**3GPP TSG-SA5 Meeting #140-e *S5-216247***

**Online, , 15th Nov 2021 - 24th Nov 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **28.541** | **CR** | **0626** | **rev** | **-** | **Current version:** | **17.4.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

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|  |
| ***Title:***  | network slice protection on N6 interface |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | EMA5SLA |  | ***Date:*** | 2021-11-05 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | 3GPP TS 22.101 defines Flexible Mobile Service Steering (FMSS) requirements to steer the subscriber’s traffic to appropriate enablers (e.g. NAT, antimalware, parental control, Firewall, DDoS protection) in the N6-LAN. The implementation of the requirements in core network could improve the user’s QoE, apply the security control, etc., for the 5G network. Further, service function chaining (SFC) requirements were defined in clause 6.35 of 22.261, which enables operator to define and modify service function chaining policies for steering traffic, create/modify/delete a service function, create/configure/control a chain of service functions, etc. The requirements are for 5G network, which could be applicable to network slice as well to improve security of a network slice, especially at the N6 interface towards internet.However the existing management services (including MnS components A, B, C) specified in 3GPP can't support either requirement of protection N6 interface for a network slice, or FMSS and SFC requirements defined in SA1. Hence enhancement is needed to support network slice protection on N6 interface. |
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| ***Summary of change:*** | • Define N6 protection data type in NRM• Add an optional new attribute for N6 interface protection requirement in ServiceProfile and CNSliceSubnetProfile for CN• Enhance PCC rules associated to PCFFunction or SMFFunction IOC to support routing traffic to security function on N6 interface• Add an optional sNSSAIList attribute in the TrafficControlData dataType to support per slice (or list of slices) traffic steering policies/rules |
|  |  |
| ***Consequences if not approved:*** | network slice protection on N6 interface is not supported |
|  |  |
| ***Clauses affected:*** |  5.3.86.2, 6.3.3.2, 6.3.23.2, 6.3.x(new), 6.3.y(new), 6.4.1, G.4.3, J.4.3 |
|  |  |
|  | **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:*** | https://forge.3gpp.org/rep/sa5/MnS/tree/28.541\_Rel17\_CR0626\_network\_slice\_protection\_on\_N6\_interface |
|  |  |
| ***This CR's revision history:*** |  |

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| **Start of Change** |

#### 5.3.86.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| tcId | M | T | T | F | T |
| flowStatus | M | T | T | F | T |
| redirectInfo | O | T | T | F | T |
| addRedirectInfo | O | T | T | F | T |
| muteNotif | O | T | T | F | T |
| trafficSteeringPolIdDl | O | T | T | F | T |
| trafficSteeringPolIdUl | O | T | T | F | T |
| routeToLocs | M | T | T | F | T |
| traffCorreInd | O | T | T | F | T |
| upPathChgEvent | O | T | T | F | T |
| steerFun | O | T | T | F | T |
| steerModeDl | O | T | T | F | T |
| steerModeUl | O | T | T | F | T |
| mulAccCtrl | O | T | T | F | T |
| sNSSAIList | O | T | T | F | T |

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| **Start of next Change** |

#### 6.3.3.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| serviceProfileId | M | T | F | T | T |
| pLMNInfoList | O | T | F | F | T |
| maxNumberofUEs | O | T | T | F | T |
| coverageArea | O | T | T | F | T |
| latency | O | T | T | F | T |
| uEMobilityLevel | O | T | T | F | T |
| networkSliceSharingIndicator | O | T | T | F | T |
| sST | M | T | T | F | T |
| availability | O | T | T | F | T |
| delayTolerance | O | T | T | F | T |
| dLDeterministicComm | O | T | T | F | T |
| uLDeterministicComm | O | T | T | F | T |
| dLThptPerSlice | O | T | T | F | T |
| dLThptPerUE | O | T | T | F | T |
| uLThptPerSlice | O | T | T | F | T |
| uLThptPerUE | O | T | T | F | T |
| dLMaxPktSize | O | T | T | F | T |
| uLMaxPktSize | O | T | T | F | T |
| maxNumberofPDUSessions | O | T | T | F | T |
| kPIMonitoring | O | T | T | F | T |
| userMgmtOpen | O | T | T | F | T |
| v2XCommModels | O | T | T | F | T |
| termDensity | O | T | T | F | T |
| activityFactor | O | T | T | F | T |
| uESpeed | O | T | T | F | T |
| jitter | O | T | T | F | T |
| survivalTime | O | T | T | F | T |
| radioSpectrum | O | T | T | F | T |
| reliability | O | T | T | F | T |
| maxDLDataVolume | O | T | T | F | T |
| maxULDataVolume | O | T | T | F | T |
| nBIoT | O | T | T | F | T |
| synchronicity | O | T | T | F | T |
| positioning | O | T | T | F | T |
| sliceSimultaneousUse | O | T | T | F | T |
| energyEfficiency | O | T | T | F | T |
| n6Protection | O | T | T | F | T |

