**3GPP TSG-CT Meeting #104 *CP-241260***

**Shanghai, China, 17th Jun 2024 - 18th Jun 2024 (Revision of C3-243493)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.486** | **CR** | **0128** | **rev** | **2** | **Current version:** | **18.2.0** |  |
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| *For* [***HELP***](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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Service consumer update | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia | | | | | | | | | |
| ***Source to TSG:*** | Nokia | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NBI18 | | | | |  | ***Date:*** | | | 2024-06-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Figures indicates NF service consumer instead of Service consumer in this specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | NF service consumer is updated to Service consumer | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The inconsistency between the description and the figure which indicates the lower quality of the document. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.2.2.2, 5.2.2.4.2, 5.2.2.4.3, 5.2.2.5.2, 5.3.2.2.2, 5.3.2.2.3, 5.4.2.2.2, 5.4.2.2.3, 5.4.2.3.2, 5.5.2.2.2, 5.5.2.2.3, 5.5.2.3.2, , 5.7.2.2.2, 5.7.2.3.2, 5.8.2.2.2, 5.8.2.3.2, 5.8.2.4.2, 5.8.2.6.2, 5.9.2.2.2, 5.10.2.2.2, 5.10.2.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact the OpenAPI descriptions of the APIs defined in this specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | **Rev 2**:   1. 5.6.2.2.2 clause is removed due to the clash with C3-242373. 2. Some of the deleted figure is shown with the track changes now. | | | | | | | | |

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

##### 5.2.2.2.2 Message Delivery Subscribe



Figure 5.2.2.2.2-1: Message delivery subscribe

When the service consumer needs to receive the message from the V2X UE and/or send the message to the V2X UE, the service consumer shall send the POST method as step 1of the figure 5.2.2.2.2-1 to request to create an "Individual Message Delivery Subscription".

The service consumer shall include MessageDeliverySubscriptionData data structure in the content of the HTTP POST to request a creation of representation of the "Individual Message Delivery Subscription" resource. The "Individual Message Delivery Subscription" resource is created as described below.

The service consumer within MessageDeliverySubscriptionData data structure shall include:

- The identity of the VASS within the "appSerId" attribute;

- The V2X service ID within the "serviceId" attribute;

- The notification URI within the "notifUri" attribute; and

- The supported features with the "suppFeat" attribute;

and may include

- The geographical area identifier within the "geoId" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual Message Delivery Subscription", addressed by a URI as defined in clause 6.1.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

If errors occur when processing the HTTP POST request, the VAE server shall apply error handling procedures as specified in clause 6.1.7.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual Message Delivery Subscription" resource.

\* \* \* \* Next changes \* \* \* \*

##### 5.2.2.4.2 Downlink Message Delivery

Figure 5.2.2.4.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of a Downlink Message Delivery.



Figure 5.2.2.4.2-1: Downlink Message Delivery

When the service consumer needs to send the message to the V2X UE, the service consumer shall send the HTTP POST method as step 1of the figure 5.2.2.4.2-1 to request to create an "Individual Downlink Message Delivery".

The service consumer shall include DownlinkMessageDeliveryData data structure in the content of the HTTP POST to request a creation of representation of the "Individual Downlink Message Delivery" resource. The "Individual Downlink Message Delivery" resource is created as described below.

The service consumer within the DownlinkMessageDeliveryData data structure shall include:

- either the V2X UE ID within the "ueId" attribute or the V2X Group ID within the "groupId" attribute; and

- V2X message payload carried by the V2X message within the "payload" attribute;

and may include:

- the duration within the "duration" attribute;

- the geographical area identifier within the "geoId" attribute; and

- the V2X service ID within the "serviceId" attribute, if the "V2XService" feature is supported.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual Downlink Message Delivery", addressed by a URI as defined in clause 6.1.3.5.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual Downlink Message Delivery".

If errors occur when processing the HTTP POST request, the VAE Server shall apply error handling procedures as specified in clause 6.1.7.

