**3GPP TSG- Meeting #**

**17 to 28 August 2020, E-meeting**

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| --- |
| *CR-Form-v11.4* |
| **CHANGE REQUEST** |
|  |
|  | **28.541** | **CR** | **0330** | **rev** | **2** | **Current version:** | **16.5.1** |  |
|  |
| *For* [***HELP***](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** |

|  |
| --- |
|  |
| ***Title:***  | Add IOC for predefined PCC rules |
|  |  |
| ***Source to WG:*** | Intel |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | eNRM |  | ***Date:*** | 2020-08-06 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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)* |
|  |  |
| ***Reason for change:*** | There are two types of PCC rules exist, dynamic rules and predefined rules. The predefined PCC rules are configured into the SMF, and only referenced by the PCF, and PCF may activiate/deactivate the predefined the PCC rules in SMF.The models for predefined PCC rules are missing. |
|  |  |
| ***Summary of change:*** | Add an IOC for predefined PCC rules. |
|  |  |
| ***Consequences if not approved:*** | The predefined PCC rules cannot be provisioned to SMF and referenced by PCF. |
|  |  |
| ***Clauses affected:*** | F.4.3, G.4.3, H.5.x (new) |
|  |  |
|  | **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:*** |  |

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| **First Modified Sections** |

# 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".

[3] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[4] 3GPP TS 38.401: "NG-RAN; Architecture description".

[5] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[6] 3GPP TS 38.420: "NG-RAN; Xn general aspects and principles".

[7] 3GPP TS 38.470: "NG-RAN; F1 general aspects and principles".

[8] 3GPP TS 38.473: "NG-RAN; F1 application protocol (F1AP)".

[9] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage 2".

[10] 3GPP TS 28.540: "Management and orchestration; 5G Network Resource Model (NRM);Stage 1".

[11] 3GPP TS 28.662: "Telecommunication management; Generic Radio Access Network (RAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS) ".

[12] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[13] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[14] 3GPP TS 36.410: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 general aspects and principles".

[15] 3GPP TS 36.423: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 application protocol".

[16] 3GPP TS 36.425: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 interface user plane protocol".

[17] 3GPP TS 28.625: "State Management Data Definition Integration Reference Point (IRP); Information Service (IS)".

[18] ITU-T Recommendation X.731: "Information technology - Open Systems Interconnection - Systems Management: State management function".

[19] 3GPP TS 28.658: "Telecommunications management; Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)".

[20] 3GPP TS 28.702: "Core Network (CN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[21] 3GPP TS 28.708: "Telecommunication management; Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)".

[22] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[23] 3GPP TS 29.510: "5G system; Network Function Repository Services; Stage 3".

[24] 3GPP TS 29.531: "5G System; Network Slice Selection Services Stage 3".

[25] Void.

[26] 3GPP TS 28.531: "Management and orchestration; Provisioning".

[27] 3GPP TS 28.554: "Management and orchestration; 5G End to end Key Performance Indicators (KPI)".

[28] 3GPP TS 22.261: "Service requirements for next generation new services and markets".

[29] ETSI GS NFV-IFA 013 V2.4.1 (2018-02) "Network Function Virtualisation (NFV); Management and Orchestration; Os-Ma-nfvo Reference Point - Interface and Information Model Specification".

[30] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[31] Void.

[32] 3GPP TS 38.211: "NR; Physical channels and modulation".

[33] 3GPP TS 32.616: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP); Solution Set (SS) definitions".

[34] 3GPP TS 28.623: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions".

[35] 3GPP TS 28.532: "Management and orchestration; Management services".

[36] Void.

[37] IETF RFC 791: "Internet Protocol".

[38] IETF RFC 2373: "IP Version 6 Addressing Architecture".

[39] IEEE 802.1Q: "Media Access Control Bridges and Virtual Bridged Local Area Networks".

[40] ETSI GR NFV-IFA 015 (V2.4.1): "Network Function Virtualisation (NFV) Release 2; Management and Orchestration; Report on NFV Information Model".

[41] 3GPP TS 38.213: "NR; Physical layer procedures for control".

[42] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

[43] 3GPP TS 32.156: "Telecommunication management; Fixed Mobile Convergence (FMC) model repertoire".

[44] IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

[45] IETF RFC 8528: "YANG Schema Mount".

[46] Void

[47] 3GPP TS 32.160: "Management and orchestration; Management Service Template".

[48] 3GPP TS 38.463: "NG-RAN; E1 application protocol (E1AP)".

[49] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[50] GSMA NG.116 - Generic Network Slice Template Version 2.0 (2019-10-16).

[51] 3GPP TS 22.104: "Service requirements for cyber-physical control applications in vertical domains; Stage 1".

[52] 3GPP TS 33.501: " Security architecture and procedures for the 5G System".

[53] 3GPP TS 38.901: "Study on channel model for frequencies from 0.5 to 100 GHz ".

[54] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

[55] 3GPP TS 38.215: "NR; Physical layer measurements".

[56] 3GPP TS 29.244: "Technical Specification Group Core Network and Terminals; Interface between the Control Plane and the User Plane Nodes; Stage 3".

[57] 3GPP TS 28.313: "Self-Organizing Networks (SON) for 5G networks".

[58] 3GPP TS 38.423: "NR; Xn application protocol (XnAP)".

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

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

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

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

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

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

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

[s] IETF RFC 4301: "Security Architecture for the Internet Protocol".

[t] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

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| **Next Modified Sections** |

## F.4.3 XML schema "ngcNrm.xsd"

<?xml version="1.0" encoding="UTF-8"?>

<!--

 3GPP TS 28.541 5GC Network Resource Model

 XML schema definition

 ngcNrm.xsd

-->

<schema

 targetNamespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#ngcNrm"

 elementFormDefault="qualified"

 attributeFormDefault="unqualified"

 xmlns="http://www.w3.org/2001/XMLSchema"

 xmlns:xn="http://www.3gpp.org/ftp/specs/archive/28\_series/28.623#genericNrm" xmlns:nn="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#nrNrm" xmlns:en="http://www.3gpp.org/ftp/specs/archive/28\_series/28.659#eutranNrm"

xmlns:ngc="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#ngcNrm"

>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.623#genericNrm"/>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.659#eutranNrm"/>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#nrNrm"/>

<!--NGC NRM IM class associated XML elements -->

 <complexType name="aMFIdentifier">

 <sequence>

 <element name="amfRegionId" type="ngc:AmfRegionId"/>

 <element name="amfSetId" type="ngc:AmfSetId"/>

 <element name="amfPointer" type="ngc:AmfPointer"/>

 </sequence>

 </complexType>

 <simpleType name="AmfRegionId">

 <restriction base="integer">

 <maxInclusive value="255"/>

 <!-- The AMF Region ID is 8-bitslength, defined in 23.003 -->

 </restriction>

 </simpleType>

 <simpleType name="AmfSetId">

 <restriction base="integer">

 <maxInclusive value="1023"/>

 <!-- The AMF Region ID is 10-bits length, defined in 23.003 -->

 </restriction>

 </simpleType>

 <simpleType name="AmfPointer">

 <restriction base="integer">

 <maxInclusive value="63"/>

 <!-- The AMF Pointer is 6-bits length, defined in 23.003 -->

 </restriction>

 </simpleType> <complexType name="NrTACList">

 <sequence>

 <element name="tac" type="nn:NrTac" minOccurs="0" maxOccurs="unbounded"/>

 </sequence>

 </complexType>

 <complexType name="managedNFProfile">

 <sequence>

 <element name="nfInstanceID" type="string"/>

 <element name="nfType" type="ngc:NfType"/>

 <element name="hostAddr" type="ngc:hostAddr"/>

 <element name="authzInfo" type="string" minOccurs="0"/>

 <element name="location" type="string" minOccurs="0"/>

 <element name="capacity" type="ngc:capacity" minOccurs="0"/>

 <element name="nfInfo" type="ngc:Nfinfo"/>

 </sequence>

 </complexType>

 <complexType name="hostAddr">

 <!-- Refer to definitions in TS 28.541-->

 <sequence>

 <choice minOccurs="0" maxOccurs="1">

 <element name="ipAddress" type="string"/>

 <element name="fqdn" type="string"/>

 </choice>

 </sequence>

 </complexType>

 <simpleType name="capacity">

 <!-- Refer to definitions in TS 28.541-->

 <restriction base="integer">

 <minInclusive value="0"/>

 <maxInclusive value="65535"/>

 </restriction>

 </simpleType>

 <complexType name="Nfinfo">

 <!-- Refer to definitions in TS 28.541-->

 <sequence>

 <choice minOccurs="0" maxOccurs="1">

 <element name="amfInfo" type="ngc:AmfInfo"/>

 <element name="udrInfo" type="ngc:UdrInfo"/>

 <element name="udmInfo" type="ngc:UdmInfo"/>

 <element name="ausfInfo" type="ngc:AusfInfo"/>

 <element name="upfInfo" type="ngc:UpfInfo"/>

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 <complexType name="NFProfileList">

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 <element name="nfProfile" type="ngc:NfProfile"/>

