**TSG-CT WG3 Meeting #115-e *C3-212336***

**E-Meeting, 14th – 23rd April 2021 (Revision of C3-21xxyz)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.122** | **CR** | **0419** | **rev** | **-** | **Current version:** | **15.10.0** |  |
|  |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Format of location information |
|  |  |
| ***Source to WG:*** | Huawei, Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | NAPS-CT, 5GS\_Ph1-CT |  | ***Date:*** | 2021-03-30 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-15 |
|  | *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:*** | 1. MonitoringEventSubscription data type as defined in subclause 5.3.2.1.2: ‘monitoring-Type’ should be changed to ‘monitoringType’;
2. LocationInfo data as defined in subclause 5.3.2.3.5: the format of the IEs are unclear, e.g. trackingAreaId attribute only use string as the data type but actually should consists of MCC, MNC and TAC, wherein, MCC has three digits, MNC has two or three digits, TAC has a fixed length code (of 2 octets) as given in TS 23.003. SCEF/NEF retrieve the corresponding Location Information from the available UserLocation type can be referred.
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| ***Summary of change:*** | Change the specification as above proposals, adding the corresponding Location information reference description from the UserLocation type in the LocationInfo data Type. |
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| ***Consequences if not approved:*** | Not clear description on how to retrieve / refer the detail UE location information in the specification, may cause wrong implementation. |
|  |  |
| ***Clauses affected:*** | 5.3.2.1.2; 5.3.2.3.5 |
|  |  |
|  | **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 file. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

##### 5.3.2.1.2 Type: MonitoringEventSubscription

This type represents a subscription to monitoring an event. The same structure is used in the subscription request and subscription response.

