**3GPP TSG-WG SA2 Meeting # 164 *S2-2409065***

 **Maastricht, , - (revision of S2-2408789)**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** | **0492** | **rev** | **2** | **Current version:** |  |  |
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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 |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | AS triggered MPS for Messaging parameter provisioning |
|  |  |
| ***Source to WG:*** | , Peraton Labs, Nokia, Samsung, CISA ECD |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | B |  | ***Release:*** |  |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | Introduce the AS triggered MPS for SMS Indication parameter provisioning based on the outcome of the study for FS\_MPS4msg. |
|  |  |
| ***Summary of change:*** | Introduce the AS triggered MPS for SMS Indication parameter provisioningUpdate the SCEF and HSS to support the new parameter |
|  |  |
| ***Consequences if not approved:*** | Missing functions. |
|  |  |
| ***Clauses affected:*** | 4.5.21, 5.18 |
|  |  |
|  | **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 \* \* \* \*

### 4.5.21 Network Parameter Configuration via SCEF

The SCS/AS may issue network parameter configuration requests to the network, via the SCEF, to suggest parameter values that may be used for Maximum Latency, Maximum Response Time and Suggested Number of Downlink Packets. By suggesting values for these parameters, the SCS/AS may influence certain aspects of UE/network behaviour such as the UE's PSM, extended idle mode DRX, and extended buffering configurations. Based on operator's configuration, the SCEF and HSS may choose to accept, reject or modify the suggested configuration parameter value. The SCEF indicates accepted/modified values to the SCS/AS. This feature can also be used to suggest parameter values for a group of UEs.

NOTE: The SCS/AS can observe how the MME ultimately configures the UE for PSM and extended idle mode DRX by configuring "UE Reachability" or "Availability after DDN failure" notifications with the Idle Status Indication option (see clause 4.5.7).

The SCS/AS may trigger the set (enable)/clear (disable) of the MPS treatment of SMS delivery for a UE with an MPS subscription by providing the MPS for Messaging indication parameter as described in TS 23.401 [7]. The parameter is stored in the HSS and provided to network entities involved in the messaging service (i.e. with SMS over NAS, SMS over IP and messaging over IMS are all controlled by one indication as specified in TS 23.401 [7]).

The specific procedure for Network Parameter Configuration via SCEF is described in clause 5.18.

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

## 5.18 Procedure for Network Parameter Configuration via SCEF



Figure 5.18-1: Procedure for Network Parameter Configuration via SCEF

1. The SCS/AS sends a T8 Set Suggested Network Configuration Request (External Identifier or MSISDN or External Group Identifier, SCS/AS Identifier, Maximum Latency, Maximum Response Time and Suggested Number of Downlink Packets, Group Reporting Guard Time, TLTRI for Deletion, TLTRI for Update, the External Identifier(s) or MSISDN(s) of the individual member UE(s) to be cancelled or added for an existing group event, operation indication (cancellation or addition), MTC Provider Information, MPS for Messaging indication) message to the SCEF to request that the network consider setting Maximum Latency, Maximum Response Time and Suggested Number of Downlink Packets to the requested value(s); they are all optional fields. If a new monitoring event is being configured, the SCEF assigns a TLTRI to the T8 Set Suggested Network Configuration Request. If the SCS/AS wants to perform deletion of a previously configured network parameter(s), then it shall include TLTRI for Deletion.

 If the SCE/AS decides to cancel or add the monitoring event for certain UEs (i.e. one individual UE or a sub-set of UEs) in a group of UEs for which there is a configured Monitoring Event, the SCS/AS can send Monitoring Request message including the TLTRI for Update corresponding to the existing monitoring event configuration and the External Identifier(s) or MSISDN(s) of the individual member UE(s) to be cancelled or added with the operation indication which is either cancellation or addition.

The MPS for Messaging indication sets(enables)/clears(disables) the priority treatment of messaging service for a MPS subscription.