 </sequence>

 </complexType>

 <complexType name="NfProfile">

 <sequence>

 <element name="nfInstanceID" type="string"/>

 <!-- nfInstanceID is uuid of NF instance -->

 <element name="nfType" type="ngc:NfType"/>

 <element name="sNssais" type="ngc: SnssaiList"/>

 <element name="fqdn" type="string"/>

 <element name="interPlmnFqdn" type="string"/>

 <element name="ipv4Addresses" type="string"/>

 <element name="ipv6Addresses" type="string"/>

 <element name="ipv6Prefixes" type="string"/>

 <element name="capacity" type="string"/>

 <element name="udrInfo" type="ngc:UdrInfo"/>

 <element name="amfInfo" type="ngc:AmfInfo"/>

 <element name="smfInfo" type="ngc:SmfInfo"/>

 <element name="upfInfo" type="ngc:UpfInfo"/>

 <element name="nfServices" type="ngc:NfServices"/>

 <element name="priority" type="integer" minOccurs="0"/>

 <element name="nFSrvGroupId" type="string"/>

 <element name="smfServingAreas" type="string"/>

 <element name="locality" type="string"/>

 <element name="authzInfo" type="string"/>

 </sequence>

 </complexType>

 <complexType name="NfServices">

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 <element name="serviceInstanceId" type="string"/>

 <element name="serviceName" type="string"/>

 <element name="version" type="string"/>

 <element name="schema" type="string"/>

 <element name="fqdn" type="string"/>

 <element name="interPlmnFqdn" type="string"/>

 <element name="ipEndPoints" type="ngc:IpEndpoints"/>

 <element name="apiPrefix" type="string"/>

 <element name="defaultNotificationSubscriptions" type="ngc:DefaultNotificationSubscriptions"/>

 <element name="allowedPlmns" type="nn:PLMNIdList"/>

 <element name="allowedNfTypes" type="ngc:NFTypeList"/>

 <element name="allowedNssais" type="ngc:Nssai"/>

 <element name="capacity" type="string"/>

 <element name="supportedFeatures" type="string"/>

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 <simpleType name="NfType">

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 <!-- NF name is defined in TS 23.501 -->

 <enumeration value="NRF"/>

 <enumeration value="UDM"/>

 <enumeration value="AMF"/>

 <enumeration value="SMF"/>

 <enumeration value="AUSF"/>

 <enumeration value="NEF"/>

 <enumeration value="PCF"/>

 <enumeration value="SMSF"/>

 <enumeration value="NSSF"/>

 <enumeration value="UDR"/>

 <enumeration value="LMF"/>

 <enumeration value="GMLC"/>

 <enumeration value="5GEIR"/>

 <enumeration value="SEPP"/>

 <enumeration value="UPF"/>

 <enumeration value="N3IWF"/>

 <enumeration value="AF"/>

 <enumeration value="UDSF"/>

 <enumeration value="DN"/>

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<complexType name="LocalEndPoint">

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 <element name="ipv4Address" type="string"/>

 <element name="ipv6Address" type="string"/>

 <element name="ipv6Prefix" type="string"/>

 <element name="vlanId" type="integer"/>

 </sequence>

</complexType>

<complexType name="RemoteEndPoint">

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 <element name="ipv4Address" type="string"/>

 <element name="ipv6Address" type="string"/>

 <element name="ipv6Prefix" type="string"/>

 </sequence>

</complexType>

 <complexType name="UdrInfo">

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 <element name="supiRange" type="ngc:SupiRange"/>

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 <element name="end" type="string"/>

 <element name="pattern" type="string"/>

 </sequence>

 </complexType>

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 <element name="amfSetId" type="ngc:AmfSetId"/>

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 </complexType>

 <complexType name="SmfInfo">

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 <element name="dnn" type="string"/>

 </sequence>

 </complexType>

 <complexType name="UpfInfo">

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 <complexType name="SnssaiUpfInfo">

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 </sequence>

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 <element name="dnn" type="string"/>

 </sequence>

 </complexType>

 <complexType name="DefaultNotificationSubscription">

 <sequence>

 <element name="notificationType" type="ngc:NotificationType"/>

 <element name="callbackUri" type="string"/>

 <element name="n1MessageClass" type="string"/>

 <element name="n2InformationClass" type="string"/>

 </sequence>

 </complexType>

 <simpleType name="NotificationType">

 <restriction base="string">

 <enumeration value="N1\_MESSAGES"/>

 <enumeration value="N2\_INFORMATION"/>

 <enumeration value="LOCATION\_NOTIFICATION"/>

 </restriction>

 </simpleType>

 <simpleType name="TransportProtocol">

 <restriction base="string">

 <enumeration value="TCP"/>

 </restriction>

 </simpleType>

 <simpleType name="NfStatus">

 <restriction base="string">

 <enumeration value="REGISTERED"/>

 <enumeration value="SUSPENDED"/>

 </restriction>

 </simpleType>

 <complexType name="NfRegistrationData">

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 <element name="heartBeatTimer" type="integer"/>

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 <!-- CNSI Id is defined in TS 29.531 -->

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 <simpleType name="Sst">

 <restriction base="integer">

 <maxInclusive value="255"/>

 <!-- SST is 1-octets length and defined in TS 23.003 -->

 </restriction>

 </simpleType>

 <simpleType name="Sd">

<restriction base="string">

 <pattern value="^[A-Fa-f0-9]{6}$"/>

 <!-- SST is 3-octets length and defined in TS 23.003 -->

 </restriction>

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 <simpleType name="WeightFactor">

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 <enumeration value="INDIRECT\_COMMUNICATION\_WITH\_DEDICATED\_DISCOVERY"/>

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 <element name="commModelConfiguration" type="string"/>

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 <sequence>

 <element name="commModel" type="ngc:CommModel"/>

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 <complexType name="CapabilityList">

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 </sequence>

 </complexType>

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 <element name="FiveQI" type="integer"/>

 </sequence>

 </complexType>

 <complexType name="FiveQiDscpMapping">

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 <element name="fiveQIValues" type="ngc:FiveQIList"/>

 <element name="dscp" type="integer"/>

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 <complexType name="FiveQiDscpMappingList">

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 <element name="FiveQiDscpMapping" type="ngc:5qiDscpMapping"/>

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 <simpleType name="FiveQIResourceType">

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 <enumeration value="GBR"/>

 <enumeration value="NonGBR"/>

 </restriction>

 </simpleType>

 <complexType name="PacketErrorRate">

 <sequence>

 <element name="scalar" type="integer"/>

 <element name="exponent" type="integer"/>

 </sequence>

 </complexType>

 <complexType name="FiveQICharacteristics">

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 <element name="priorityLevel" type="integer"/>

 <element name="packetDelayBudget" type="integer"/>

 <element name="packetErrorRate" type="ngc:PacketErrorRate "/>

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 </complexType>

 <complexType name="FiveQIList">

 <sequence>

 <element name="FiveQI" type="ngc:FiveQICharacteristics"/>

 </sequence>

 </complexType>

 <simpleType name="GtpUPathQoSMonitoringStateType">

 <restriction base="string">

 <enumeration value="ENABLED"/>

 <enumeration value="DISABLED"/>

 </restriction>

 </simpleType>

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 <complexType name="GtpUPathDelayThresholdsType">

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 <element name="n3AveragePacketDelayThreshold " type="integer"/>

 <element name="n3MinPacketDelayThreshold" type="integer"/>

 <element name="n3MaxPacketDelayThreshold" type="integer"/>

 <element name="n9AveragePacketDelayThreshold " type="integer"/>

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 <simpleType name="QFQoSMonitoringStateType">

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 <element name="thresholdRtt" type="integer"/>

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 </complexType>

 <simpleType name="AfSigProtocol">

 <restriction base="string">

 <enumeration value="NO\_INFORMATION"/>

 <enumeration value="SIP"/>

 </restriction>

 </simpleType>

 <complexType name="PccRule">

 <sequence>

 <element name="pccRuleId" type="string"/>

 <element name="flowInfoList" type="ngc:FlowInformationList"/>

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 <element name="appDescriptor" type="string" minOccurs="0"/>

 <element name="contentVersion" type="integer" minOccurs="0"/>

 <element name="precedence" type="integer"/>

 <element name="afSigProtocol" type="ngc:AfSigProtocol" minOccurs="0"/>

 <element name="isAppRelocatable" type="boolean" minOccurs="0"/>

 <element name="isUeAddrPreserved" type="boolean" minOccurs="0"/>

 <element name="qosData" type="ngc:QoSDataList"/>

 <element name="altQosParams" type="ngc:QoSDataList" minOccurs="0"/>

 <element name="trafficControlData" type="ngc:TrafficControlDataList"/>

 <element name="conditionData" type="ngc:ConditionData" minOccurs="0"/>

 <element name="tscaiInputUl" type="ngc:TscaiInputContainer" minOccurs="0"/>

 <element name="tscaiInputDl" type="ngc:TscaiInputContainer" minOccurs="0"/>

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 <element name="pccRule" type="ngc:PccRule"/>

