**3GPP TSG-SA5 Meeting #132e *S5-204201***

**e-meeting 17th 28th August 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **28.552** | **CR** | **0252** | **rev** | **-** | **Current version:** | **16.6.0** |  |
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| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)*** *on using this form: comprehensive instructions can be found at <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:***  | Addition of SM policy association update measurements for PCF |
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| ***Source to WG:*** | China Mobile, ZTE  |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** | 5G\_SLICE\_ePA |  | ***Date:*** | 2020-08-06 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | The SM policy association measurements for PCF only include creation, so it’s necessary to add update measurements to make the it more complete. |
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| ***Summary of change:*** | Add TS 29.512 in clause 2, add “Number of SM policy association update requests”, “Number of successful SM policy association updates”, “Number of SM policy association update notify requests” and “Number of successful SM policy association update notifies” in clause 5.5.2, and modify “A.15 |
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| ***Consequences if not approved:*** | The current measurements only about creation for PCF would be incomplete. |
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| ***Clauses affected:*** | 2, 5.5.2.a (new), 5.5.2.b (new), 5.5.2.c (new), 5.5.2.d (new), A.15 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **1st Modified Section** |

# 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 32.401: "Telecommunication management; Performance Management (PM); Concept and requirements".

[3] 3GPP TS 32.404: "Performance Management (PM); Performance measurements - Definitions and template".

[4] 3GPP TS 23.501: "System Architecture for the 5G System".

[5] IETF RFC 5136: "Defining Network Capacity".

[6] 3GPP TS 38.473: "NG-RAN; F1 Application Protocol (F1AP)".

[7] 3GPP TS 23.502: "Procedures for the 5G System".

[8] 3GPP TS 28.554: "Management and orchestration; 5G end to end Key Performance Indicators (KPI)".

[9] 3GPP TS 32.425: "Performance Management (PM); Performance measurements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN)".

[10] 3GPP TS 32.451: "Key Performance Indicators (KPI) for Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Requirements".

[11] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[12] Void.

[13] 3GPP TS 38.423: "NG-RAN; Xn Application Protocol (XnAP)".[14] 3GPP TS 29.502: "5G System; Session Management Services; Stage 3".

[15] Void.

[16] 3GPP TS 29.244: "Technical Specification Group Core Network and Terminals; Interface between the Control Plane and the User Plane Nodes; Stage 3".

[17] ETSI GS NFV-IFA027 v2.4.1: "Network Functions Virtualisation (NFV); Management and Orchestration; Performance Measurements Specification".

[18] Void.

[19] 3GPP TS 38.214: "NR; Physical layer procedures for data".

[20] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[21] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[22] 3GPP TS 29.413: "Application of the NG Application Protocol (NGAP) to non-3GPP access".

[23] 3GPP TS 29.122: "Technical Specification Group Core Network and Terminals; T8 reference point for Northbound APIs".

[24] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[25] ETSI ES 202 336-12 V1.2.1: "Environmental Engineering (EE); Monitoring and control interface for infrastructure equipment (power, cooling and building environment systems used in telecommunication networks); Part 12: ICT equipment power, energy and environmental parameters monitoring information model".

[26] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[27] 3GPP TS 29.274: "Evolved General Packet Radio Service (GPRS); Tunnelling Protocol for Control plane (GTPv2-C); Stage 3".

[28] 3GPP TS 29.510: "5G System; Network function repository services; Stage 3".

[29] 3GPP TS 38.314: "NR; layer 2 measurements".

[30] 3GPP TS 38.313: "Self-Organizing Networks (SON) for 5G networks".

[31] 3GPP TS 38.415: "NG-RAN; PDU session user plane protocol".

[32] 3GPP TS 38.321: "NR MAC protocol specification".

[33] 3GPP TS 38.214: "NR; Physical layer procedures for data".

[34] 3GPP TS 38.215: "NR; Physical layer measurements".

[35] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".

[36] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[37] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[38] 3GPP TS 28.530: "Management and orchestration; Concepts, use cases and requirements".

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

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| **2nd Modified Section** |

# 5.5.2 SM policy association related measurements

## 5.5.2.1 Number of SM policy association requests

a) This measurement provides the number of SM policy association requests received by the PCF.

b) CC

c) On receipt by the PCF from the SMF of Npcf\_SMPolicyControl\_Create (see 3GPP TS 23.502 [7]). Each SM policy association request is added to the relevant subcounter per S-NSSAI.

d) Each subcounter is an integer value

e) PA.PolicySMAssoReq.*SNSSAI*

 Where *SNSSAI* identifies the S-NSSAI;

f) PCFFunction

g) Valid for packet switched traffic

h) 5GS

i) One usage of this performance measurements is for performance assurance.