2. The SCEF stores the TLTRI and assigns it to an SCEF Reference ID. Based on operator policies, if either the SCS/AS is not authorized to perform this request (e.g. if the SLA does not allow for it) or the Set Suggested Network Configuration Request is malformed, the SCEF skips steps 3-10 and provides a Cause value appropriately indicating the error. The SCEF checks whether the parameters are within the range defined by operator policies. If one or more of the parameters are not within range, then, based on operator policies, the SCEF may either reject the request by skipping steps 3-10 and providing a cause value that indicates which parameters are out of range, discard the value(s) that are out of range and proceed with the flow, or select different value(s) that are in range and proceed with flow. If the SCEF decides on using values, for the parameters provided in step 1, different to the ones provided by the SCS/AS, then the SCS/AS is informed of it in step 11. If the SCEF received a TLTRI for Update, the SCEF looks up the SCEF context pointed to by the TLTRI for Update to derive the related SCEF Reference ID. If the SCEF received a TLTRI for Deletion, the SCEF looks up the SCEF context pointed to by the TLTRI for Deletion to derive the related SCEF Reference ID for Deletion.

3. The SCEF sends a Set Suggested Network Configuration Request (External Identifier or MSISDN or External Group Identifier, SCEF ID, SCEF Reference ID, Maximum Latency (if provided), Maximum Response Time (if provided), Suggested Number of Downlink Packets (if provided), Group Reporting Guard Time, SCEF Reference ID for Deletion, the External Identifier(s) or MSISDN(s) of the individual member UE(s) to be cancelled or added, operation indication (cancellation or addition), MTC Provider Information, MPS for Messaging indication) message to the HSS to configure the parameters on the HSS and on the MME/SGSN. If the External Group Identifier is included, External Identifier or MSISDN shall be ignored.

NOTE 1: The MTC Provider Information in step 1 is an optional parameter. The SCEF should validate the provided MTC Provider Information and may override it to an SCEF selected MTC Provider Information based on configuration. How the SCEF determines the MTC Provider Information, if not present in step 1, is left to implementation (e.g. based on the requesting SCS/AS).

4. The HSS examines the Set Suggested Network Configuration Request message, e.g. with regard to the existence of External Identifier or MSISDN or External Group Identifier or whether the included parameters are in the range acceptable for the operator, if this check fails the HSS either skips steps 5-9 and provides a Cause value indicating the reason for the failure condition to the SCEF or selects different value(s) that are in range and proceeds with flow. If the HSS decides on using values, for the parameters provided in step 3, different to the ones provided by the SCEF, then the SCEF is informed of it in step 10. In addition, the HSS sets the subscribed periodic RAU/TAU timer using the value of Maximum Latency, if it is provided.

 If the Enhanced Multiple Event Monitoring feature is not supported and if the subscribed periodic RAU/TAU timer was previously set by a Monitoring Request then, depending on operator configuration, the flow skips steps 5-9 and the HSS rejects the Network Configuration Request with an appropriate Cause indicating the failure condition or accepts the request. In the case that the HSS accepts this request, the HSS cancels the previously accepted Monitoring Request. If SCEF Reference ID for Deletion was provided, the HSS deletes the network parameter configuration identified by the SCEF Reference ID for Deletion. If the previously accepted Monitoring Request is associated with a group of UEs and the HSS is not cancelling the previously accepted Monitoring Request for all UEs in the group, then the HSS provides the indicated UEs (External Identifier or MSISDN) to the SCEF in step 10.

 If the Enhanced Multiple Event Monitoring feature is supported, and if the subscribed periodic RAU/TAU Timer, or Active Time, or Suggested number of downlink packets, or any combination were previously set by a different Monitoring Request or Network Parameter Configuration for the same UE, as long as the Maximum Latency (if received), Maximum Response Time (if received) and Suggested number of downlink packets (if received) are within the range defined by operator policies, the HSS shall accept the request as follows:

- If the newly received Maximum Latency is lower than the provided subscribed periodic RAU/TAU timer, the HSS shall set the subscribed periodic RAU/TAU timer using the newly received Maximum Latency.

- If the newly received Maximum Response Time is higher than the provided subscribed Active Time (i.e. previously provided Maximum Response Time), the HSS shall set the subscribed Active Time using the newly received Maximum Response Time.

- If Suggested number of downlink packets is newly received, the HSS shall add the newly received value to the currently used value of Suggested number of downlink packets if the aggregated value is within the operator defined range. If the aggregated value is not within the operator defined range, the HSS shall set the subscribed Suggested number of downlink packets according to operator defined range.