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 <simpleType name="FlowDirection">

 <restriction base="string">

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 <extension base="xn:NrmClass">

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 <!-- Inherited attributes from EP\_RP -->

 <element name="farEndEntity" type="xn:dn" minOccurs="0"/>

 <element name="userLabel" type="string" minOccurs="0"/>

 <!-- End of inherited attributes from EP\_RP -->

 <element name="localAddress" type="ngc:LocalEndPoint" minOccurs="0"/>

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 <element name="userLabel" type="string" minOccurs="0"/>

 <!-- End of inherited attributes from EP\_RP -->

 <element name="localAddress" type="ngc:LocalEndPoint" minOccurs="0"/>

 <element name="remoteAddress" type="ngc:RemoteEndPoint" minOccurs="0"/>

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 <complexContent>

 <extension base="xn:NrmClass">

 <sequence>

 <element name="attributes" minOccurs="0">

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 <element name="userLabel" type="string" minOccurs="0"/>

 <!-- End of inherited attributes from EP\_RP -->

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 <element name="userLabel" type="string" minOccurs="0"/>

 <!-- End of inherited attributes from EP\_RP -->

 <element name="localAddress" type="ngc:LocalEndPoint" minOccurs="0"/>

 <element name="remoteAddress" type="ngc:RemoteEndPoint" minOccurs="0"/>

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 <sequence>

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 <element name="userLabel" type="string" minOccurs="0"/>

 <!-- End of inherited attributes from EP\_RP -->

 <element name="localAddress" type="ngc:LocalEndPoint" minOccurs="0"/>

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 <element name="attributes" minOccurs="0">

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 <!-- Inherited attributes from EP\_RP -->

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 <!-- End of inherited attributes from EP\_RP -->

 <element name="localAddress" type="ngc:LocalEndPoint" minOccurs="0"/>

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 <extension base="xn:NrmClass">

 <sequence>

 <element name="attributes">

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 <element name="FiveQiDscpMappingList" type="ngc:FiveQiDscpMappingList"/>

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 <element ref="xn:VsDataContainer"/>

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 <element name="GtpUPathQoSMonitoringControl">

 <complexType>

 <complexContent>

 <extension base="xn:NrmClass">

 <sequence>

 <element name="attributes">

 <complexType>

 <all>

 <element name="gtpUPathQoSMonitoringState" type="ngc: GtpUPathQoSMonitoringStateType"/>

 <element name="gtpUPathMonitoredSNSSAIs" type="ngc:SnssaiList"/>

 <element name="monitoredDSCPs" type="ngc:DscpList"/>

 <element name="isEventTriggeredGtpUPathMonitoringSupported" type="boolean"/>

 <element name="isPeriodicGtpUMonitoringSupported" type="boolean"/>

 <element name="isImmediateGtpUMonitoringSupported" type="boolean"/>

 <element name="gtpUPathDelayThresholds" type="ngc:GtpUPathDelayThresholdsType" minOccurs="0"/>

 <element name="gtpUPathMinimumWaitTime" type="integer" minOccurs="0"/>

 <element name="gtpUPathMeasurementPeriod" type="integer" minOccurs="0"/>

 </all>

 </complexType>

 </element>

 <choice minOccurs="0" maxOccurs="unbounded">

 <element ref="xn:VsDataContainer"/>

 </choice>

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 </complexContent>

 </complexType>

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 <element name="QFQoSMonitoringControl">

 <complexType>

 <complexContent>

 <extension base="xn:NrmClass">

 <sequence>

 <element name="attributes">

 <complexType>

 <all>

 <element name="qFQoSMonitoringState" type="ngc:QFQoSMonitoringStateType"/>

 <element name="qFMonitoredSNSSAIs" type="ngc:SnssaiList"/>

 <element name="qFMonitored5QIs" type="ngc:5qiList"/>

 <element name="isEventTriggeredQFMonitoringSupported" type="boolean"/>

 <element name="isPeriodicQFMonitoringSupported" type="boolean"/>

 <element name="isSessionReleasedQFMonitoringSupported" type="boolean"/>

 <element name="qFPacketDelayThresholds" type="ngc:QFPacketDelayThresholdsType" minOccurs="0"/>

 <element name="qFMinimumWaitTime" type="integer" minOccurs="0"/>

 <element name="qFMeasurementPeriod " type="integer" minOccurs="0"/>

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 <extension base="xn:NrmClass">

 <sequence>

 <element name="attributes">

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 <element name="predefinedPccRules" type="ngc:PccRuleList"/>

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| --- |
| **Next Modified Sections** |

## G.4.3 OpenAPI document "5gcNrm.yaml"

openapi: 3.0.1

info:

 title: 3GPP 5GC NRM

 version: 16.6.0

 description: >-

 OAS 3.0.1 specification of the 5GC NRM

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externalDocs:

 description: 3GPP TS 28.541 V16.6.0; 5G NRM, 5GC NRM

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.541/

paths: {}

components:

 schemas:

#-------- Definition of types-----------------------------------------------------

 AmfIdentifier:

 type: object

 description: 'AmfIdentifier comprise of amfRegionId, amfSetId and amfPointer'

 properties:

 amfRegionId:

 $ref: '#/components/schemas/AmfRegionId'

 amfSetId:

 $ref: '#/components/schemas/AmfSetId'

 amfPointer:

 $ref: '#/components/schemas/AmfPointer'

 AmfRegionId:

 type: integer

 description: AmfRegionId is defined in TS 23.003

 maximum: 255

 AmfSetId:

 type: string

 description: AmfSetId is defined in TS 23.003

 maximum: 1023

 AmfPointer:

 type: integer

 description: AmfPointer is defined in TS 23.003

 maximum: 63

 IpEndPoint:

 type: object

 properties:

 ipv4Address:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv4Addr'

 ipv6Address:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv6Addr'

 ipv6Prefix:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv6Prefix'

 transport:

 $ref: 'genericNrm.yaml#/components/schemas/TransportProtocol'

 port:

 type: integer

 NFProfileList:

 type: array

 description: List of NF profile

 items:

 $ref: '#/components/schemas/NFProfile'

 NFProfile:

 type: object

 description: 'NF profile stored in NRF, defined in TS 29.510'

 properties:

 nFInstanceId:

 type: string

 description: uuid of NF instance

 nFType:

 $ref: 'genericNrm.yaml#/components/schemas/NFType'

 nFStatus:

 $ref: '#/components/schemas/NFStatus'

 plmn:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnId'

 sNssais:

 $ref: 'nrNrm.yaml#/components/schemas/Snssai'

 fqdn:

 $ref: 'genericNrm.yaml#/components/schemas/Fqdn'

 interPlmnFqdn:

 $ref: 'genericNrm.yaml#/components/schemas/Fqdn'

 nfServices:

 type: array

 items:

 $ref: '#/components/schemas/NFService'

 NFService:

 type: object

 description: NF Service is defined in TS 29.510

 properties:

 serviceInstanceId:

 type: string

 serviceName:

 type: string

 version:

 type: string

 schema:

 type: string

 fqdn:

 $ref: 'genericNrm.yaml#/components/schemas/Fqdn'

 interPlmnFqdn:

 $ref: 'genericNrm.yaml#/components/schemas/Fqdn'

 ipEndPoints:

 type: array

 items:

 $ref: '#/components/schemas/IpEndPoint'

 apiPrfix:

 type: string

 allowedPlmns:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnId'

 allowedNfTypes:

 type: array

 items:

 $ref: 'genericNrm.yaml#/components/schemas/NFType'

 allowedNssais:

 type: array

 items:

 $ref: 'nrNrm.yaml#/components/schemas/Snssai'

 NFStatus:

 type: string

 description: any of enumrated value

 enum:

 - REGISTERED

 - SUSPENDED

 CNSIIdList:

 type: array

 items:

 $ref: '#/components/schemas/CNSIId'

 CNSIId:

 type: string

 description: CNSI Id is defined in TS 29.531, only for Core Network

 TACList:

 type: array

 items:

 $ref: 'nrNrm.yaml#/components/schemas/NrTac'

 WeightFactor:

 type: integer

 UdmInfo:

 type: object

 properties:

 nFSrvGroupId:

 type: string

 AusfInfo:

 type: object

 properties:

 nFSrvGroupId:

 type: string

 UpfInfo:

 type: object

 properties:

 smfServingAreas:

 type: string

 AmfInfo:

 type: object

 properties:

 priority:

 type: integer

 SupportedDataSetId:

 type: string

 description: any of enumrated value

 enum:

 - SUBSCRIPTION

 - POLICY

 - EXPOSURE

 - APPLICATION

 Udrinfo:

 type: object

 properties:

 supportedDataSetIds:

 type: array

 items:

 $ref: '#/components/schemas/SupportedDataSetId'

 nFSrvGroupId:

 type: string

 NFInfo:

 oneOf:

 - $ref: '#/components/schemas/UdmInfo'

 - $ref: '#/components/schemas/AusfInfo'

 - $ref: '#/components/schemas/UpfInfo'