NOTE: The attributes in ServiceProfile represent mapped requirements from an NSC (e.g. an enterprise) to an NSP

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| **Start of next Change** |

#### 6.3.23.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| maxNumberofUEs | O | T | T | F | T |
| latency | O | T | T | F | T |
| dLThptPerSliceSubnet | O | T | T | F | T |
| dLThptPerUEPerSubnet | O | T | T | F | T |
| uLThptPerSliceSubnet | O | T | T | F | T |
| uLThptPerUEPerSubnet | O | T | T | F | T |
| maxNumberOfPDUSessions | O | T | T | F | T |
| coverageAreaTAList | O | T | T | F | T |
| reliability | O | T | T | F | T |
| resourceSharingLevel | O | T | T | F | T |
| dLMaxPktSize | O | T | T | F | T |
| uLMaxPktSize | O | T | T | F | T |
| sliceSimultaneousUse | O | T | T | F | T |
| delayTolerance | O | T | T | F | T |
| energyEfficiency | O | T | T | F | T |
| dLDeterministicComm | O | T | T | F | T |
| uLDeterministicComm | O | T | T | F | T |
| survivalTime | O | T | T | F | T |
| n6Protection | O | T | T | F | T |

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| **Start of next Change** |

### 6.3.x N6Protection <<dataType>>

#### 6.3.x.1 Definition

This data type defines required security functions and corresponding rules of each function. It represents the N6 interface protection information in ServiceProfile and CNSliceSubnetProfile for CN.

#### 6.3.x.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| servAttrCom | CM | T | T | T | T |
| secFuncList | M | T | T | F | T |

#### 6.3.x.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| servAttrCom Support Qualifier | Condition: Only valid when the attribute is in ServiceProfile. Otherwise this attribute shall be absent. |

#### 6.3.x.4 Notifications

The subclause 6.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

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| **Start of next Change** |

### 6.3.y SecFunc <<dataType>>

#### 6.3.y.1 Definition

This data type defines each security control functions/features required by the Network Slice or Network Slice Subnet consumer. E.g. Firewall, NAT, antimalware, parental control, DDoS protection function, etc.

#### 6.3.y.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| secFunId | M | T | F | T | T |
| secFunType | M | T | F | F | T |
| secRules | O | T | T | T | T |

#### 6.3.y.3 Attribute constraints

None.

#### 6.3.y.4 Notifications

The subclause 6.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

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| **Start of next Change** |