After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in clause 6.5.2.4 or 6.5.2.5 of 3GPP TS 24.486 [28] to send the message to the VAE Client.

When the VAE Server received the reception report from the VAE Client as defined in clause 6.5.2.2 of 3GPP TS 24.486 [28], the VAE Server shall send an HTTP POST message to the service consumer identified by the notification URI received during the message delivery subscribed if the "ReceptionReport" feature is supported. Upon receipt of the request, the SCS/AS shall acknowledge the notification with an HTTP 204 No Content response.

\* \* \* \* Next changes \* \* \* \*

##### 5.2.2.4.3 Termination of Downlink Message Delivery

Figure 5.2.2.4.3-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the termination of a Downlink Message Delivery.



Figure 5.2.2.4.3-1: Termination of Downlink Message Delivery

When the service consumer needs to terminate the message delivery to the V2X UE, the service consumer shall send the DELETE method as step 1of the figure 5.2.2.4.3-1 to request to delete the "Individual Downlink Message Delivery" resource.

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the Individual Downlink Message Delivery resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message.

When the message delivery duration expires, the VAE server may remove the associated Individual Downlink Message Delivery resource locally.

If errors occur when processing the HTTP DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.1.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.2.2.5.2 Deliver Uplink Message

Figure 5.2.2.5.2-1 depicts a scenario where a VAE Server sends a notification request to the service consumer to deliver an Uplink Message.



Figure 5.2.2.5.2-1: Deliver Uplink Message

If the VAE Server receives the uplink message for a V2X UE which an service consumer has subscribed to or a V2X UE belongs to a V2X group which the service consumer has subscribed to from the VAE Client as defined in clause 6.5.2.1 of 3GPP TS 24.486 [28], the VAE Server shall send an HTTP POST request with "{notifUri}" as previously provided by the service consumer within the corresponding subscription as URI and UplinkMessageDeliveryData data structure as request body that shall include:

- resource URI of the individual Message Delivery Subscription related to the notification within the "resourceUri" attribute;

- the V2X UE ID within the "ueId" attribute;

- V2X message payload carried by the V2X message within the "payload" attribute; and

- the geographical area identifier within the "geoId" attribute if available;

and may include:

- the V2X service ID within the "serviceId" attribute, if the "V2XService" feature is supported.

Upon the reception of the HTTP POST message, if the service consumer successfully processed and accepted the received HTTP POST request, the service consumer shall send an "204 No Content" HTTP response for a succesfull processing.

If errors occur when processing the HTTP POST request, the service consumer shall send an HTTP error response as specified in clause 6.1.7.

When the VAE Server receives the response from the service consumer, the VAE Service shall send the response to the VAE Client as defined in clause 6.5.2.4 of 3GPP TS 24.486 [28].

\* \* \* \* Next changes \* \* \* \*

##### 5.3.2.2.2 File Distribution

Figure 5.3.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of a File Distribution.

Figure 5.3.2.2.2-1: File Distribution

When the service consumer needs to distribute the file to the V2X UEs, the service consumer shall send the POST method as step 1 of the figure 5.3.2.2.2-1 to request to create an "Individual File Distribution".

The service consumer shall include FileDistributionData data structure in the content of the HTTP POST to request a creation of representation of the "Individual File Distribution" resource. The "Individual File Distribution" resource is created as described below.

The service consumer within the FileDistributionData data structure shall include:

- The file lists within the "fileLists" attribute;

- The geographical area within the "geoArea" attribute;

- maximum bitrate for the V2X application within the "maxBitrate" attribute; and

- maximum delay for the V2X application within the "maxDelay" attribute;

and may include:

- The V2X Group ID within the "groupId" attribute;

- The serving class within the "serviceClass" attribute;

- The duration within the "duration" attribute; and

- The local MBMS information within the "localMbmsInfo" attribute or the "localMbmsActInd" set to true if the "LocalMBMS" feature is supported.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual File Distribution", addressed by a URI as defined in clause 6.2.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

The VAE Server shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual File Distribution".