 The HSS may notify the SCEF (which then notifies the SCS/AS) of the actual value of Maximum Latency and Maximum Response Time that are being applied in the 3GPP network.

The HSS stores the MPS for Messaging parameter as part of the subscription data if the HSS supports the MPS for Messaging function. The detailed MPS for Messaging indication handling is further specified in TS 23.272 [11] for SMS over NAS via MME, in TS 23.204 [13] for SMS over IP, and in TS 23.228 [10] for messaging over IMS.

5. For group based processing (if the HSS received the Set Suggested Network Configuration Response with an External Group Identifier), the HSS sends a Set Suggested Network Configuration Response (SCEF Reference ID, SCEF Reference ID for Deletion, Cause) message to the SCEF to acknowledge acceptance of the Set Suggested Network Configuration Request before beginning the processing of individual UEs indicating that Group processing is in progress.

6. For group based processing (if the SCEF received the T8 Set Suggested Network Configuration Response with an External Group Identifier), the SCEF sends a T8 Set Suggested Network Configuration Response (TLTRI, Cause) message to the SCS/AS. The Cause value indicates progress of Group processing request.

7. If the Enhanced Multiple Event Monitoring feature is not supported and the HSS accepts new monitoring event configuration and cancels the existing monitoring event configuration, the HSS sends an Insert Subscriber Data Request (newly received Maximum Response Time (if provided), subscribed periodic RAU/TAU timer (if modified), newly received Suggested Number of Downlink Packets (if provided)) message to the MME/SGSN for the individual UE or for each individual group member UE. When HSS accepts new monitoring event configuration for the indicated UEs in step 4 above, for each indicated UE, the HSS sends such Insert Subscriber Data Request message to the MME/SGSN. When HSS removes a previously configured Monitoring Event for the indicated UEs in step 4 above, the HSS also deletes the previously configured Monitoring Event in the MME/SGSN, if applicable.

 If the Enhanced Multiple Event Monitoring feature is supported, the HSS sends an Insert Subscriber Data Request (Maximum Response Time (if modified), subscribed periodic RAU/TAU timer (if modified), newly received Suggested Number of Downlink Packets (if the newly received Suggested number of downlink packets is higher than the provided Suggested number of downlink packets) message to the MME/SGSN for the individual UE or for each individual group member UE.

For the MPS for Messaging indication parameter, the HSS provides the parameter to the MME as part of the subscription data in the Insert Subscriber Data Request message for the individual UE.

 If the Set Suggested Network Configuration Request message is for a group of UEs, the HSS sends an Insert Subscriber Data Request message per UE to all the MME/SGSN(s) serving the members of the group. If the HSS received a SCEF Reference ID for Deletion in step 3, the HSS shall stop using the provisioned values and determine the parameters that it notifies to the MME/SGSN as in the case when no externally provisioned parameters apply.

8. The MME/SGSN verifies the request, e.g. if the parameters are covered by a roaming agreement when the request is from another PLMN. If this check fails, the MME/SGSN follows step 9 and provides a Cause value indicating the reason for the failure condition to the HSS. Based on operator policies, the MME/SGSN may also reject the request due to other reasons (e.g. overload or HSS has exceeded its quota or rate of submitting requests defined by an SLA).

 If the subscribed periodic RAU/TAU timer was modified, at every subsequent TAU/RAU procedure, the MME/SGSN applies the subscribed periodic RAU/TAU timer.

NOTE 2: The MME/SGSN will transfer the parameters stored as part of its context information during an MME/SGSN change.

For the MPS for Messaging indication parameter, the MME stores the parameter as part of the UE context. The MME handling of the parameter during SMS delivery is described in TS 23.272 [11].

9. The MME/SGSN sends an Insert Subscriber Data Answer (Cause) message to the HSS.

10. For single UE processing (if the HSS received the Set Suggested Network Configuration Response without an External Group Identifier), the HSS sends Set Suggested Network Configuration Response (SCEF Reference ID, SCEF Reference ID for Deletion, Maximum Response Time (if modified), Maximum Latency (if modified), Suggested Number of Downlink Packets (if modified), Cancelled SCEF Reference ID, Cause) message to the SCEF to acknowledge acceptance or indicate the rejection of the Set Suggested Network Configuration Request. If the HSS modified any of the parameters that were provided in step 3, the modified values are provided to the SCEF.

