**3GPP TSG-WG SA2 Meeting # 164 *S2-2409062***

**Maastricht, NL, 19 - 23 August 2024 (revision of S2-2408788)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.502** | **CR** | **4912** | **rev** | **2** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *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:*** | AF triggered MPS for Messaging parameter provisioning | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Peraton Labs, Nokia, Samsung, CISA ECD | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MPS4msg | | | | |  | ***Date:*** | | | 2024-08-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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:*** | | Introduce the AF triggered MPS for Messaging Indication parameter provisioning based on the outcome of the study for FS\_MPS4msg. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce the AF triggered MPS for Messaging Indication parameter provisioning  Update the NEF and UDM service operations to include the new parameter | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Missing functions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 4.15.6.3a | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] IETF RFC 7296: "Internet Key Exchange Protocol Version 2 (IKEv2)".

[4] Void.

[5] Void.

[6] IETF RFC 4861: "Neighbor Discovery for IP version 6 (IPv6)".

[7] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[8] IETF RFC 4862: "IPv6 Stateless Address Autoconfiguration".

[9] 3GPP TS 38.300: "NR and NG-RAN Overall Description; Stage 2".

[10] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[11] Void.

[12] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol Specification".

[13] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[14] Void.

[15] 3GPP TS 33.501: "Security Architecture and Procedures for 5G System".

[16] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[17] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[18] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[19] Void.

[20] 3GPP TS 23.503: "Policy and Charging Control Framework for the 5G System ".

[21] IETF RFC 4191: "Default Router Preferences and More-Specific Routes".

[22] 3GPP TS 23.122: "Non-Access-Stratum (NAS) functions related to Mobile Station in idle mode".

[23] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[24] 3GPP TS 23.203: "Policy and charging control architecture".

[25] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[26] 3GPP TS 23.402: "Architecture enhancements for non-3GPP accesses".

[27] Void.

[28] 3GPP TS 23.167: "IP Multimedia Subsystem (IMS) emergency sessions".

[29] Void.

[30] Void.

[31] Void.

[32] 3GPP TS 29.507: "Access and Mobility Policy Control Service; Stage 3".

[33] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[34] Void.

[35] 3GPP TS 23.251: "Network sharing; Architecture and functional description".

[36] 3GPP TS 29.502: "5G System; Session Management Services; Stage 3".

[37] 3GPP TS 29.510: "5G System; Network function repository services; Stage 3".

[38] 3GPP TS 23.380: "IMS Restoration Procedures".

[39] 3GPP TS 32.421: "Telecommunication management; Subscriber and equipment trace; Trace concepts and requirements".

[40] IETF RFC 4555: "IKEv2 Mobility and Multihoming Protocol (MOBIKE)".

[41] 3GPP TS 24.502: "Access to the 3GPP 5G Core Network (5GCN) via Non-3GPP Access Networks (N3AN); Stage 3".

[42] 3GPP TS 32.290: "Services, operations and procedures of charging using Service Based Interface (SBI)".

[43] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode".

[44] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in idle mode".

[45] 3GPP TS 32.255: "5G system; 5G data connectivity domain charging; Stage 2".

[46] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[47] 3GPP TS 29.513: "5G System; Policy and Charging Control signalling flows and QoS parameter mapping; Stage 3".

[48] IEEE Std 802.11-2016 (Revision of IEEE Std 802.11-2012): "IEEE Standard for Information technology - Telecommunications and information exchange between systems Local and metropolitan area networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

[49] IETF RFC 2410: "The NULL Encryption Algorithm and its use with IPsec".

[50] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services; Stage 2".

[51] 3GPP TS 23.273: "5G System (5GS) Location Services (LCS); Stage 2".

[52] 3GPP TS 29.503: "5G System; Unified Data Management Services; Stage 3".

[53] 3GPP TS 23.316: "Wireless and wireline convergence access support for the 5G System (5GS)".

[54] 3GPP TS 23.222: "Functional architecture and information flows to support Common API Framework for 3GPP Northbound APIs; Stage 2".

[55] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[56] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[57] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[58] 3GPP TS 29.525: "5G System; UE Policy Control Service; Stage 3".

[59] IETF RFC 6696: "EAP Extensions for the EAP Re-authentication Protocol (ERP)", July 2012.

[60] IETF RFC 5295: "Specification for the Derivation of Root Keys from an Extended Master Session Key (EMSK)", Aug. 2008.

[61] 3GPP TS 23.272: "Circuit Switched (CS) fallback in Evolved Packet System (EPS); Stage 2".

[62] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[63] 3GPP TS 29.561: "5G System; Interworking between 5G Network and external Data Networks; Stage 3".

[64] 3GPP TS 29.413: "Application of the NG Application Protocol (NGAP) to non-3GPP access".

[65] Void.

[66] IEEE Std 802.1Q-2022: "IEEE Standard for Local and Metropolitan Area Networks-Bridges and Bridged Networks".

[67] Void.

[68] 3GPP TS 23.632: "User Data Interworking, Coexistence and Migration".

[69] 3GPP TS 29.244: "Interface between the Control Plane and the User Plane nodes".

[70] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[71] 3GPP TS 32.256: "Charging Management; 5G connection and mobility domain charging; Stage 2".

[72] 3GPP TS 38.423: "NG-RAN; Xn Application Protocol (XnAP)".

[73] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[74] 3GPP TS 23.548: "5G System Enhancements for Edge Computing; Stage 2".