If errors occur when processing the HTTP POST or DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.2.7.

The VAE server makes use of the xMB procedures as defined 3GPP TS 29.116 [19] to create MBMS sessions whose type is set to "files" and to request the delivery of files over these sessions. Before provisioning files to the BM‑SC, the VAE server prepares the file for distribution, which may include partition of large files into smaller files or encryption.

The VAE server is responsible for translating the parameters related to the V2X application triggering the file delivery into corresponding xMB parameters. Table 5.3.2.2.2-1 describes the mapping between the VAE\_FileDistribution API attribute and the xMB API properties specified in 3GPP TS 29.116 [19].

Table 5.3.2.2.2-1: Mapping between VAE\_FileDistribution API and xMB API

|  |  |
| --- | --- |
| V2X parameter | Corresponding xMB API property |
| serviceClass | service-class |
| fileLists | file-list |
| geoArea | geographical-area |
| maxBitrate | max-bitrate |
| maxDelay | max-delay |
| localMbmsInfo or localMbmsActInd | local-mbms-delivery-information |

NOTE: The list of V2X parameters needed for file delivery is not exhaustive and can be updated based on the specific V2X application requirements.

\* \* \* \* Next changes \* \* \* \*

##### 5.3.2.2.3 Termination of File Distribution

Figure 5.3.2.2.3-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the deletion of a File Distribution.



Figure 5.3.2.2.3-1: Termination of File Distribution

When the service consumer needs to terminate the File Distribution to the V2X UE, the service consumer shall send the DELETE method as step 1of the figure 5.3.2.2.3-1 to request to delete the "Individual File Distribution" resource.

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the Individual File Distribution resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message.

If errors occur when processing the DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.2.7.

When the message delivery duration expires, the VAE server may remove the associated Individual File Distribution resource locally.

\* \* \* \* Next changes \* \* \* \*

##### 5.4.2.2.2 Network Resource Reservation

Figure 5.4.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of an Application Requirement.



Figure 5.4.2.2.2-1: Network Resource Reservation

When the service consumer needs to provide V2X application requirement to the underlying 3GPP network, the service consumer shall send the POST method as step 1 of the figure 5.4.2.2.2-1 to request to create an "Individual Application Requirement".

The service consumer shall include ApplicationRequirementData data structure in the content of the HTTP POST to request a creation of representation of the "Individual Application Requirement" resource. The "Individual Application Requirement" resource is created as described below.

The service consumer within the ApplicationRequirementData data structure shall include:

- Either the V2X Group ID within the "groupId" attribute or the V2X UE ID within the "ueId" attribute;

- notification URI within the "notifUri" attribute;

- The service Id within the "serviceId" attribute; and

- V2X application requirement within the "appRequirement" attribute;

and may include:

- The duration within the "duration" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual Application Requirement", addressed by a URI as defined in clause 6.3.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource. The VAE Server shall interact with the SEAL NRM server as specified in the 3GPP TS 29.549 [29] for the V2X application requirement received in step 1.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual Application Requirement".

If errors occur when processing the HTTP POST or DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.3.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.4.2.2.3 Termination of Network Resource Reservation

Figure 5.4.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the deletion of an Application Requirement.



Figure 5.4.2.2.3-1: Termination of Network Resource Reservation

When the service consumer needs to terminate network resource reservation, the service consumer shall send the DELETE method as step 1of the figure 5.4.2.2.3-1 to request to delete the "Individual Application Requirement" resource.

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the Individual Application Requirement resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message.

If errors occur when processing the HTTP DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.3.7.

When the message delivery duration expires, the VAE server may remove the associated Individual Application Requirement resource locally.

\* \* \* \* Next changes \* \* \* \*

##### 5.4.2.3.2 Notify Network Resource

Figure 5.4.2.3.2-1 depicts a scenario where a VAE Server sends a notification request to the service consumer to report the result of network resource adaptation.