### 6.4.1 Attribute properties

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| availability | This parameter specifies the communication service availability requirement, expressed as a percentage. The communication service availability is defined in clause 3.1 of TS 22.261 [28]. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: True |
| serviceProfileId | A unique identifier of property of network slice related requirement should be supported by the network slice. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| sliceProfileId | A unique identifier of the property of network slice subnet related requirement should be supported by the network slice subnet. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| operationalState | It indicates the operational state of the network slice or the network slice subnet. It describes whether or not the resource is physically installed and working.allowedValues: "ENABLED", "DISABLED".The meaning of these values is as defined in 3GPP TS 28.625 [17] and ITU-T X.731 [18]. | type: ENUM multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| administrativeState | It indicates the administrative state of the network slice or the network slice subnet. It describes the permission to use or prohibition against using the managed object instance, imposed through the OAM services.allowedValues: “LOCKED”, “UNLOCKED”, SHUTTINGDOWN” The meaning of these values is as defined in 3GPP TS 28.625 [17] and ITU-T X.731 [18]. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: LOCKEDallowedValues: N/A isNullable: False |
| nsInfo | This attribute contains the NsInfo of the NS instance corresponding to the network slice subnet instance. The NsInfo is described in clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: NsInfomultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: No default valueisNullable: True |
| nSInstanceId | This attribute specifies the identifier of NS instance corresponding to the network slice subnet instance.See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: No default valueisNullable: True |
| nsName | This attribute specifies the name of NS instance corresponding to the network slice subnet instance.See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: No default valueisNullable: True |
| description | This attribute specifies the description of NS instance corresponding to the network slice subnet instance.See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: No default valueisNullable: True |
| category | This attribute specifies the category of a service requirement/attribute of GST (see GSMA NG.116 [50]).allowedValues: character, scalability | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/A isNullable: False |
| tagging | This attribute specifies the tagging of a service requirement/attribute of GST in character category (see GSMA NG.116 [50]).allowedValues: performance, function, operation | type: ENUMmultiplicity: 1…3isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/A isNullable: False |
| exposure | This attribute specifies exposure mode of a service requirement/attribute of GST (see GSMA NG.116 [50]).allowedValues: API, KPI | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/A isNullable: False |
| maxNumberofUEs | An attribute specifies the maximum number of UEs may simultaneously access the network slice or network slice subnet instance. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| coverageAreaTAList | An attribute specifies a list of Tracking Areas for the network slice .allowedValues:Legacy TAC and Extended TAC are defined in clause 9.3.3.10 of TS 38.413 [5]. | type: Integermultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| latency | An attribute specifies the packet transmission latency (millisecond) through the RAN, CN, and TN part of 5G network and is used to evaluate utilization performance of the end-to-end network slice. See clause 6.3.1 of 28.554 [27]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| topSliceSubnetProfile.latency | An attribute specifies the packet transmission latency (millisecond) through all domains of the network slice and is used to evaluate utilization performance of the end-to-end network slice. See clause 6.3.1 of 28.554 [27]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| CNSliceSubnetProfile.latency | An attribute specifies the packet transmission latency (millisecond) through CN domain of the network slice and is used to evaluate the delay in CN domain, e.g. time between received UL/DL packet on N3/N6 interface of UPF and successfully sent out the packet on N6/N3 interface.  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| RANSliceSubnetProfile.latency | An attribute specifies the packet transmission latency (millisecond) through RAN domain of the network slice and is used to evaluate the delay in RAN domain, e.g. time between received UL/DL packet on air interface/NgU of gNB and successfully sent out the packet on NgU/air interface of the gNB.  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| uEMobilityLevel | An attribute specifies the mobility level of UE accessing the network slice. See 6.2.1 of TS 22.261 [28].allowedValues: stationary, nomadic, restricted mobility, fully mobility. | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: True |
| serviceProfilenetworkSlice.SharingIndicator | The attribute specifies whether a service, defined by the ServiceProfile, can share a NetworkSlice instance with other services or not. If “non-shared” the service needs a dedicated NetworkSlice instance. If “shared” the service may share a NetworkSlice instance with other service(s).allowedValues: shared, non-shared. | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| serviceProfile.pLMNInfoList | It defines which PLMN and S-NSSAI combinations that are assigned for the service to satisfy service requirements represented by the ServiceProfile in case of network slicing feature is supported.allowedValues: Not applicable. | type: PLMNInfomultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| sliceProfile.pLMNInfoList | It defines which PLMN and S-NSSAI combinations that are served by the SliceProfile in case of network slicing feature is supported.allowedValues: Not applicable. | type: PLMNInfomultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| sliceProfile.resourceSharingLevel | An attribute specifies whether the resources to be allocated to the network slice subnet may be shared with another network slice subnet(s).allowedValues: shared, non-shared. | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: YesisNullable: True |