 For group based processing, if the Group Reporting Guard Time was provided in the Request, the HSS accumulates multiple responses for the UEs of the group within the Group Reporting Guard Time. After the Group Reporting Guard Time expiration, the HSS sends a Set Suggested Network Configuration Response (SCEF Reference ID, SCEF Reference ID for Deletion, Cause, list of (External Identifier or MSISDN, Cancelled SCEF Reference ID, Cause)) with the accumulated responses. The HSS includes UE identity(ies) and a Cause value indicating the reason for the failure in the message if the monitoring configuration of the group member failed.

 If the HSS cancelled Monitoring Event(s) for UE(s) in step 4 and the cancelled Monitoring Event(s) is subscribed by the SCEF which is the same as the one sending the Set Suggested Network Configuration Request at step 1, the HSS includes the SCEF Reference ID of the cancelled Monitoring Event(s) and reason for cancellation event(s) in the Set Suggested Network Configuration response message, or Monitoring Indication message if step 5 is executed already. If the HSS, in step 4 above, decides to cancel Monitoring Event for indicated UEs (i.e. one individual UE or a sub-set of UEs) in the group of UEs for which there was a previously configured Monitoring Event, the HSS also includes the External Identifier or MSISDN of these indicated UEs towards the SCEF.

 If the HSS, in step 4 above, decides to add Monitoring Event for indicated UEs (i.e. one individual UE or a sub-set of UEs) in the group of UEs for which there was a previously configured Monitoring Event, the HSS includes the External Identifier or MSISDN of these indicated UEs towards the SCEF.

10a. If the HSS cancelled a Monitoring Event(s) for UE in step 4 and the cancelled Monitoring Event(s) is subscribed by the SCEF which is different from the SCEF sending the Set Suggested Network Configuration Request at step 1, the HSS sends the Monitoring Indication message towards the SCEF which subscribed the cancelled Monitoring Event(s) and includes SCEF Reference ID of a cancelled Monitoring Event(s) and reason of cancellation. If the HSS, in step 4 above, decides to cancel Monitoring Event for indicated UEs (i.e. one individual UE or a sub-set of UEs) in the group of UEs for which there was a previously configured Monitoring Event, the HSS also includes the External Identifier or MSISDN of these indicated UEs towards the SCEF.

 If the HSS, in step 4 above, decides to add Monitoring Event for indicated UEs (i.e. one individual UE or a sub-set of UEs) in the group of UEs for which there was a previously configured Monitoring Event, the HSS includes the External Identifier or MSISDN of these indicated UEs towards the SCEF.

11. For single UE processing (if the SCEF received the T8 Set Suggested Network Configuration Response without an External Group Identifier), the SCEF sends a T8 Set Suggested Network Configuration Response (TLTRI, Maximum Response Time (if modified), Maximum Latency (if modified), Suggested Number of Downlink Packets (if modified), Cause) message to the SCS/AS. If the SCEF or HSS modified any of the parameters that were provided in step 1, the modified values are provided to the SCS/AS. If the SCEF discarded any of the parameters that were provided in step 1, the cause value indicates which values were discarded.

 For group based processing, SCEF sends a T8 Set Suggested Network Configuration Response (TLTRI Maximum Response Time (if modified), Maximum Latency (if modified), Suggested Number of Downlink Packets (if modified), Cause, list of (External Identifier or MSISDN, Cause)) with the accumulated responses received from the HSS in step 10. If the SCEF or HSS modified any of the parameters that were provided in step 1, the modified values are provided to the SCS/AS. If the SCEF discarded any of the parameters that were provided in step 1, the cause value indicates which values were discarded.

12. If the SCEF received Cancelled SCEF Reference ID in step 10 or 10a, the steps 2-5 of Network-initiated Explicit Monitoring Event Deletion procedure defined in clause 5.6.9 are performed with the TLTRI corresponding to the Cancelled SCEF Reference ID.

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