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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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1 Scope

The present specification provides the stage 3 definition of the Policy Authorization Service of the 5G System.

The 5G System Architecture is defined in 3GPP TS 23.501 [2]. The stage 2 definition and related procedures for the Npcf Policy Authorization Service are specified in 3GPP TS 23.502 [3] and 3GPP TS 23.503 [4].

The 5G System stage 3 call flows are provided in 3GPP TS 29.513 [7].

The Technical Realization of the Service Based Architecture and the Principles and Guidelines for Services Definition are specified in 3GPP TS 29.500 [5] and 3GPP TS 29.501 [6].

The Policy Authorization Service is provided by the Policy Control Function (PCF). This service creates policies as requested by the authorised AF for the PDU Session to which the AF session is bound.

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] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 23.503: "Policy and Charging Control Framework for the 5G System; Stage 2".

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

[6] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[7] 3GPP TS 29.513: "5G System; Policy and Charging Control signalling flows and QoS parameter mapping; Stage 3".

[8] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[9] IETF RFC 9113: "HTTP/2".

[10] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[11] OpenAPI: "OpenAPI Specification Version 3.0.0", https://spec.openapis.org/oas/v3.0.0..

[12] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[13] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[14] 3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[15] 3GPP TS 29.122: "T8 reference point for Northbound APIs".

[16] IEEE 802.3-2015: "IEEE Standard for Ethernet".

[17] IEEE 802.1Q-2014: "Bridges and Bridged Networks".

[18] IETF RFC 7042: "IANA Considerations and IETF Protocol and Documentation Usage for IEEE 802 Parameters".

[19] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

[20] 3GPP TS 29.214: "Policy and Charging Control over Rx reference point".

[21] IETF RFC 7396: "JSON Merge Patch".

[22] 3GPP TS 32.291: "5G System; Charging service; Stage 3".

[23] 3GPP TS 22.153: "5G System; "Multimedia Priority Service".

[24] IETF RFC 9457: "Problem Details for HTTP APIs".

[25] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[26] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[27] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[28] 3GPP TR 21.900: "Technical Specification Group working methods".

[29] 3GPP TS 24.292: "IP Multimedia (IM) Core Network (CN) subsystem Centralized Services (ICS); Stage 3".

[30] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction".

[31] IETF RFC 5761: "Multiplexing RTP Data and Control Packets on a Single Port".

[32] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3".

[33] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[34] IETF RFC 5031: "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".

[35] IETF RFC 5009: "Private Header (P-Header) Extension to the Session Initiation Protocol (SIP) for Authorization of Early Media".

[36] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[37] IETF RFC 3556: "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) Bandwidth".

[38] IETF RFC 3959 (December 2004): "The Early Session Disposition Type for the Session Initiation Protocol (SIP)".

[39] 3GPP TS 23.380: "IMS Restoration Procedures".

[40] 3GPP TS 23.167: "IP Multimedia Subsystem (IMS) emergency sessions".

[41] 3GPP TS 24.379: "Mission Critical Push To Talk (MCPTT) call control; Protocol specification".

[42] IETF RFC 8101: "IANA Registration of New Session Initiation Protocol (SIP), Resource-Priority Namespace for Mission Critical Push To Talk Service".

[43] 3GPP TS 24.281: "Mission Critical Video (MCVideo) signalling control; Protocol specification".

[44] 3GPP TS 23.316: "Wireless and wireline convergence access support for the 5G System (5GS)".

[45] 3GPP TS 22.179: "Mission Critical Push to Talk (MCPTT) over LTE; Stage 1".

[46] 3GPP TS 22.280: "Mission Critical (MC) services common requirements".

[47] 3GPP TS 22.281: "Mission Critical (MC) video over LTE".

[48] 3GPP TS 22.282: "Mission Critical (MC) data over LTE".

[49] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[50] IETF RFC 4574: "The Session Description Protocol (SDP) Label Attribute".