Table 5.3.2.1.2-1: Definition of type MonitoringEventSubscription

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | Cardinality | Description | Applicability (NOTE 3) |
| self | Link | 0..1 | Link to the resource "Individual Monitoring Event Subscription". This parameter shall be supplied by the SCEF in HTTP responses. |  |
| supportedFeatures | SupportedFeatures | 0..1 | Used to negotiate the supported optional features of the API as described in subclause 5.2.7.This attribute shall be provided in the POST request and in the response of successful resource creation. |  |
| mtcProviderId | string | 0..1 | Identifies the MTC Service Provider and/or MTC Application. (NOTE 7) |  |
| externalId | ExternalId | 0..1 | Identifies a user as defined in Clause 4.6.2 of 3GPP TS 23.682 [2].(NOTE 1) | (NOTE 5) |
| msisdn | Msisdn | 0..1 | Identifies the MS internal PSTN/ISDN number allocated for a UE.(NOTE 1) | (NOTE 5) |
| externalGroupId | ExternalGroupId | 0..1 | Identifies a user group as defined in Clause 4.6.2 of 3GPP TS 23.682 [2].(NOTE 1) (NOTE 6) |  |
| addExtGroupIds | array(ExternalGroupId) | 0..N | Identifies user groups as defined in Clause 4.6.2 of 3GPP TS 23.682 [2].(NOTE 1) (NOTE 6) | Number\_of\_UEs\_in\_an\_area\_notification, Number\_of\_UEs\_in\_an\_area\_notification\_5G |
| ipv4Addr | Ipv4Addr | 0..1 | Identifies the Ipv4 address.(NOTE 1) | Location\_notification,Communication\_failure\_notification |
| ipv6Addr  | Ipv6Addr | 0..1 | Identifies the Ipv6 address.(NOTE 1) | Location\_notification,Communication\_failure\_notification |
| notificationDestination | Link | 1 | An URI of a notification destination that T8 message shall be delivered to. |  |
| requestTestNotification | boolean | 0..1 | Set to true by the SCS/AS to request the SCEF to send a test notification as defined in subclause 5.2.5.3. Set to false or omitted otherwise. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol as defined in subclause 5.2.5.4. | Notification\_websocket |
| monitoringType | MonitoringType | 1 | Enumeration of monitoring type. Refer to clause 5.3.2.4.3. |  |
| maximumNumberOfReports | integer | 0..1 | Identifies the maximum number of event reports to be generated by the HSS, MME/SGSN as specified in subclause 5.6.0 of 3GPP TS 23.682 [2].(NOTE 2) |  |
| monitorExpireTime | DateTime | 0..1 | Identifies the absolute time at which the related monitoring event request is considered to expire, as specified in subclause 5.6.0 of 3GPP TS 23.682 [2].(NOTE 2) |  |
| groupReportGuardTime | DurationSec | 0..1 | Identifies the time for which the SCEF can aggregate the monitoring event reports detected by the UEs in a group and report them together to the SCS/AS, as specified in subclause 5.6.0 of 3GPP TS 23.682 [2]. |  |
| maximumDetectionTime | DurationSec | 0..1 | If "monitoringType" is "LOSS\_OF\_CONNECTIVITY", this parameter may be included to identify the maximum period of time after which the UE is considered to be unreachable. | Loss\_of\_connectivity\_notification |
| reachabilityType | ReachabilityType | 0..1 | If "monitoringType" is "UE\_REACHABILITY", this parameter shall be included to identify whether the request is for "Reachability for SMS" or "Reachability for Data". | Ue-reachability\_notification |
| maximumLatency | DurationSec | 0..1 | If "monitoringType" is "UE\_REACHABILITY", this parameter may be included to identify the maximum delay acceptable for downlink data transfers. | Ue-reachability\_notification |
| maximumResponseTime | DurationSec | 0..1 | If "monitoring-Type" is "UE\_REACHABILITY", this parameter may be included to identify the length of time for which the UE stays reachable to allow the SCS/AS to reliably deliver the required downlink data. | Ue-reachability\_notification |
| suggestedNumberOfDlPackets | integer | 0..1 | If "monitoringType" is "UE\_REACHABILITY", this parameter may be included to identify the number of packets that the serving gateway shall buffer in case that the UE is not reachable. | Ue-reachability-notification |
| idleStatusIndication | boolean | 0..1 | If "monitoringType" is set to "UE\_REACHABILITY" or "AVAILABILITY\_AFTER\_DDN\_FAILURE", this parameter may be included to indicate the notification of when a UE, for which PSM is enabled, transitions into idle mode.- "true": indicate enabling of notification- "false": indicate no need to notifyDefault: "false". | Ue-reachability\_notification,Availability\_after\_DDN\_failure\_notification |
| locationType | LocationType | 0..1 | If "monitoringType" is "LOCATION\_REPORTING" or "NUMBER\_OF\_UES\_IN\_AN\_AREA", this parameter shall be included to identify whether the request is for Current Location or Last known Location. (NOTE 4) | Location\_notification, Number\_of\_UEs\_in\_an\_area\_notification, Number\_of\_UEs\_in\_an\_area\_notification\_5G |
| accuracy | Accuracy | 0..1 | If "monitoringType" is "LOCATION\_REPORTING", this parameter may be included to identify the desired level of accuracy of the requested location information, as described in subclause 4.9.2 of 3GPP TS 23.682 [2]. | Location\_notification |
| minimumReportInterval | DurationSec | 0..1 | If "monitoringType" is "LOCATION\_REPORTING", this parameter may be included to identify a minimum time interval between Location Reporting notifications. | Location\_notification |
| associationType | AssociationType | 0..1 | If "monitoringType" is "CHANGE\_OF\_IMSI\_IMEI\_ASSOCIATION", this parameter shall be included to identify whether the change of IMSI-IMEI or IMSI-IMEISV association shall be detected. | Change\_of\_IMSI\_IMEI\_association\_notification |
| plmnIndication | boolean | 0..1 | If "monitoringType" is "ROAMING\_STATUS", this parameter may be included to indicate the notification of UE's Serving PLMN ID.- "true": The value shall be used to indicate enabling of notification;- "false": The value shall be used to indicate disabling of notification.Default: "false". | Roaming\_status\_notification |
| locationArea | LocationArea | 0..1 | If "monitoringType" is "NUMBER\_OF\_UES\_IN\_AN\_AREA", this parameter may be included to indicate the area within which the SCS/AS requests the number of UEs. | Number\_of\_UEs\_in\_an\_area\_notification |
| locationArea5G | LocationArea5G | 0..1 | If "monitoringType" is "NUMBER\_OF\_UES\_IN\_AN\_AREA", this parameter may be included to indicate the area within which the AF requests the number of UEs. | Number\_of\_UEs\_in\_an\_area\_notification\_5G |
| monitoringEventReport | MonitoringEventReport | 0..1 | Identifies a monitoring event report which is sent from the SCEF to the SCS/AS. |  |
| NOTE 1: One of the properties "externalId", "msisdn", "ipv4Addr", "ipv6Addr" or "externalGroupId" shall be included for features "Location\_notification" and "Communication\_failure\_notification";. "ipv4Addr" or "ipv6Addr" is required for monitoring via the PCRF for an individual UE. One of the properties "externalId", "msisdn" or "externalGroupId" shall be included for features "Loss\_of\_connectivity\_notification", "Ue-reachability\_notification", "Change\_of\_IMSI\_IMEI\_association\_notification", "Roaming\_status\_notification" and "Availability\_after\_DDN\_failure\_notification";NOTE 2: Inclusion of either "maximumNumberOfReports" (with a value higher than 1) or "monitorExpireTime" makes the Monitoring Request a Continuous Monitoring Request, where the SCEF sends Notifications until either the maximum number of reports or the monitoring duration indicated by the property "monitorExpireTime" is exceeded. The "maximumNumberOfReports" with a value 1 makes the Monitoring Request a One-time Monitoring Request. At least one of "maximumNumberOfReports" or "monitorExpireTime" shall be provided.NOTE 3: Properties marked with a feature as defined in subclause 5.3.4 are applicable as described in subclause 5.2.7. If no features are indicated, the related property applies for all the features.NOTE 4: In this release, for features "Number\_of\_UEs\_in\_an\_area\_notification" and "Number\_of\_UEs\_in\_an\_area\_notification\_5G", locationType shall be set to "LAST\_KNOWN\_LOCATION".NOTE 5: The property does not apply for the features "Number\_of\_UEs\_in\_an\_area\_notification" and "Number\_of\_UEs\_in\_an\_area\_notification\_5G".NOTE 6: For the features "Number\_of\_UEs\_in\_an\_area\_notification" and "Number\_of\_UEs\_in\_an\_area\_notification\_5G", the property "externalGroupId" may be included for single group and "addExtGroupIds" may be included for multiple groups but not both.NOTE 7: The SCEF should check received MTC provider identifier and then the SCEF may: - override it with local configured value and send it to HSS;- send it directly to the HSS; or- reject the monitoring configuration request. |