Figure 5.4.2.3.2-1: Notify Network Resource

If the VAE Server receives the result of network resource adaptation corresponding to the V2X application requirement from the SEAL NRM server as specified in the 3GPP TS 29.549 [29], the VAE Server shall send an HTTP POST request with "{notifUri}" as previously provided by the service consumer within the corresponding subscription as URI and AppReqNotification data structure as request body that shall include:

- resource URI of the individual Application Requirement related to the notification within the "resourceUri" attribute;

- the result of the network resource adaptation corresponding to the V2X application requirement within the "result" attribute.

Upon the reception of the HTTP POST message, if the service consumer successfully processed and accepted the received HTTP POST request, the service consumer shall send an "204 No Content" HTTP response for a succesfull processing.

If errors occur when processing the HTTP POST request, the VAE Server shall send an HTTP error response as specified in clause 6.3.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.5.2.2.2 Dynamic Group Configuration

Figure 5.5.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of a Dynamic Group Configuration.



Figure 5.5.2.2.2-1: Dynamic Group Configuration

When the service consumer needs to configures the dynamic group information at the VAE server, the service consumer shall send the POST method as step 1 of the figure 5.5.2.2.2-1 to request to create an "Individual Group Configuration".

The service consumer shall include GroupConfigurationData data structure in the content of the HTTP POST to request a creation of representation of the "Individual Group Configuration" resource. The "Individual Group Configuration" resource is created as described below.

The service consumer within GroupConfigurationData data structure shall include:

- The dynamic Group ID within the "groupId" attribute;

- The group definition within the "definition" attribute;

- The group leader Id within the "leaderId" attribute; and

- The notification URI within the "notifUri" attribute.

And may include:

- The duration within the "duration" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual Group Configuration", addressed by a URI as defined in clause 6.4.3.2.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource. Then the VAE Server shall interact with the VAE Client to notify the dynamic group information as specified in the 3GPP TS 24.486 [28].

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual Group Configuration".

If errors occur when processing the HTTP POST or DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.4.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.5.2.2.3 Termination of Dynamic Group Configuration

Figure 5.5.2.2.3-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the deletion of a Dynamic Group Configuration.



Figure 5.5.2.2.3-1: Termination of Dynamic Group Configuration

When the service consumer needs to terminate the Dynamic Group Configuration at the VAE server, the service consumer shall send the DELETE method as step 1of the figure 5.5.2.2.3-1 to request to delete the "Individual Group Configuration" resource.

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the Individual Group Configuration resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message.

If errors occur when processing the HTTP DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.4.7.

When the message delivery duration expires, the VAE server may remove the associated Individual Group Configuration resource locally.

\* \* \* \* Next changes \* \* \* \*

##### 5.5.2.3.2 Notify Dynamic Group

Figure 5.4.2.3.2-1 depicts a scenario where a VAE Server sends a notification request to the service consumer to report dynamic group information.



Figure 5.5.2.3.2-1: Notify Dynamic Group

If the VAE Server receives the dynamic group information (i.e. group member joins or leaves) from the VAE Client as specified in the 3GPP TS 24.486 [28], the VAE Server shall send an HTTP POST request with "{notifUri}" as previously provided by the service consumer within the corresponding subscription as URI and DynamicGroupNotification data structure as request body that shall include:

- resource URI of the individual Application Requirement related to the notification within the "resourceUri" attribute;

- one or more joined group member within the "joinedUeIds" attribute if available; and

- one or more left group member within the "leftUeIds" attribute if available.

Upon the reception of the HTTP POST message, the service consumer shall send an "204 No Content" HTTP response for a succesfull processing.

If errors occur when processing the HTTP POST request, the service consumer shall send an HTTP error response as specified in clause 6.4.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.7.2.2.2 Subscribe HD Map Dynamic Information

Figure 5.7.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of an HdMap Dynamic Info Subscription.



Figure 5.7.2.2.2-1: Subscribe HD Map Dynamic Information

When the service consumer needs to subscribe for the HD map dynamic information, the service consumer shall send the POST method as step 1 of the figure 5.7.2.2.2-1 to request to create an "Individual HdMap DynamicInfo Subscription".

