

iii) an <exit-specific-cell> element include a <trigger-id> element;

2) a <tracking-area-change> element shall include one of the following sub-elements:

i) an <any-tracking-area-change> element shall include a <trigger-id> element;

ii) an <enter-specific-tracking-area> element shall include a <trigger-id> element; or

iii) an <exit-specific-trackin-area> element shall include a <trigger-id> element;

3) a <plmn-change> element shall include one of the following sub-elements:

i) an <any-plmn-change> element shall include a <trigger-id> element;

ii) an <enter-specific-plmn>element shall include a <trigger-id> element; or

iii) an <exit-specific-plmn> element shall include a <trigger-id> element;

4) an <mbms-sa-change> element shall include one of the following sub-elements:

i) an <any-mbms-sa-change> element shall include a <trigger-id> element;

ii) an <enter-specific-mbms-sa> element shall include a <trigger-id> element; or

iii) an <exit-specific-mbms-sa> element shall include a <trigger-id> element;

5) an <mbsfn-area-change> element shall include one of the following sub-elements:

i) an <any-mbsfn-area-change> element shall include a <trigger-id> element;

ii) an <enter-specific-mbsfn-area> element shall include a <trigger-id> element; or

iii) an <exit-specific-mbsfn-area> element shall include a <trigger-id> element;

6) a <periodic-report> element shall include a <trigger-id> element;

7) a <travelled-distance> element shall include a <trigger-id> element;

8) a <vertical-application-event> element shall include one of the following sub-elements:

i) an <initial-log-on> element shall include a <trigger-id> element;

ii) a <location-configuration-received> element shall include a <trigger-id> element; or

iii) an <any-other-event>, an optional element specifying that any other application signalling event than initial-log-on and location-configuration-received triggers a request for a location report. This element contains a mandatory <trigger-id> attribute that shall be set to a unique string;

9) a <geographical-area-change> element shall include one of the following sub-elements:

i) an <any-area-change> element shall include a <trigger-id> element;

ii) an <enter-specific-area> element shall include the following sub-element:

A) a <geographical-area> element shall include the following two sub-elements:

I) a <polygon-area> element shall include a <trigger-id> element; or

II) an <ellipsoid-arc-area> element shall include a <trigger-id> element;

iii) an <exit-specific-area-type> element shall include a <trigger-id> element;

The <subscription-response> element shall include the followings:

a) an <identity> element; and

b) a <result> element;

The <network-monitoring-info-notification> element shall include the followings:

a) a <V2X-ue-id> element; and

b) a <network-monitoring-info> element, which may include:

1) an <uplink-qulity-level> element;

2) a <congestion-level> element;

3) a <overload-level> element;

4) a <geographical-area> element which shall include at least one of the followings:

i) a <cell-area> element; or

ii) a <tracking-area> element;

5) a <time-validity> element; or

6) an <MBMS-level> element which may include:

i) an <MBMS-coverage-level> element; or

ii) an <MBMS-bearer-level-event> element.

\*\*\* End of changes \*\*\*