 - $ref: '#/components/schemas/AmfInfo'

 - $ref: '#/components/schemas/Udrinfo'

 ManagedNFProfile:

 type: object

 properties:

 nfInstanceID:

 type: string

 nfType:

 $ref: 'genericNrm.yaml#/components/schemas/NFType'

 authzInfo:

 type: string

 hostAddr:

 $ref: 'genericNrm.yaml#/components/schemas/HostAddr'

 locality:

 type: string

 nFInfo:

 $ref: '#/components/schemas/NFInfo'

 capacity:

 type: integer

 SEPPType:

 type: string

 description: any of enumrated value

 enum:

 - CSEPP

 - PSEPP

 SupportedFunc:

 type: object

 properties:

 function:

 type: string

 policy:

 type: string

 SupportedFuncList:

 type: array

 items:

 $ref: '#/components/schemas/SupportedFunc'

 CommModelType:

 type: string

 description: any of enumrated value

 enum:

 - DIRECT\_COMMUNICATION\_WO\_NRF

 - DIRECT\_COMMUNICATION\_WITH\_NRF

 - INDIRECT\_COMMUNICATION\_WO\_DEDICATED\_DISCOVERY

 - INDIRECT\_COMMUNICATION\_WITH\_DEDICATED\_DISCOVERY

 CommModel:

 type: object

 properties:

 groupId:

 type: integer

 commModelType:

 $ref: '#/components/schemas/CommModelType'

 targetNFServiceList:

 $ref: 'genericNrm.yaml#/components/schemas/DnList'

 commModelConfiguration:

 type: string

 CommModelList:

 type: array

 items:

 $ref: '#/components/schemas/CommModel'

 CapabilityList:

 type: array

 items:

 type: string

 FiveQiDscpMapping:

 type: object

 properties:

 fiveQIValues:

 type: array

 items:

 type: integer

 dscp:

 type: integer

 PacketErrorRate:

 type: object

 properties:

 scalar:

 type: integer

 exponent:

 type: integer

 FiveQICharacteristics:

 type: object

 properties:

 fiveQIValue:

 type: integer

 resourceType:

 type: string

 enum:

 - GBR

 - NonGBR

 priorityLevel:

 type: integer

 packetDelayBudget:

 type: integer

 packetErrorRate:

 $ref: '#/components/schemas/PacketErrorRate'

 averagingWindow:

 type: integer

 maximumDataBurstVolume:

 type: integer

 GtpUPathDelayThresholdsType:

 type: object

 properties:

 n3AveragePacketDelayThreshold:

 type: integer

 n3MinPacketDelayThreshold:

 type: integer

 n3MaxPacketDelayThreshold:

 type: integer

 n9AveragePacketDelayThreshold:

 type: integer

 n9MinPacketDelayThreshold:

 type: integer

 n9MaxPacketDelayThreshold:

 type: integer

 QFPacketDelayThresholdsType:

 type: object

 properties:

 thresholdDl:

 type: integer

 thresholdUl:

 type: integer

 thresholdRtt:

 type: integer

 QosData:

 type: object

 properties:

 qosId:

 type: string

 fiveQIValue:

 type: integer

 maxbrUl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 maxbrDl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 gbrUl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 gbrDl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 arp:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/Arp'

 qosNotificationControl:

 type: boolean

 reflectiveQos:

 type: boolean

 sharingKeyDl:

 type: string

 sharingKeyUl:

 type: string

 maxPacketLossRateDl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/PacketLossRateRm'

 maxPacketLossRateUl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/PacketLossRateRm'

 extMaxDataBurstVol:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/ExtMaxDataBurstVolRm'

 QosDataList:

 type: array

 items:

 $ref: '#/components/schemas/QosData'

 SteeringMode:

 type: object

 properties:

 steerModeValue:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/SteerModeValue'

 active:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/AccessType'

 standby:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/AccessTypeRm'

 threeGLoad:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 prioAcc:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/AccessType'

 TrafficControlData:

 type: object

 properties:

 tcId:

 type: string

 flowStatus:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/FlowStatus'

 redirectInfo:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/RedirectInformation'

 addRedirectInfo:

 type: array

 items:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/RedirectInformation'

 minItems: 1

 muteNotif:

 type: boolean

 trafficSteeringPolIdDl:

 type: string

 nullable: true

 trafficSteeringPolIdUl:

 type: string

 nullable: true

 routeToLocs:

 type: array

 items:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/RouteToLocation'

 traffCorreInd:

 type: boolean

 upPathChgEvent:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/UpPathChgEvent'

 steerFun:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/SteeringFunctionality'

 steerModeDl:

 $ref: '#/components/schemas/SteeringMode'

 steerModeUl:

 $ref: '#/components/schemas/SteeringMode'

 mulAccCtrl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/MulticastAccessControl'

 TrafficControlDataList:

 type: array

 items:

 $ref: '#/components/schemas/TrafficControlData'

 PccRule:

 type: object

 properties:

 pccRuleId:

 type: string

 description: Univocally identifies the PCC rule within a PDU session.

 flowInfoList:

 type: array

 items:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/FlowInformation'

 applicationId:

 type: string

 appDescriptor:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/ApplicationDescriptor'

 contentVersion:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/ContentVersion'

 precedence:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 afSigProtocol:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/AfSigProtocol'

 isAppRelocatable:

 type: boolean

 isUeAddrPreserved:

 type: boolean

 qosData:

 type: array

 items:

 $ref: '#/components/schemas/QosDataList'

 altQosParams:

 type: array

 items:

 $ref: '#/components/schemas/QosDataList'

 trafficControlData:

 type: array

 items:

 $ref: '#/components/schemas/TrafficControlDataList'

 conditionData:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29512\_Npcf\_SMPolicyControl#/components/schemas/ConditionData'

 tscaiInputDl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/TscaiInputContainer'

 tscaiInputUl:

 $ref: '/rep/all/5G\_APIs/raw/master/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/TscaiInputContainer'

#-------- Definition of concrete IOCs --------------------------------------------

 SubNetwork-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-Attr'

 - $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-ncO'

 - type: object

 properties:

 SubNetwork:

 $ref: '#/components/schemas/SubNetwork-Multiple'

 ManagedElement:

 $ref: '#/components/schemas/ManagedElement-Multiple'

 ExternalAmfFunction:

 $ref: '#/components/schemas/ExternalAmfFunction-Multiple'

 ExternalNrfFunction:

 $ref: '#/components/schemas/ExternalNrfFunction-Multiple'

 ExternalNssfFunction:

 $ref: '#/components/schemas/ExternalNssfFunction-Multiple'

 AmfSet:

 $ref: '#/components/schemas/AmfSet-Multiple'

 AmfRegion:

 $ref: '#/components/schemas/AmfRegion-Multiple'

 Configurable5QISet:

 $ref: '#/components/schemas/Configurable5QISet-Multiple'

 ManagedElement-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedElement-Attr'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedElement-ncO'

 - type: object

 properties:

 AmfFunction:

 $ref: '#/components/schemas/AmfFunction-Multiple'

 SmfFunction:

 $ref: '#/components/schemas/SmfFunction-Multiple'

 UpfFunction:

 $ref: '#/components/schemas/UpfFunction-Multiple'

 N3iwfFunction:

 $ref: '#/components/schemas/N3iwfFunction-Multiple'

 PcfFunction:

 $ref: '#/components/schemas/PcfFunction-Multiple'

 AusfFunction:

 $ref: '#/components/schemas/AusfFunction-Multiple'

 UdmFunction:

 $ref: '#/components/schemas/UdmFunction-Multiple'

 UdrFunction:

 $ref: '#/components/schemas/UdrFunction-Multiple'

 UdsfFunction:

 $ref: '#/components/schemas/UdsfFunction-Multiple'

 NrfFunction:

 $ref: '#/components/schemas/NrfFunction-Multiple'

 NssfFunction:

 $ref: '#/components/schemas/NssfFunction-Multiple'

 SmsfFunction:

 $ref: '#/components/schemas/SmsfFunction-Multiple'

 LmfFunction:

 $ref: '#/components/schemas/LmfFunction-Multiple'

 NgeirFunction:

 $ref: '#/components/schemas/NgeirFunction-Multiple'

 SeppFunction:

 $ref: '#/components/schemas/SeppFunction-Multiple'

 NwdafFunction:

 $ref: '#/components/schemas/NwdafFunction-Multiple'

 ScpFunction:

 $ref: '#/components/schemas/ScpFunction-Multiple'

 NefFunction:

 $ref: '#/components/schemas/NefFunction-Multiple'

 Configurable5QISet:

 $ref: '#/components/schemas/Configurable5QISet-Multiple'

 AmfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 amfIdentifier:

 $ref: '#/components/schemas/AmfIdentifier'

 sBIFqdn:

 type: string

 weightFactor:

 $ref: '#/components/schemas/WeightFactor'

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 amfSet:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N2:

 $ref: '#/components/schemas/EP\_N2-Multiple'

 EP\_N8:

 $ref: '#/components/schemas/EP\_N8-Multiple'

 EP\_N11:

 $ref: '#/components/schemas/EP\_N11-Multiple'

 EP\_N12:

 $ref: '#/components/schemas/EP\_N12-Multiple'

 EP\_N14:

 $ref: '#/components/schemas/EP\_N14-Multiple'

 EP\_N15:

 $ref: '#/components/schemas/EP\_N15-Multiple'

 EP\_N17:

 $ref: '#/components/schemas/EP\_N17-Multiple'

 EP\_N20:

 $ref: '#/components/schemas/EP\_N20-Multiple'

 EP\_N22:

 $ref: '#/components/schemas/EP\_N22-Multiple'

 EP\_N26:

 $ref: '#/components/schemas/EP\_N26-Multiple'

 EP\_NLS:

 $ref: '#/components/schemas/EP\_NLS-Multiple'

 EP\_NLG:

 $ref: '#/components/schemas/EP\_NLG-Multiple'

 AmfSet-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 nRTACList:

 $ref: '#/components/schemas/TACList'

 amfSetId:

 $ref: '#/components/schemas/AmfSetId'

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 AmfRegion-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 nRTACList:

 $ref: '#/components/schemas/TACList'

 amfRegionId:

 $ref: '#/components/schemas/AmfRegionId'

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 SmfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 nRTACList:

 $ref: '#/components/schemas/TACList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 Configurable5QISetRef:

 $ref: 'genericNRM.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N4:

 $ref: '#/components/schemas/EP\_N4-Multiple'

 EP\_N7:

 $ref: '#/components/schemas/EP\_N7-Multiple'

 EP\_N10:

 $ref: '#/components/schemas/EP\_N10-Multiple'

 EP\_N11:

 $ref: '#/components/schemas/EP\_N11-Multiple'

 EP\_N16:

 $ref: '#/components/schemas/EP\_N16-Multiple'

 EP\_S5C:

 $ref: '#/components/schemas/EP\_S5C-Multiple'

 FiveQiDscpMappingSet:

 $ref: '#/components/schemas/FiveQiDscpMappingSet-Single'

 GtpUPathQoSMonitoringControl:

 $ref: '#/components/schemas/GtpUPathQoSMonitoringControl-Single'

 QFQoSMonitoringControl:

 $ref: '#/components/schemas/QFQoSMonitoringControl-Single'

 PredefinedPccRuleSet:

 $ref: '#/components/schemas/PredefinedPccRuleSet-Single'

 UpfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 nRTACList:

 $ref: '#/components/schemas/TACList'

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N3:

 $ref: '#/components/schemas/EP\_N3-Multiple'

 EP\_N4:

 $ref: '#/components/schemas/EP\_N4-Multiple'

 EP\_N6:

 $ref: '#/components/schemas/EP\_N6-Multiple'

 EP\_N9:

 $ref: '#/components/schemas/EP\_N9-Multiple'

 EP\_S5U:

 $ref: '#/components/schemas/EP\_S5U-Multiple'

 N3iwfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N3:

 $ref: '#/components/schemas/EP\_N3-Multiple'

 EP\_N4:

 $ref: '#/components/schemas/EP\_N4-Multiple'

 PcfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N5:

 $ref: '#/components/schemas/EP\_N5-Multiple'

 EP\_N7:

 $ref: '#/components/schemas/EP\_N7-Multiple'

 EP\_N15:

 $ref: '#/components/schemas/EP\_N15-Multiple'

 EP\_N16:

 $ref: '#/components/schemas/EP\_N16-Multiple'

 EP\_Rx:

 $ref: '#/components/schemas/EP\_Rx-Multiple'

 PredefinedPccRuleSet:

 $ref: '#/components/schemas/PredefinedPccRuleSet-Single'

 AusfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N12:

 $ref: '#/components/schemas/EP\_N12-Multiple'

 EP\_N13:

 $ref: '#/components/schemas/EP\_N13-Multiple'

 UdmFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N8:

 $ref: '#/components/schemas/EP\_N8-Multiple'

 EP\_N10:

 $ref: '#/components/schemas/EP\_N10-Multiple'

 EP\_N13:

 $ref: '#/components/schemas/EP\_N13-Multiple'

 UdrFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 UdsfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 NrfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 cNSIIdList:

 $ref: '#/components/schemas/CNSIIdList'

 nFProfileList:

 $ref: '#/components/schemas/NFProfileList'

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N27:

 $ref: '#/components/schemas/EP\_N27-Multiple'

 NssfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 cNSIIdList:

 $ref: '#/components/schemas/CNSIIdList'

 nFProfileList:

 $ref: '#/components/schemas/NFProfileList'

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N22:

 $ref: '#/components/schemas/EP\_N22-Multiple'

 EP\_N31:

 $ref: '#/components/schemas/EP\_N31-Multiple'

 SmsfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N20:

 $ref: '#/components/schemas/EP\_N20-Multiple'

 EP\_N21:

 $ref: '#/components/schemas/EP\_N21-Multiple'

 EP\_MAP\_SMSC:

 $ref: '#/components/schemas/EP\_MAP\_SMSC-Multiple'

 LmfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_NLS:

 $ref: '#/components/schemas/EP\_NLS-Multiple'

 NgeirFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N17:

 $ref: '#/components/schemas/EP\_N17-Multiple'

 SeppFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnId:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnId'

 sEPPType:

 $ref: '#/components/schemas/SEPPType'

 sEPPId:

 type: integer

 fqdn:

 $ref: 'genericNrm.yaml#/components/schemas/Fqdn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_N32:

 $ref: '#/components/schemas/EP\_N32-Multiple'

 NwdafFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 commModelList:

 $ref: '#/components/schemas/CommModelList'

 ScpFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 supportedFuncList:

 $ref: '#/components/schemas/SupportedFuncList'

 address:

 $ref: 'genericNrm.yaml#/components/schemas/HostAddr'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 NefFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 sBIFqdn:

 type: string

 snssaiList:

 $ref: 'nrNrm.yaml#/components/schemas/SnssaiList'

 managedNFProfile:

 $ref: '#/components/schemas/ManagedNFProfile'

 capabilityList:

 $ref: '#/components/schemas/CapabilityList'

 isINEF:

 type: boolean

 isCAPIFSup:

 type: boolean

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 ExternalAmfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 amfIdentifier:

 $ref: '#/components/schemas/AmfIdentifier'

 ExternalNrfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 ExternalNssfFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnIdList:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnIdList'

 ExternalSeppFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 plmnId:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnId'

 sEPPId:

 type: integer

 fqdn:

 $ref: 'genericNrm.yaml#/components/schemas/Fqdn'

 EP\_N2-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N3-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N4-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N5-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N6-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N7-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N8-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N9-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N10-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N11-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N12-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N13-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N14-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N15-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N16-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N17-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N20-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N21-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N22-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N26-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N27-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N31-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_N32-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 remotePlmnId:

 $ref: 'nrNrm.yaml#/components/schemas/PlmnId'

 remoteSeppAddress:

 $ref: 'genericNrm.yaml#/components/schemas/HostAddr'

 remoteSeppId:

 type: integer

 n32cParas:

 type: string

 n32fPolicy:

 type: string

 withIPX:

 type: boolean

 EP\_S5C-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_S5U-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_Rx-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_MAP\_SMSC-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_NLS-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 EP\_NLG-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: 'nrNrm.yaml#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: 'nrNrm.yaml#/components/schemas/RemoteAddress'

 FiveQiDscpMappingSet-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 FiveQiDscpMappingList:

 type: array

 items:

 $ref: '#/components/schemas/FiveQiDscpMapping'

 Configurable5QISet-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 configurable5QIs:

 type: array

 items:

 $ref: '#/components/schemas/FiveQICharacteristics'

 GtpUPathQoSMonitoringControl-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 gtpUPathQoSMonitoringState:

 type: string

 enum:

 - ENABLED

 - DISABLED

 gtpUPathMonitoredSNSSAIs:

 type: array

 items:

 $ref: 'nrNrm.yaml#/components/schemas/Snssai'

 monitoredDSCPs:

 type: array

 items:

 type: integer

 minimum: 0

 maximum: 255

 isEventTriggeredGtpUPathMonitoringSupported:

 type: boolean

 isPeriodicGtpUMonitoringSupported:

 type: boolean

 isImmediateGtpUMonitoringSupported:

 type: boolean

 gtpUPathDelayThresholds:

 $ref: '#/components/schemas/GtpUPathDelayThresholdsType'

 gtpUPathMinimumWaitTime:

 type: integer

 gtpUPathMeasurementPeriod:

 type: integer

 QFQoSMonitoringControl-Single:

 allOf:

 - $ref: 'genericNRM.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 qFQoSMonitoringState:

 type: string

 enum:

 - ENABLED

 - DISABLED

 qFMonitoredSNSSAIs:

 type: array

 items:

 $ref: 'nrNrm.yaml#/components/schemas/Snssai'

 qFMonitored5QIs:

 type: array

 items:

 type: integer

 minimum: 0

 maximum: 255

 isEventTriggeredQFMonitoringSupported:

 type: boolean

 isPeriodicQFMonitoringSupported:

 type: boolean

 isSessionReleasedQFMonitoringSupported:

 type: boolean

 qFPacketDelayThresholds:

 $ref: '#/components/schemas/QFPacketDelayThresholdsType'

 qFMinimumWaitTime:

 type: integer

 qFMeasurementPeriod:

 type: integer

 PredefinedPccRuleSet-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 predefinedPccRules:

 type: array

 items:

 $ref: '#/components/schemas/PccRule'

#-------- Definition of JSON arrays for name-contained IOCs ----------------------

 SubNetwork-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/SubNetwork-Single'

 ManagedElement-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ManagedElement-Single'

 AmfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/AmfFunction-Single'

 SmfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/SmfFunction-Single'

 UpfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/UpfFunction-Single'

 N3iwfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/N3iwfFunction-Single'

 PcfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/PcfFunction-Single'

 AusfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/AusfFunction-Single'

 UdmFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/UdmFunction-Single'

 UdrFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/UdrFunction-Single'

 UdsfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/UdsfFunction-Single'

 NrfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NrfFunction-Single'

 NssfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NssfFunction-Single'

 SmsfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/SmsfFunction-Single'

 LmfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/LmfFunction-Single'

 NgeirFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NgeirFunction-Single'

 SeppFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/SeppFunction-Single'

 NwdafFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NwdafFunction-Single'

 ScpFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ScpFunction-Single'

 NefFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NefFunction-Single'

 ExternalAmfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalAmfFunction-Single'

 ExternalNrfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalNrfFunction-Single'

 ExternalNssfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalNssfFunction-Single'

 ExternalSeppFunction-Nultiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalSeppFunction-Single'

 AmfSet-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/AmfSet-Single'

 AmfRegion-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/AmfRegion-Single'

 EP\_N2-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N2-Single'

 EP\_N3-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N3-Single'

 EP\_N4-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N4-Single'

 EP\_N5-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N5-Single'

 EP\_N6-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N6-Single'

 EP\_N7-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N7-Single'

 EP\_N8-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N8-Single'

 EP\_N9-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N9-Single'

 EP\_N10-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N10-Single'

 EP\_N11-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N11-Single'

 EP\_N12-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N12-Single'

 EP\_N13-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N13-Single'

 EP\_N14-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N14-Single'

 EP\_N15-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N15-Single'

 EP\_N16-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N16-Single'

 EP\_N17-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N17-Single'

 EP\_N20-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N20-Single'

 EP\_N21-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N21-Single'

 EP\_N22-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N22-Single'

 EP\_N26-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N26-Single'

 EP\_N27-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N27-Single'

 EP\_N31-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N31-Single'

 EP\_N32-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N32-Single'

 EP\_S5C-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_S5C-Single'

 EP\_S5U-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_S5U-Single'

 EP\_Rx-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_Rx-Single'

 EP\_MAP\_SMSC-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_MAP\_SMSC-Single'

 EP\_NLS-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_NLS-Single'

 EP\_NLG-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_NLG-Single'

 Configurable5QISet-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/Configurable5QISet-Single'

#------------ Definitions in TS 28.541 for TS 28.532 -----------------------------

 resources-5gcNrm:

 oneOf:

 - $ref: '#/components/schemas/SubNetwork-Single'

 - $ref: '#/components/schemas/ManagedElement-Single'

 - $ref: '#/components/schemas/AmfFunction-Single'

 - $ref: '#/components/schemas/SmfFunction-Single'

 - $ref: '#/components/schemas/UpfFunction-Single'

 - $ref: '#/components/schemas/N3iwfFunction-Single'

 - $ref: '#/components/schemas/PcfFunction-Single'

 - $ref: '#/components/schemas/AusfFunction-Single'

 - $ref: '#/components/schemas/UdmFunction-Single'

 - $ref: '#/components/schemas/UdrFunction-Single'

 - $ref: '#/components/schemas/UdsfFunction-Single'

 - $ref: '#/components/schemas/NrfFunction-Single'

 - $ref: '#/components/schemas/NssfFunction-Single'

 - $ref: '#/components/schemas/SmsfFunction-Single'

 - $ref: '#/components/schemas/LmfFunction-Single'

 - $ref: '#/components/schemas/NgeirFunction-Single'

 - $ref: '#/components/schemas/SeppFunction-Single'

 - $ref: '#/components/schemas/NwdafFunction-Single'

 - $ref: '#/components/schemas/ScpFunction-Single'

 - $ref: '#/components/schemas/NefFunction-Single'

 - $ref: '#/components/schemas/ExternalAmfFunction-Single'

 - $ref: '#/components/schemas/ExternalNrfFunction-Single'

 - $ref: '#/components/schemas/ExternalNssfFunction-Single'

 - $ref: '#/components/schemas/ExternalSeppFunction-Single'

 - $ref: '#/components/schemas/AmfSet-Single'

 - $ref: '#/components/schemas/AmfRegion-Single'

 - $ref: '#/components/schemas/QFQoSMonitoringControl-Single'

 - $ref: '#/components/schemas/GtpUPathQoSMonitoringControl-Single'

 - $ref: '#/components/schemas/EP\_N2-Single'

 - $ref: '#/components/schemas/EP\_N3-Single'

 - $ref: '#/components/schemas/EP\_N4-Single'

 - $ref: '#/components/schemas/EP\_N5-Single'

 - $ref: '#/components/schemas/EP\_N6-Single'

 - $ref: '#/components/schemas/EP\_N7-Single'

 - $ref: '#/components/schemas/EP\_N8-Single'

 - $ref: '#/components/schemas/EP\_N9-Single'

 - $ref: '#/components/schemas/EP\_N10-Single'

 - $ref: '#/components/schemas/EP\_N11-Single'

 - $ref: '#/components/schemas/EP\_N12-Single'

 - $ref: '#/components/schemas/EP\_N13-Single'

 - $ref: '#/components/schemas/EP\_N14-Single'

 - $ref: '#/components/schemas/EP\_N15-Single'

 - $ref: '#/components/schemas/EP\_N16-Single'

 - $ref: '#/components/schemas/EP\_N17-Single'

 - $ref: '#/components/schemas/EP\_N20-Single'

 - $ref: '#/components/schemas/EP\_N21-Single'

 - $ref: '#/components/schemas/EP\_N22-Single'

 - $ref: '#/components/schemas/EP\_N26-Single'

 - $ref: '#/components/schemas/EP\_N27-Single'

 - $ref: '#/components/schemas/EP\_N31-Single'

 - $ref: '#/components/schemas/EP\_N31-Single'

 - $ref: '#/components/schemas/EP\_S5C-Single'

 - $ref: '#/components/schemas/EP\_S5U-Single'

 - $ref: '#/components/schemas/EP\_Rx-Single'

 - $ref: '#/components/schemas/EP\_MAP\_SMSC-Single'

 - $ref: '#/components/schemas/EP\_NLS-Single'

 - $ref: '#/components/schemas/EP\_NLG-Single'

 - $ref: '#/components/schemas/Configurable5QISet-Single'

 - $ref: '#/components/schemas/FiveQiDscpMappingSet-Single'

 - $ref: '#/components/schemas/PredefinedPccRuleSet-Single'

|  |
| --- |
| **Next Modified Sections** |

## H.5.x module \_3gpp-5gc-nrm-PredefinedPccRuleSet.yang

module \_3gpp-5gc-nrm-predefinedpccruleset {

 yang-version 1.1;

 namespace urn:3gpp:sa5:\_3gpp-5gc-nrm-predefinedpccruleset;

 prefix PredPccRules3gpp;

 import \_3gpp-common-top { prefix top3gpp; }

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-5g-common-yang-types { prefix types5g3gpp; }

 import \_3gpp-5gc-nrm-smffunction { prefix smf3gpp; }

 import \_3gpp-5gc-nrm-pcffunction { prefix pcf3gpp; }

 import \_ietf-yang-types { prefix yang; }

 organization "3gpp SA5";

 contact "https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464";

 description "This IOC represents the predefined PCC rules, which are configured to SMF and referenced by PCF.";

 reference "3GPP TS 28.541";

 revision 2020-08-21 { reference "CR-0330"; }

 grouping TscaiInputContainer {

 description "It specifies the transports TSCAI input parameters for TSC traffic at the ingress interface of the DS-TT/UE for a PCC rule, see TS 29.512 [y]";

 leaf periodicity {

 type uint32;

 mandatory false;

 description "It identifies the time period between the start of two bursts in reference to the TSN GM, see TS 29.571 [z].";

 }

 leaf burstArrivalTime {

 type yang:date-and-time;

 mandatory false;

 description "It Indicates the arrival time (in date-time format) of the data burst in reference to the TSN GM, see TS 29.571 [z].";

 }

 }

 grouping ConditionData {

 description "It specifies the specifies the condition data for a PCC rule.";

 leaf condId {

 type string;

 mandatory true;

 description "It uniquely identifies the condition data.";