The service consumer shall include HdMapDynamicInfoData data structure in the content of the HTTP POST to request a creation of representation of the "Individual HdMap DynamicInfo Subscription" resource. The "Individual HdMap DynamicInfo Subscription" resource is created as described below.

The service consumer within the HdMapDynamicInfoData data structure shall include:

- notification URI within the "notifUri" attribute;

- the V2X UE ID within the "ueId" attribute; and

- application defined proximity range information within the "range" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual HdMap DynamicInfo\_Subscription", addressed by a URI as defined in clause 6.6.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual HdMap DynamicInfo Subscription".

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the Individual HdMap DynamicInfo Subscription resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message.

If errors occur when processing the HTTP POST or DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.6.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.7.2.3.2 Notify HD Map Dynamic Information

Figure 5.7.2.3.2-1 depicts a scenario where a VAE Server sends a notification request to the service consumer to report HD Map Dynamic Information.



Figure 5.7.2.3.2-1: Notify HD Map Dynamic Information

When the VAE Server prepared the HD map dynamic informaiton including the aggregate information from different VAE Clients, the VAE Server shall send an HTTP POST request with "{notifUri}" as previously provided by the service consumer within the corresponding subscription as URI and HdMapDynamicInfoNotification data structure as request body that shall include:

- resource URI of the Individual HdMap DynamicInfo Subscription related to the notification within the "resourceUri" attribute;

- the HD map dynamic information corresponding within the "hdMapDynaInfo" attribute.

Upon the reception of the HTTP POST message, if the service consumer successfully processed and accepted the received HTTP POST request, the service consumer shall send an "204 No Content" HTTP response for a succesfull processing.

If errors occur when processing the HTTP POST request, the VAE Server shall send an HTTP error response as specified in clause 6.6.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.8.2.2.2 Establish Session

Figure 5.8.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of a Session Oriented Service Subscription.



Figure 5.8.2.2.2-1: Establish Session

When the service consumer needs to trigger the establishment of the session-oriented service by the VAE server, the service consumer shall send the POST method as step 1 of the figure 5.8.2.2.2-1 to request to create an "Individual Session Oriented Service Subscription".

The service consumer shall include SessionOrientedData data structure in the content of the HTTP POST to request a creation of representation of the "Individual Session Oriented Service Subscription" resource. The "Individual Session Oriented Service Subscription" resource is created as described below.

The service consumer within the SessionOrientedData data structure shall include:

- notification URI within the "notifUri" attribute;

- the remote V2X UE ID within the "ueId" attribute;

- the V2X service ID within the "serviceId" attribute;

- the identity of the VASS within the "appSerId" attribute; and

- application QoS requirements for the session within the "appQosReq" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual Session Oriented Service Subscription", addressed by a URI as defined in clause 6.7.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual Session Oriented Service Subscription".

After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to establish a session-oriented service with VAE client.

If errors occur when processing the HTTP POST request, the VAE Server shall apply error handling procedures as specified in clause 6.7.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.8.2.3.2 Notify Establish Session

Figure 5.7.2.3.2-1 depicts a scenario where a VAE Server sends a notification request to the service consumer to report the result of session establishment.



Figure 5.8.2.3.2-1: Notify Establish Session

When the VAE Server response from the VAE client indicating the result of session establishment requested by the VAE server as defined in 3GPP TS 24.486 [28], the VAE Server shall send an HTTP POST request with "{notifUri}" as previously provided by the service consumer within the corresponding subscription as URI and Notification data structure as request body that shall include:

- resource URI of the Individual Session Oriented Service Subscription related to the notification within the "resourceUri" attribute;

- the value "ESTABLISHMENT" with the "action" attribute; and

- the result of session establishment within the "result" attribute.

Upon the reception of the HTTP POST message, if the service consumer successfully processed and accepted the received HTTP POST request, the service consumer shall send an "204 No Content" HTTP response for a succesfull processing.