## 5.5.2.2 Number of successful SM policy associations

a) This measurement provides the number of successful SM policy associations at the PCF.

b) CC

c) On transmission by the PCF to the SMF of Npcf\_SMPolicyControl\_Create response (see 3GPP TS 23.502 [7]). Each successful SM policy association is added to the relevant subcounter per S-NSSAI.

d) Each subcounter is an integer value

e) PA.PolicySMAssoSucc.*SNSSAI*

 Where *SNSSAI* identifies the S-NSSAI;

f) PCFFunction

g) Valid for packet switched traffic

h) 5GS

i) One usage of this performance measurements is for performance assurance.

## 5.5.2.a Number of SM policy association update requests

a) This measurement provides the number of SM policy association update requests PCF received from SMF.

b) CC

c) PCF receives the update (post) operation sent by SMF for the " sm-policies/{smPolicyId}/update " resource URL (see clause 4.2 in 3GPP TS 29.512[X]). Each association update request is added to the relevant subcounter per S-NSSAI.

d) A single integer value

e) PCF.PolicySmAssocUpdateReq.*SNSSAI*

Where *SNSSAI* identifies the S-NSSAI

f) PCFFunction

g) Valid for packet switching

h) 5GS

## 5.5.2.b Number of successful SM policy association updates

a) This measurement provides the number of successful update of SM policy association on PCF.

b) CC

c) PCF returns "200 OK" response message (see clause 4.2 in 3GPP TS 29.512[X]). Each successful association is added to the relevant subcounter per S-NSSAI.

d) A single integer value

e) PCF.PolicySmAssocUpdateSucc.*SNSSAI*

Where *SNSSAI* identifies the S-NSSAI

f) PCFFunction

g) Valid for packet switching

h) 5GS

## 5.5.2.c Number of SM policy association update notify requests

a) This measurement provides the number of SM policy association update notify requests PCF sends to SMF.

b) CC

c) PCF sends update (post) operation to SMF for the " {NotificationUri}/update " resource URL (see clause 4.2 in 3GPP TS 29.512[X]). Each association update request is added to the relevant subcounter per S-NSSAI.

d) A single integer value

e) PCF.PolicySmAssocNotifReq.*SNSSAI*

Where *SNSSAI* identifies the S-NSSAI

f) PCFFunction

g) Valid for packet switching

h) 5GS

## 5.5.2.d Number of successful SM policy association update notifies

a) This measurement provides the number of successful update notifies of SM policy association on PCF.

b) CC

c) PCF receives "200 OK" or "204 No Content" response message sent by SMF (see clause 4.2 in 3GPP TS 29.512[X]). Each successful association is added to the relevant subcounter per S-NSSAI.

d) A single integer value

e) PCF.PolicySmAssocNotifSucc.*SNSSAI*

Where *SNSSAI* identifies the S-NSSAI

f) PCFFunction

g) Valid for packet switching

h) 5GS

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| **3rd Modified Section** |

# A.15 Policy association related measurements

To ensure the UE properly use the services provided by 5GS, the UE needs to be associated with a set of policies. The policies are categorized into AM policy, SM policy and UE policy and these kinds of policies are provisioned by PCF.

The AM policy association needs to be established in case the UE initially registers to the network or the UE needs the AMF re-allocation. The AM policy association needs to be updated in case the change of UE contract strategy (permitted list of S-NSSAIs, etc).

The SM policy association needs to be established when the UE requests a PDU Session Establishment. The SM policy association needs to be updated when Policy Control Request Trigger condition is met (see clause 4.2 in 3GPP TS 29.512[X]).

The UE policy association needs to be established in the following scenarios:

1. UE initial registration with the network when a UE Policy Container is received.

2. The AMF relocation with PCF change in handover procedure and registration procedure.

3. UE registration with 5GS when the UE moves from EPS to 5GS and there is no existing UE Policy Association between AMF and PCF for this UE.

The policy association establishment is the essential steps allowing the UE to be served by the 5GS under the designed policies, therefore it needs to be monitored.