 }

 leaf activationTime {

 type yang:date-and-time;

 mandatory false;

 description " It indicates the time (in date-time format) when the decision data shall be activated, see TS 29.512 [y] and TS 29.571 [z].";

 }

 leaf deactivationTime {

 type yang:date-and-time;

 mandatory false;

 description "It indicates the time (in date-time format) when the decision data shall be deactivated, see TS 29.512 [y] and TS 29.571 [z].";

 }

 leaf accessType {

 type enumeration {

 enum 3GPP\_ACCESS;

 enum NON\_3GPP\_ACCESS;

 }

 mandatory false;

 description "It provides the condition of access type of the UE when the session AMBR shall be enforced, see TS 29.512 [y].";

 }

 leaf ratType {

 type enumeration {

 enum NR;

 enum EUTRA;

 enum WLAN;

 enum VIRTUAL;

 enum NBIOT;

 enum WIRELINE;

 enum WIRELINE\_CABLE;

 enum WIRELINE\_BBF;

 enum LTE-M;

 enum NR\_U;

 enum EUTRA\_U;

 enum TRUSTED\_N3GA;

 enum TRUSTED\_WLAN;

 enum UTRA;

 enum GERA;

 }

 mandatory false;

 description "It provides the condition of RAT type of the UE when the session AMBR shall be enforced, see TS 29.512 [y] and TS 29.571 [z].";

 }

 }

 grouping SteeringMode {

 description "It specifies the traffic distribution rule, see TS 29.512 [y].";

 leaf steerModeValue {

 type enumeration {

 enum ACTIVE\_STANDBY;

 enum LOAD\_BALANCING;

 enum SMALLEST\_DELAY;

 enum PRIORITY\_BASED;

 }

 mandatory true;

 description "It indicates the value of the steering mode, see TS 29.512 [y].";

 }

 leaf active {

 type enumeration {

 enum 3GPP\_ACCESS;

 enum NON\_3GPP\_ACCESS;

 }

 mandatory false;

 description "It indicates the active access, see TS 29.571 [z].";

 }

 leaf standby {

 type enumeration {

 enum 3GPP\_ACCESS;

 enum NON\_3GPP\_ACCESS;

 }

 mandatory false;

 description "It indicates the Standby access, see TS 29.571 [z].";

 }

 leaf threeGLoad {

 type uint8 {

 range 0..100;

 }

 mandatory false;

 description "It indicates the traffic load to steer to the 3GPP Access expressed in one percent.";

 }

 leaf prioAcc {

 type enumeration {

 enum 3GPP\_ACCESS;

 enum NON\_3GPP\_ACCESS;

 }

 mandatory false;

 description "It indicates the high priority access, see TS 29.571 [z].";

 }

 }

 grouping UpPathChgEvent {

 description "It specifies the information about the AF subscriptions of the UP path change, see TS 29.512 [y]";

 leaf notificationUri {

 type string;

 mandatory true;

 description "It provides notification address (Uri) of AF receiving the event notification.";

 }

 leaf notifCorreId {

 type string;

 mandatory true;

 description "It is used to set the value of Notification Correlation ID in the notification sent by the SMF, see TS 29.512 [y].";

 }

 leaf dnaiChgType {

 type enumeration {

 enum EARLY;

 enum EARLY\_LATE;

 enum LATE;

 }

 mandatory true;

 description "It indicates the type of DNAI change, see TS 29.512 [y].";

 }

 leaf afAckInd {

 type boolean;

 default false;

 mandatory false;

 description "It identifies whether the AF acknowledgement of UP path event notification is expected.";

 }

 }

 grouping RouteInformation {

 description "It specifies the traffic routing information.";

 leaf ipv4Addr {

 type string;

 mandatory false;

 description "It defines the Ipv4 address of the tunnel end point in the data network, formatted in the dotted decimal notation.";

 }

 leaf ipv6Addr {

 type string;

 mandatory false;

 description "It defines the Ipv6 address of the tunnel end point in the data network.";

 }

 leaf portNumber {

 type uint32;

 mandatory true;

 description " It defines the UDP port number of the tunnel end point in the data network, see TS 29.571 [z].";

 }

 }

 grouping RouteToLocation {

 description "It specifies a list of location which the traffic shall be routed to for the AF request.";

 leaf dnai {

 type string;

 mandatory true;

 description "It represents the DNAI (Data network access identifier), see 3GPP TS 23.501 [2].";

 }

 container routeInfo{

 description "It provides the traffic routing information.";

 uses RouteInformation;

 }

 leaf routeProfId {

 type string;

 mandatory false;

 description "It identifies the routing profile.";

 }

 }

 grouping RedirectInformaton {

 description "It specifies the redirect information for traffic control in the PCC rule.";

 leaf redirectEnabled {

 type boolean;

 mandatory true;

 description "It indicates whether the redirect instruction is enabled.";

 }

 leaf redirectAddressType {

 type enumeration {

 enum IPV4\_ADDR;

 enum IPV6\_ADDR;

 enum URL;

 enum SIP\_URI;

 }

 mandatory true;

 description "It indicates the type of redirect address, see TS 29.512 [y].";

 }

 leaf redirectServerAddress {

 type string;

 mandatory true;

 description "It indicates the address of the redirect server.";

 }

 }

 grouping TrafficControlDataInformation {

 description "It specifies the traffic control data for a service flow of a PCC rule.";

 leaf tcId {

 type string;

 mandatory true;

 description "It univocally identifies the traffic control policy data within a PDU session.";

 }

 leaf flowStatus {

 type enumeration {

 enum ENABLED-UPLINK;

 enum ENABLED-DOWNLINK;

 enum ENABLED;

 enum DISABLED;

 enum REMOVED;

 }

 mandatory true;

 description "It represents whether the service data flow(s) are enabled or disabled.";

 }

 container redirectInfo {

 description "It contains the redirect information indicating whether the detected application traffic should be redirected to another controlled address.";

 uses RedirectInformaton;

 }

 container addRedirectInfo {

 description "It contains the additional redirect information indicating whether the detected application traffic should be redirected to another controlled address.";

 list redirectInfo {

 description "The list of redirect information indicating whether the detected application traffic should be redirected to another controlled address.";

 key "redirectServerAddress";

 uses RedirectInformaton;

 }

 }

 leaf muteNotif {

 type boolean;

 mandatory false;

 default false;

 description "It indicates whether applicat'on's start or stop notification is to be muted.";

 }

 leaf trafficSteeringPolIdDl {

 type string;

 mandatory false;

 description "It references to a pre-configured traffic steering policy for downlink traffic at the SMF, see TS 29.512 [y].";

 }

 leaf trafficSteeringPolIdUl {

 type string;

 mandatory false;

 description "It references to a pre-configured traffic steering policy for uplink traffic at the SMF, see TS 29.512 [y].";

 }

 container routeToLocs {

 description "It provides a list of location which the traffic shall be routed to for the AF request.";

 list routeToLoc {

 description "The list of location which the traffic shall be routed to for the AF request.";

 key "dnai";

 uses RouteToLocation;

 }

 }

 uses UpPathChgEvent;

 leaf steerFun {

 type enumeration {

 enum MPTCP;

 enum ATSSS\_LL;

 }

 mandatory false;

 description "It indicates the applicable traffic steering functionality, see TS 29.512 [y].";

 }

 container steerModeDl {

 description "It provides the traffic distribution rule across 3GPP and Non-3GPP accesses to apply for downlink traffic.";

 uses SteeringMode;

 }

 container steerModeUl {

 description "It provides the traffic distribution rule across 3GPP and Non-3GPP accesses to apply for uplink traffic.";

 uses SteeringMode;

 }

 leaf mulAccCtrl {

 type enumeration {

 enum ALLOWED;

 enum NOT\_ALLOWED;

 }

 mandatory false;

 description "It indicates whether the service data flow, corresponding to the service data flow template, is allowed or not allowed.";

 }

 }

 grouping ARP {

 description "It specifies the allocation and retention priority of a QoS control policy.";

 leaf priorityLevel {

 type uint8 {

 range 1..15;

 }

 mandatory true;

 description "It defines the relative importance of a resource request.";

 }

 leaf preemptCap {

 type enumeration {

 enum NOT\_PREEMPT;

 enum MAY\_PREEMPT;

 }

 mandatory true;

 description "It defines whether a service data flow may get resources that were already assigned to another service data flow with a lower priority level.";

 }

 leaf preemptVuln {

 type enumeration {

 enum NOT\_PREEMPTABLE;

 enum PREEMPTABLE;

 }

 mandatory true;

 description "It defines whether a service data flow may lose the resources assigned to it in order to admit a service data flow with higher priority level.";

 }

 }

 grouping QosDataInformation {

 description "It specifies the QoS control policy data for a service flow of a PCC rule.";

 leaf qosId {

 type string;

 mandatory true;

 description "It identifies the QoS control policy data for a PCC rule.";

 }

 leaf fiveQIValue {

 type uint8 {

 range 0..255;

 }

 mandatory true;

 description "It indicates the 5QI value.";

 }

 leaf maxbrUl {

 type string;

 mandatory false;

 description "It represents the maximum uplink bandwidth.";