If errors occur when processing the HTTP POST request, the VAE Server shall send an HTTP error response as specified in clause 6.7.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.8.2.4.2 Update Session

Figure 5.8.2.4.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the update of a Session Oriented Service Subscription.



Figure 5.8.2.4.2-1: Update Session

When the service consumer needs to trigger the update to the session-oriented service by the VAE server, the service consumer shall send the PUT method as step 1 of the figure 5.8.2.4.2-1 to request to update the "Individual Session Oriented Service Subscription".

The service consumer shall include SessionOrientedData data structure in the content of the HTTP PUT to update the "Individual Session Oriented Service Subscription" resource. The remote V2X UE ID, the V2X service ID and the identity of the service consumer shall remain unchanged from previous values.

When the VAE Server receives the HTTP PUT request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall update the "Individual Session Oriented Service Subscription" and respond to the service consumer with a 200 OK or 204 No Content status code.

After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to update the session-oriented service with VAE client.

If errors occur when processing the HTTP PUT request, the VAE Server shall apply error handling procedures as specified in clause 6.7.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.8.2.6.2 Terminate Session

Figure 5.8.2.6.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the deletion of a Session Oriented Service Subscription.



Figure 5.8.2.6.2-1: Terminate Session

When the service consumer needs to trigger the termination of the session-oriented service by the VAE server, the service consumer shall send the DELETE method as step 1 of the figure 5.8.2.6.2-1 to request to delete the "Individual Session Oriented Service Subscription".

When the VAE Server receives the HTTP DELETE request from the service consumer, the VAE server shall authorize the request from the service consumer. If the authorization is successful, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to delete the session-oriented service with VAE client. If the VAE server receives the successful response from the VAE client, the VAE Server shall delete the "Individual Session Oriented Service Subscription" and respond to the service consumer with a 204 No Content status code.

If errors occur when processing the DELTE request, the VAE Server shall apply error handling procedures as specified in clause 6.7.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.9.2.2.2 Request V2V Configuration Requirement

Figure 5.9.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of a V2V Configuration.



Figure 5.9.2.2.2-1: Request\_V2VConfigRequirement

When the service consumer needs to provide a V2V configuration requirement, the service consumer shall send the POST method as step 1 of the figure 5.9.2.2.2-1 to request to create an "Individual V2V Configuration".

The service consumer shall include V2vConfigurationData data structure in the content of the HTTP POST to request a creation of representation of the "Individual V2V Configuration" resource. The "Individual V2V Configuration" resource is created as described below.

The service consumer within the V2vConfigurationData data structure shall include:

- either the V2X group ID within the "groupId" attribute or the V2X service ID within the "serviceId" attribute;

and may include:

- candidate Relay V2X-UE ID list within the "canUeIds" attribute; and

- application QoS requirements for the session within the "appQosReq" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual V2V Configuration" resource, addressed by a URI as defined in clause 6.8.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual Session Oriented Service Subscription".

After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to provide the V2V configuration infomation to the VAE client. The VAE server may also provide the list of V2X-UEs to serve as application layer relays based on the candidate list of relay V2X-UEs received form the service consumer.

The service consumer may include the V2vConfigurationData data structure in the content of the HTTP PUT to update the "Individual V2V Configuration" resource. The V2X group ID and the V2X service ID shall remain unchanged from previous values. When the VAE Server receives the HTTP PUT request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall update the "Individual V2V Configuration" and respond to the service consumer with a 200 OK or 204 No Content status code. After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to provide the upated infomation to the VAE client.

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the "Individual V2V Configuration" resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message. After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to delete the V2V configuration information from the VAE client.

If errors occur when processing the HTTP POST, HTTP PUT or HTTP DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.8.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.10.2.2.2 Config\_PC5ProvisioningRequirement

Figure 5.10.2.2.2-1 depicts a scenario where a service consumer sends a request to the VAE Server to request the creation of a PC5 Provisioning Requirement Subscription.