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

##### 5.3.2.3.5 Type: LocationInfo

This data type represents the user location information which is sent from the SCEF to the SCS/AS.

Table 5.3.2.3.5-1: Definition of LocationInfo data Type

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute name | Data type | Cardinality | Description |
| ageOfLocationInfo | DurationMin | 0..1 | Indicates the elapsed time since the last network contact of the UE.Refer to the Age-Of-Location-Information AVP as defined in subclause 7.3.126 of 3GPP TS 29.272 [33] if available. or the ageOfLocationInformation attribute retrieved within the EutraLocation or NrLocation type in the UserLocation type if available. |
| cellId | string | 0..1 | Indicates the Cell Global Identification of the user which identifies the cell the UE is located.Refer to the EutraCellId type within the Ecgi type within the EutraLocation type in the UserLocation type if available, or the NrCellId type within the Ncgi type within the NrLocation type in the UserLocation type if available. |
| enodeBId | string | 0..1 | Indicates the eNodeB in which the UE is currently located.Refet to the eNodeB-ID AVP or Extended-eNodeB-ID AVP as defined in subclause 7.3.198 or subclause 7.3.218 of 3GPP TS 29.272 [33] if available, or refer to the GNbId or NgeNbId type within the GlobalRanNodeId type in the EutraLocation or NrLocation type in the UserLocation type if available. |
| routingAreaId | string | 0..1 | Identifies the Routing Area Identity of the user where the UE is located.Refer to the Routing-Area-Identity AVP as defined in subclause 7.3.120 of 3GPP TS 29.272 [33]. |
| trackingAreaId | string | 0..1 | Identifies the Tracking Area Identity of the user where the UE is located.Refer to the TAI type within the EutraLocation or NrLocation type in the UserLocation type if available. (NOTE) |
| plmnId | string | 0..1 | Identifies the PLMN Identity of the user where the UE is located.Refer to the Visited-PLMN-Id AVP as defined in subclause 7.3.9 of 3GPP TS 29.272 [33] if available. (NOTE) |
| twanId | string | 0..1 | Identifies the TWAN Identity of the user where the UE is located. |
| geographicArea | GeographicArea | 0..1 | Identifies a geographic area of the user where the UE is located. |
| NOTE: TAI type contains the plmnId attribute information. |

\*\*\* End of Changes \*\*\*