 }

 leaf maxbrDl {

 type string;

 mandatory false;

 description "It represents the maximum downlink bandwidth.";

 }

 leaf gbrUl {

 type string;

 mandatory false;

 description "It represents the guaranteed uplink bandwidth.";

 }

 leaf gbrDl {

 type string;

 mandatory false;

 description "It represents the guaranteed downlink bandwidth.";

 }

 uses ARP;

 leaf qosNotificationControl {

 type boolean;

 default false;

 mandatory false;

 description "It indicates whether notifications are requested from 3GPP NG-RAN when the GFBR can no longer (or again) be guaranteed for a QoS Flow during the lifetime of the QoS Flow.";

 }

 leaf reflectiveQos {

 type boolean;

 default false;

 mandatory false;

 description "Indicates whether the QoS information is reflective for the corresponding non-GBR service data flow";

 }

 leaf sharingKeyDl {

 type string;

 mandatory false;

 description "It indicates, by containing the same value, what PCC rules may share resource in downlink direction.";

 }

 leaf sharingKeyUl {

 type string;

 mandatory false;

 description "It indicates, by containing the same value, what PCC rules may share resource in uplink direction.";

 }

 leaf maxPacketLossRateDl {

 type uint16 {

 range 0..1000;

 }

 mandatory false;

 description "It indicates the downlink maximum rate for lost packets that can be tolerated for the service data flow.";

 }

 leaf maxPacketLossRateUl {

 type uint16 {

 range 0..1000;

 }

 mandatory false;

 description "It indicates the uplink maximum rate for lost packets that can be tolerated for the service data flow.";

 }

 leaf extMaxDataBurstVol {

 type uint32 {

 range 4096..2000000;

 }

 mandatory false;

 description "It denotes the largest amount of data that is required to be transferred within a period of 5G-AN PDB, see TS 29.512 [y].";

 }

 }

 grouping EthFlowDescription {

 description "It describes an Ethernet flow.";

 leaf destMacAddr {

 type string;

 mandatory true;

 description "It specifies the destination MAC address formatted in the hexadecimal notation according to clause 1.1 and clause 2.1 of IETF RFC 7042 [p].";

 }

 leaf ethType {

 type string;

 mandatory true;

 description "A two-octet string that represents the Ethertype, as described in IEEE 802.3 [q] and IETF RFC 7042 [p] in hexadecimal representation.";

 }

 leaf fDesc {

 type string;

 mandatory false;

 description "It contains the flow description for the Uplink or Downlink IP flow. It shall be present when the ethtype is IP.";

 }

 leaf fDir {

 type enumeration {

 enum DOWNLINK;

 enum UPLINK;

 }

 mandatory true;

 description "It indicates the packet filter direction.";

 }

 leaf sourceMacAddr {

 type string;

 mandatory true;

 description "It specifies the source MAC address formatted in the hexadecimal notation according to clause 1.1 and clause 2.1 of IETF RFC 7042 [p].";

 }

 leaf-list vlanTags {

 type string;

 description "It specifies the Customer-VLAN and/or Service-VLAN tags containing the VID, PCP/DEI fields as defined in IEEE 802.1Q [r] and IETF RFC 7042 [p]. The first/lower instance in the array stands for the Customer-VLAN tag and the second/higher instance in the array stands for the Service-VLAN tag.";

 }

 leaf srcMacAddrEnd {

 type string;

 mandatory false;

 description "It specifies the source MAC address end. If this attribute is present, the sourceMacAddr attribute specifies the source MAC address start. E.g. srcMacAddrEnd with value 00-10-A4-23-3E-FE and sourceMacAddr with value 00-10-A4-23-3E-02 means all MAC addresses from 00-10-A4-23-3E-02 up to and including 00-10-A4-23-3E-FE.";

 }

 leaf destMacAddrEnd {

 type string;

 mandatory false;

 description "It specifies the destination MAC address end. If this attribute is present, the destMacAddr attribute specifies the destination MAC address start.";

 }

 }

 grouping FlowInformation {

 description "It specifies the flow information of a PCC rule.";

 leaf flowDescription {

 type string;

 mandatory true;

 description "It defines a packet filter for an IP flow.";

 }

 uses EthFlowDescription;

 leaf packFiltId {

 type string;

 mandatory true;

 description "It is the identifier of the packet filter.";

 }

 leaf packetFilterUsage {

 type boolean;

 default false;

 description "It indicates if the packet shall be sent to the UE.";

 }

 leaf tosTrafficClass {

 type string;

 mandatory true;

 description "It contains the Ipv4 Type-of-Service and mask field or the Ipv6 Traffic-Class field and mask field.";

 }

 leaf spi {

 type string;

 mandatory true;

 description "It is the security parameter index of the IPSec packet, see IETF RFC 4301 [s]";

 }

 leaf flowLabel {

 type string;

 mandatory false;

 description "It specifies the Ipv6 flow label header field.";

 }

 leaf flowDirection {

 type enumeration {

 enum DOWNLINK;

 enum UPLINK;

 enum BIDIRECTIONAL;

 enum UNSPECIFIED;

 }

 mandatory true;

 description "It indicates the direction/directions that a filter is applicable.";

 }

 }

 grouping PccRule {

 description "It specifies the PCC rule, see TS 29.512 [y].";

 leaf pccRuleId {

 type string;

 mandatory true;

 description "It identifies the PCC rule.";

 }

 container flowInfoList {

 description "It is a list of IP flow packet filter information.";

 list flowInfo {

 description "The list of IP flow packet filter information.";

 key "packFiltId";

 uses FlowInformation;

 }

 }

 leaf applicationId {

 type string;

 default false;

 mandatory false;

 description "A reference to the application detection filter configured at the UPF.";

 }

 leaf appDescriptor {

 type string;

 mandatory false;

 description "It is the ATSSS rule application descriptor.";

 }

 leaf contentVersion {

 type uint8;

 mandatory false;

 description "Indicates the content version of the PCC rule.";

 }

 leaf precedence {

 type uint8 {

 range 0..255;

 }

 mandatory false;

 description "It indicates the order in which this PCC rule is applied relative to other PCC rules within the same PDU session.";

 }

 leaf afSigProtocol {

 type enumeration {

 enum NO\_INFORMATION;

 enum SIP;

 }

 mandatory false;

 description "Indicates the protocol used for signalling between the UE and the AF, the default value is NO\_INFORMATION.";

 }

 leaf isAppRelocatable {

 type boolean;

 default false;

 mandatory false;

 description "It indicates the application relocation possibility, the default value is NO\_INFORMATION.";

 }

 leaf isUeAddrPreserved {

 type boolean;

 default false;

 mandatory false;

 description "It Indicates whether UE IP address should be preserved.";

 }

 container qosData {

 description "It contains the QoS control policy data for a PCC rule.";

 list qosDataInfo {

 description "The list of QoS control policy data.";

 key "qosId";

 uses QosDataInformation;

 }

 }

 container altQosParams {

 description "It contains the QoS control policy data for the Alternative QoS parameter sets of the service data flow.";

 list qosDataInfo {

 description "The list of QoS control policy data.";

 key "qosId";

 uses QosDataInformation;

 }

 }

 container trafficControlData {

 description "It contains the traffic control policy data for a PCC rule.";

 list trafficControlDataInfo {

 description "The list of traffic control policy data.";

 key "tcId";

 uses TrafficControlDataInformation;

 }

 }

 uses ConditionData;

 container tscaiInputUl {

 description "It contains transports TSCAI input parameters for TSC traffic at the ingress interface of the DS-TT/UE (uplink flow direction).";

 uses TscaiInputContainer;

 }

 container tscaiInputDl {

 description "It contains transports TSCAI input parameters for TSC traffic at the ingress of the NW-TT (downlink flow direction).";

 uses TscaiInputContainer;

 }

 }

 grouping PredefinedPccRuleSetGrp {

 description "Represents the PredefinedPccRuleSet IOC.";

 list PredefinedPccRules {

 description "The list of predefined PCC rules.";

 key "pccRuleId";

 uses PccRule;

 }

 }

 grouping PredefinedPccRuleSetSubtree {

 description "It specifies the PredefinedPccRuleSet IOC with inherited attributes.";

 list PredefinedPccRuleSet {

 description "Specifies the predefined PCC rules.";

 key "id";

 uses top3gpp:Top\_Grp;

 container attributes {

 description "It contains the attributes defined specifically in the PredefinedPccRuleSet IOC.";

 uses PredefinedPccRuleSetGrp;

 }

 }

 }

 augment "/me3gpp:ManagedElement/smf3gpp:SMFFunction" {

 description "It specifies the containment relation of PredefinedPccRuleSet MOI with SMFFunction MOI.";

 uses PredefinedPccRuleSetSubtree;

 }

 augment "/me3gpp:ManagedElement/pcf3gpp:PCFFunction" {

 description "It specifies the containment relation of PredefinedPccRuleSet MOI with PCFFunction MOI.";

 uses PredefinedPccRuleSetSubtree;

 }

}

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| **End of Modified Sections** |