[51] 3GPP TS 26.238: "Uplink Streaming".

[52] IETF RFC 6733: "Diameter Base Protocol".

[53] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Control Data, Application Data and Structured Data for Exposure; Stage 3".

[54] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[55] Void.

[56] IETF RFC 8655: "Deterministic Networking Architecture".

[57] 3GPP TS 29.502: "5G System; Session Management Services; Stage 3".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Application Function (AF): Element offering application(s) that use PDU session resources.

AF Application identifier: An identifier that refers to the particular service the NF service consumer session belongs to. In the context of application detection control, it refers to the application identifier used by the PCF in the PCC rule as specified in 3GPP TS 29.512 [8].

AF application session context: Application level session context established by an application level signalling protocol offered by the AF that requires a session context set-up with explicit session context description before the use of the service.

MCS session: A session for which priority treatment is applied for allocating and maintaining radio and network resources to support the Mission Critical Service (MCS). MCS is defined in 3GPP TS 22.179 [45], 3GPP TS 22.280 [46], 3GPP TS 22.281 [47], and 3GPP TS 22.282 [48].

MPS session: A session for which priority treatment is applied for allocating and maintaining radio and network resources to support the Multimedia Priority Service (MPS). MPS is defined in 3GPP TS 22.153 [23].

PCC rule: Set of information enabling the detection of a service data flow and providing parameters for policy control and/or charging control.

Service information: Set of information conveyed from the AF/NEF to the PCF by the Npcf_PolicyAuthorization service to be used as a basis for PCC decisions at the PCF, including information about the AF/NEF application session context (e.g. application identifier, type of media, bandwidth, IP address and port number).

Service data flow: An aggregate set of packet flows.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G-RG	5G Residential Gateway
AF	Application Function
ARP	Allocation and Retention Priority
ATSSS	Access Traffic Steering, Switching and Splitting
BAT	Burst Arrival Time
BBF	Broadband Forum
BSSID	Basic Service Set IDentifier
CHEM	Coverage and Handoff Enhancements using Multimedia error robustness feature
CHF	Charging Function
DCCF	Data Collection Coordination Function
DEI	Drop Eligible Indicator
DetNet	Deterministic Networking
DNAI	DN Access Identifier
DNN	Data Network Name
DS-TT	Device-side TSN translator
DSL	Digital Subscriber Line
DTS	Data Transport Service
EAS	Edge Application Server
ECN	Explicit Congestion Notification
ePDG	evolved Packet Data Gateway
E-UTRA	Evolved Universal Terrestrial Radio Access
FLUS	Framework for Live Uplink Streaming
FN-RG	Fixed Network Residential Gateway
GEO	Geosynchronous Orbit
GPSI	Generic Public Subscription Identifier
HFC	Hybrid Fiber-Coaxial
H-PCF	PCF in the HPLMN
IMS	IP-Multimedia Subsystem
JSON	JavaScript Object Notation
L4S	Low Latency Low Loss Scalable Throughput
LEO	Low Earth Orbit
MA	Multi-Access
MCPTT	Mission Critical Push to Talk Service
MCVideo	Mission Critical Video
MEO	Medium Earth Orbit
MPS	Multimedia Priority Service
MTU	Maximum Transmission Unit
NEF	Network Exposure Function
NID	Network Identifier
NR	New Radio
NRF	Network Repository Function
NWDAF	Network Data Analytics Function
NW-TT	Network-side TSN translator
PCC	Policy and Charging Control
PCF	Policy Control Function
PCP	Priority Code Point
P-CSCF	Proxy Call Session Control Function
PDV	Packet Delay Variation
PEI	Permanent Equipment Identifier
PMIC	Port Management Information Container
PON	Passive Optical Network
PRA	Presence Reporting Area
PSA	PDU Session Anchor
PSDB	PDU Set Delay Budget
PSER	PDU Set Error Rate