[75] IEEE Std 802.1AS-2020: "IEEE Standard for Local and metropolitan area networks--Timing and Synchronization for Time-Sensitive Applications".

[76] IEEE Std 1588-2019: "IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control".

[77] 3GPP TS 23.304: "Proximity based Services (ProSe) in the 5G System (5GS)".

[78] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services".

[79] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[80] 3GPP TS 23.256: "Support of Uncrewed Aerial Systems (UAS) connectivity, identification and tracking; Stage 2".

[81] 3GPP TS 23.216: "Single Radio Voice Call Continuity (SRVCC); Stage 2".

[82] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Data, Application Data and Structure Data for Exposure; Stage 3".

[83] 3GPP TS 23.558: "Architecture for enabling Edge Applications".

[84] 3GPP TS 23.540: "Technical realization of Service Based Short Message Service; Stage 2".

[85] 3GPP TS 29.598: "Unstructured data storage services".

[86] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[87] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[88] 3GPP TS 23.586: "Architectural Enhancements to support Ranging based services and Sidelink Positioning".

[89] 3GPP TS 29.214: "Policy and Charging Control over Rx reference point".

[90] 3GPP TS 23.015: "Technical realization of Operator Determined Barring (ODB)".

[91] 3GPP TS 29.505: "5G System; Usage of the Unified Data Repository service for Subscription Data".

[92] 3GPP TS 28.405: "Quality of Experience (QoE) measurement collection; Control and configuration".

[93] 3GPP TS 29.564: "User Plane Function Services; Stage 3".

[94] 3GPP TS 33.533: "Security aspects of ranging based services and sidelink positioning".

[95] 3GPP TS 33.122: "Security aspects of Common API Framework (CAPIF) for 3GPP northbound APIs".

[xx] 3GPP TS 23.204: "Support of Short Message Service (SMS) over generic 3GPP Internet Protocol (IP) access; Stage 2".

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

#### 4.15.6.3a Network Configuration parameters

The Network Configuration parameters are the parameters sent from an AF by invoking the Nnef\_ParameterProvision Service as described in clause 4.15.6.2.

The Network Configuration parameters are described in Table 4.15.6.3a-1.

Table 4.15.6.3a-1: Description of Network Configuration parameters

|  |  |
| --- | --- |
| Network Configuration parameter | Description |
| Maximum Response Time | Identifies the time for which the UE stays reachable to allow the AF to reliably deliver the required downlink data.  [optional] |
| Maximum Latency | Identifies maximum delay acceptable for downlink data transfers.  Example: in order of 1 minute to multiple hours.  [optional] |
| Suggested Number of Downlink Packets | Identifies the number of packets that the core network is suggested to buffer if the UE is not reachable.  Example: 5 packets.  [optional] |
| MPS for Messaging indication | Sets(Enables)/Clears(Disables) the MPS priority handling for Messaging service of the UE. |

The parameters Maximum Response Time and Maximum Latency are stored in the UDM and the Maximum Response Time is sent to the AMF for event monitoring as specified in 4.15.3.2.3b.

The AMF may use the Maximum Response Time parameter as guide to configure:

- Extended Connected time for MICO mode;

- when to send reachability notifications to AF relative to expected reachability events (e.g. paging occasions).

If the UDM received multiple Network Configuration requests, the UDM shall accept the request as long as the Maximum Latency (if received) and/or the Maximum Response Time (if received) are within the range defined by operator policies. The UDM shall use the minimum value of Maximum Latency(s) to derive the subscribed periodic registration timer and use the maximum value of Maximum Response Time(s) to derive the subscribed Active Time as specified in step 2 of clause 4.15.3.2.3b. If the newly derived value is changed comparing to the one last time sent to the AMF, the UDM notify the AMF of the updated value via Nudm\_SDM\_Notification message. If there is a deletion of Network Configuration request, the UDM re-calculates the values (see step 2 in clause 4.15.3.2.3b) and notify the AMF if needed.

The Suggested Number of Downlink Packets is classified as SMF associated subscription data. If the NEF is providing DNN and S-NSSAI as specified in clause 4.15.3.2.3, then the UDM is able to associate the parameters with subscribed DNN and S-NSSAI and provides the Suggested Number of Downlink Packets consolidated as specified in 4.15.3.2.3b to the SMF for the PDU Session associated with the specific DNN and S-NSSAI as specified in clause 4.15.6.2. The SMF may use the Suggested Number of Downlink Packets parameter to configure the number of packets to buffer in the SMF/UPF (in the case of UPF anchored PDU sessions) or in the NEF (in the case of NEF anchored PDU session) when the UE is not reachable and extended buffering of downlink data is activated.

The MPS for Messaging indication sets(enables)/clears(disables) the MPS treatment of messaging service for MPS-subscribed UE. The parameter is stored in UDM/UDR and provided to NFs and entities involved in the messaging service (i.e. SMS over NAS, SMS over IP and messaging over IMS are all controlled by one indication) as part of the subscription data. The MPS for Messaging indication is used in communications between NFs and network entities in CN and is not delivered to UE. The detailed MPS for Messaging indication handling is further specified in clause 4.13 for SMS over NAS, in TS 23.204 [xx] for SMS over IP, and in TS 23.228 [52] for messaging over IMS.

A Validity Time may be associated with any of the Network Configuration parameters. When the validity time expires, the related NFs delete their local copy of the associated Network Configuration parameter(s). If the deletion results in subscribed value change, the UDM shall notify the AMF or SMF of the changed value.

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