Figure 5.10.2.2.2-1: Config\_PC5ProvisioningRequirement

When the service consumer needs to provide a V2X PC5 provisioning requirement to the VAE server, the service consumer shall send the POST method as step 1 of the figure 5.10.2.2.2-1 to request to create an "Individual PC5 Provisioning Requirement Subscription".

The service consumer shall include ProvisioningRequirement data structure in the content of the HTTP POST to request a creation of representation of the "Individual PC5 Provisioning Requirement Subscription" resource. The "Individual PC5 Provisioning Requirement Subscription" resource is created as described below.

The service consumer within the ProvisioningRequirement data structure shall include:

- notification URI within the "notifUri" attribute;

- either the remote V2X UE ID within the "ueId" attribute or the V2X group ID within the "groupId" attribute;

- the V2X service ID within the "serviceId" attribute;

- application QoS requirements for the session within the "appQosReq" attribute;

and may include:

- the PLMN ID list within the "plmnList" attribute.

When the VAE Server receives the HTTP POST request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall create a new resource, which represents "Individual PC5 Provisioning Requirement Subscription", addressed by a URI as defined in clause 6.9.3.3.2 and contains a VAE Server created resource identifier. The VAE Server shall respond to the service consumer with a 201 Created message, including Location header field containing the URI for the created resource.

The service consumer shall use the URI received in the Location header in subsequent requests to the VAE Server to refer to the "Individual PC5 Provisioning Requirement Subscription".

After the VAE Server responded to the service consumer, the VAE Server may invoke the procedure defined in 3GPP TS 24.486 [28] to send a PC5 provisioning status request to VAE client(within the multi-operator V2X service) to receive up-to-date information on the per PLMN provisioning policies/ parameters.

The service consumer may include the ProvisioningRequirement data structure in the content of the HTTP PUT to update the "Individual PC5 Provisioning Requirement Subscription" resource. The remote V2X UE ID, the V2X service ID and the V2X service ID shall remain unchanged from previous values When the VAE Server receives the HTTP PUT request from the service consumer, the VAE server shall make an authorization based on the information received from the service consumer. If the authorization is successful, the VAE Server shall update the "Individual PC5 Provisioning Requirement Subscription" and respond to the service consumer with a 200 OK or 204 No Content status code. After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to provide the upated infomation to the VAE client.

Upon receipt of the HTTP DELETE message from the service consumer, the VAE Server shall check if the "Individual PC5 Provisioning Requirement Subscription" resource identified by the URI already exists. If the resource exists, the VAE Server shall delete the resource and respond to the service consumer with a 204 No Content success message. After the VAE Server responded to the service consumer, the VAE Server shall invoke the procedure defined in 3GPP TS 24.486 [28] to delete the PC5 provisioning status request from the VAE client.

If errors occur when processing the HTTP POST, HTTP PUT or HTTP DELETE request, the VAE Server shall apply error handling procedures as specified in clause 6.9.7.

\* \* \* \* Next changes \* \* \* \*

##### 5.10.2.3.2 Notify\_PC5ProvisioningRequirement

Figure 5.10.2.3.2-1 depicts a scenario where a VAE Server sends a notification request to the service consumer to report the result of multi operation PC5 provisioning requirements.



Figure 5.10.2.3.2-1: Notify\_PC5ProvisioningRequirement

After the VAE Server determines the updated PC5 provisioning policies/parameters to be jointly used across the V2X-UEs within the multi-operator V2X service, the VAE Server shall send an HTTP POST request with "{notifUri}" as previously provided by the service consumer within the corresponding subscription as URI and Notification data structure as request body that shall include:

- resource URI of the Individual PC5 Provisioning Requirement Subscription related to the notification within the "resourceUri" attribute;

- the result of V2X PC5 provisioning requirement within the "result" attribute.

Upon the reception of the HTTP POST message, if the service consumer successfully processed and accepted the received HTTP POST request, the service consumer shall send an "204 No Content" HTTP response for a succesfull processing.

If errors occur when processing the HTTP POST request, the VAE Server shall send an HTTP error response as specified in clause 6.9.7.

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