| serviceProfileList | An attribute specifies a list of ServiceProfile (see clause 6.3.3) supported by the network slice  | type: ServiceProfilemultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| sliceProfileList | An attribute specifies a list of SliceProfile (see clause 6.3.4) supported by the network slice subnet.All members of the list, instances of SliceProfile, shall contain the same datatype representing slice profile requirements: TopSliceSubnetProfile, RANSliceSubnetProfile or CNSliceSubnetProfile. E.g. the sliceProfileList may contain only instances of sliceProfile containing RANSliceSubnetProfile datatype; the sliceProfileList may not contain instances of sliceProfile containing RANSliceSubnetProfile and CNSliceSubnetProfile datatypesMembers of the list may contain TopSliceSubnetProfile datatype only when this attribute (sliceProfileList) belongs to a NetworkSliceSubnet that is directly referenced by a NetworkSlice | type: SliceProfilemultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| sST | This parameter specifies the slice/service type in a ServiceProfile to be supported by a network slice.See clause 5.15.2 of 3GPP TS 23.501 [2]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| delayTolerance | An attribute specifies the properties of service delivery flexibility, especially for the vertical services that are not chasing a high system performance. See clause 4.3 of TS 22.104 [51]. | type: DelayTolerancemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| DelayTolerance.support | An attribute specifies whether or not the network slice supports service delivery flexibility, especially for the vertical services that are not chasing a high system performance.allowedValues:"NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| dLDeterministicComm | An attribute specifies the properties of the deterministic communication in downlink for periodic user traffic, see clause 4.3 of TS 22.104 [51]. | type: DeterministicCommmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| uLDeterministicComm | An attribute specifies the properties of the deterministic communication in uplink for periodic user traffic, see clause 4.3 of TS 22.104 [51]. | type: DeterministicCommmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| DeterministicComm.availability | An attribute specifies whether or not the network slice supports deterministic communication for period user traffic.allowedValues:"NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| DeterministicComm.periodicityList | An attribute specifies a list of periodicities supported by the network slice for deterministic communication. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| dLThptPerSlice | This attribute defines achievable data rate of the network slice in downlink that is available ubiquitously across the coverage area of the slice, refer NG.116 [50]. | type: XLThptmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| dLThptPerSliceSubnet | This attribute defines achievable data rate of the network slice subnet in downlink that is available ubiquitously across the coverage area of the slice. | type: XDLThpt multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| dLThptPerUE | This attribute defines data rate supported by the network slice per UE, refer NG.116 [50].  | type: XLThptmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| guaThpt | This attribute describes the guaranteed data rate. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| maxThpt | This attribute describes the maximum data rate. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| uLThptPerSlice | This attribute defines achievable data rate of the network slice in uplink that is available ubiquitously across the coverage area of the slice, refer NG.116 [50].  | type: XLThptmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| uLThptPerUE | This attribute defines data rate supported by the network slice per UE, refer NG.116 [50].  | type: XLThptmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| uLThptPerSliceSubnet | This attribute defines achievable data rate of the network slice subnet in uplink that is available ubiquitously across the coverage area of the slice. | type: XLThptmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| dLMaxPktSize | This parameter specifies the maximum packet size supported by the network slice or the network slice subnet, in downlink refer NG.116 [50].  | type: MaxPktSizemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| uLMaxPktSize | This parameter specifies the maximum packet size supported by the network slice or the network slice subnet in uplink, refer NG.116 [50]. | type: MaxPktSizemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| MaxPktSize.maxsize | This parameter specifies the maximum packet size supported by the network slice, refer NG.116 [50].  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| maxNumberofPDUSessions | This parameter defines the maximum number of concurrent PDU sessions supported by the network slice, refer NG.116 [50].  | type: MaxNumberofPDUSessionsmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| MaxNumberofPDUSessions.nOofPDUSessions | This parameter defines the maximum number of concurrent PDU sessions supported by the network slice, refer NG.116 [50].  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| kPIMonitoring | An attribute specifies the name list of KQIs and KPIs available for performance monitoring. | type: KPIMonitoringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| KPIMonitoring. kPIList | An attribute specifies the name list of KQIs and KPIs available for performance monitoring. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| nBIoT | An attribute specifies whether NB-IoT is supported in the RAN in the network slice, see NG.116 [50]. | type: NBIoTmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| NBIoT.support | An attribute specifies whether NB-IoT is supported in the RAN in the network slice, see NG.116 [50].allowedValues:"NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| synchronicity | An attribute specifies whether synchronicity of communication devices is supported, Two cases are most important in this context, see clause 3.4.29 of NG.116 [50]:- Synchronicity between a base station and a mobile device and- Synchronicity between mobile devices. | type: Synchronicitymultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| Synchronicity.availability | An attribute specifies whether synchronicity of communication devices is supported, see NG.116 [50].allowedValues:"NOT SUPPORTED", "BETWEEN BS AND UE", "BETWEEN BS AND UE & UE AND UE". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| Synchronicity.accuracy | An attribute specifies the accuracy of the synchronicity, see NG.116 [50]. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| RANSliceSubnetProfile.synchronicity | An attribute specifies whether synchronicity of communication devices is supported in the RAN domain, Two cases are most important in this context, see clause 3.4.29 of NG.116 [50]:- Synchronicity between a base station and a mobile device and- Synchronicity between mobile devices. | type: SynchronicityRANSubnetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| SynchronicityRANSubnet.availability | An attribute specifies whether synchronicity of communication devices is supported in the RAN domain, see NG.116 [50].allowedValues:"NOT SUPPORTED", "BETWEEN BS AND UE", "BETWEEN BS AND UE & UE AND UE". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| SynchronicityRANSubnet.accuracy | An attribute specifies the accuracy of the synchronicity in the RAN domain, see NG.116 [50]. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| userMgmtOpen | An attribute specifies whether or not the network slice supports the capability for the NSC to manage their users or groups of users’ network services and corresponding requirements. | type: UserMgmtOpenmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| UserMgmtOpen.support | An attribute specifies whether or not the network slice supports the capability for the NSC to manage their users or groups of users’ network services and corresponding requirements.allowedValues:"NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| v2XCommModels | An attribute specifies whether or not the V2X communication mode is supported by the network slice. | type: V2XCommModemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| V2XCommMode.v2XMode | An attribute specifies whether or not the V2X communication mode is supported by the network slice.allowedValues:"NOT SUPPORTED", "SUPPORTED BY NR". | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| coverageArea | An attribute specifies the coverage area of the network slice, i.e. the geographic region where a 3GPP communication service is accessible, see Table 7.1-1 of TS 22.261 [28]) and NG.116 [50]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| termDensity | An attribute specifies the overall user density over the coverage area of the network slice. See Table 7.1-1 of TS 22.261 [28]). | type: TermDensitymultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| TermDensity.density | An attribute specifies the overall user density over the coverage area of the network slice. See Table 7.1-1 of TS 22.261 [28]). | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| positioning | An attribute specifies whether the network slice provides geo-localization methods or supporting methods, see clause 3.4.20 of NG.116 [50]. | type: Positioningmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| Positioning.availability | An attribute specifies if this attribute is provided by the network slice and contains a list of positioning methods provided by the slice. If the list is empty this attribute is not available in the network slice and the other parameters might be ignored, see NG.116 [50]. Comma separated multiple values are allowed:CIDE-CID (LTE and NR), OTDOA (LTE and NR), RF fingerprinting, AECID, Hybrid positioning, NET-RTK. | type: ENUMmultiplicity: 1..6isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| Positioning.predictionfrequency | An attribute specifies how often location information is provided. This parameter simply defines how often the customer is allowed to request location information. This is not related to the time it takes to determine the location, which is a characteristic of the positioning method, see NG.116 [50].allowedValues:"PERSEC", "PERMIN", "PERHOUR". | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| Positioning.accuracy | An attribute specifies the accuracy of the location information. Accuracy depends on the respective positioning solution applied in the network slice, see NG.116 [50]. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| RANSliceSubnetProfile.positioning | An attribute specifies whether the RAN domain of the network slice provides geo-localization methods or supporting methods, see clause 3.4.20 of NG.116 [50]. | type: PositioningRANSubnetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| PositioningRANSubnet.availability | An attribute specifies if this attribute is provided by the RAN domain of the network slice and contains a list of positioning methods provided by the RAN domain. If the list is empty this attribute is not available in the RAN domain and the other parameters might be ignored, see NG.116 [50]. Comma separated multiple values are allowed:CIDE-CID (LTE and NR), OTDOA (LTE and NR), RF fingerprinting, AECID, Hybrid positioning, NET-RTK. | type: ENUMmultiplicity: 1..6isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| PositioningRANSubnet.predictionfrequency | An attribute specifies how often location information is provided. This parameter simply defines how often the customer is allowed to request location information. This is not related to the time it takes to determine the location, which is a characteristic of the positioning method, see NG.116 [50].allowedValues:"PERSEC", "PERMIN", "PERHOUR". | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| PositioningRANSubnet.accuracy | An attribute specifies the accuracy of the location information. Accuracy depends on the respective positioning solution applied in the RAN domain of the network slice, measurement unit is meter, see NG.116 [50]. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| activityFactor | An attribute specifies the percentage value of the amount of simultaneous active UEs to the total number of UEs where active means the UEs are exchanging data with the network. See Table 7.1-1 of TS 22.261 [28]). | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| uESpeed | An attribute specifies the maximum speed (in km/hour) supported by the network slice or network slice subnet at which a defined QoS can be achieved. See Table 7.1-1 of TS 22.261 [28]). | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| jitter | An attribute specifies the deviation from the desired value to the actual value when assessing time parameters, see clause C.4.1 of TS 22.104 [51]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| survivalTime | An attribute specifies the time that an application consuming a communication service may continue without an anticipated message. See clause 5 of TS 22.104 [51]). | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| reliability | An attribute specifies in the context of network layer packet transmissions, percentage value of the amount of sent network layer packets successfully delivered to a given system entity within the time constraint required by the targeted service, divided by the total number of sent network layer packets, see TS 22.261 [28] and TS 22.104 [51]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: True |
| NetworkSlice.networkSliceSubnetRef | This holds a DN of NetworkSliceSubnet relating to the NetworkSlice instance. | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| NetworkSliceSubnet.networkSliceSubnetRef | This holds a list of DN of constituent NetworkSliceSubnet supporting NetworkSliceSubnet instance  | type: DNmultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| managedFunctionRef | This holds a list of DN of ManagedFunction instances supporting the NetworkSliceSubnet instance. | type: DNmultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| ipAddress | This parameter specifies the IP address assigned to a logical transport interface/endpoint which is part of a RAN or CN SubNetwork. It can be an IPv4 address (See RFC 791 [37]) or an IPv6 address (See RFC 2373 [38]).See note 1 | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| logicInterfaceInfo | This parameter specifies the information of a logical transport interface (LogicalInterfaceInfo), which includes logicInterfaceType and logicInterfaceId.  | type: LogicalInterfaceInfomultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| logicInterfaceType | This parameter specifies the type of a logical transport interface. It could be VLAN, MPLS or Segment.Allowed Value: VLAN,MPLS,Segment | type:Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| logicInterfaceId | This parameter specifies the identify of a logical transport interface which is part of a RAN or CN SubNetwork. It could be VLAN ID (See IEEE 802.1Q [39]), MPLS Tag or Segment ID.In case logical transport interface is VLAN, it is VLAN Id (See IEEE 802.1Q [39]).In case logical transport interface is MPLS, it is MPLS Tag.In case logical transport interface is Segment, it is Segment ID. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nextHopInfoList | This parameter is used to identify ingress node (s) which are part of a transport network. Each node can be identified by any of a combination of - IP address of next-hop router (the ingress node) in the transport network, - system name, - port name, - IP management address of transport nodes. | type: Stringmultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| qosProfile | This parameter specifies the QoS Profile for a logical transport interface. A QoS profile includes a set of parameters which are locally provisioned on both sides of a logical transport interface.An example of the parameter value could be “DSCP” (See RFC 8436 [74]) | type: Stringmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: True |
| maxDLDataVolume | An attribute specifies the maximum DL PDCP data volume supported by the network slice instance (performance measurement definition see in TS 28.552[69]). The unit is MByte/day. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| maxULDataVolume | An attribute specifies the maximum UL PDCP data volume supported by the network slice instance (performance measurement definition see in TS 28.552[69]). The unit is MByte/day. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| radioSpectrum | This attribute represents the radio spectrum in which the network slice should be supported (see clause 3.4.21 of GSMA NG.116 [50]). | type: RadioSpectrummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nROperatingBands | This attribute represents which 5G NR frequency bands can be used to access the network slice. 5G NR operating bands are defined in 3GPP TS 38.101-1 [42]. | type: Stringmultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| serviceType | An attribute specifies the standardized network slice type.allowedValues: eMBB, URLLC, MIoT, V2X. | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: True |
| epApplicationRef | This parameter specifies a list of application level EPs (i.e. EP\_N3 or EP\_NgU or EP\_F1U) associated with the logical transport interface. | type: DNmultiplicity: \*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| epTransportRef | This parameter specifies a list of transport level EPs associated with the application level EP (i.e. EP\_N3 or EP\_NgU) or network slice subnet. | type: DNmultiplicity: \*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: True |
| sliceSimultaneousUse | This attribute describes whether a network slice can be simultaneously used by a device together with other network slices and if so, with which other classes of network slices.allowedValues: “0”, “1”, “2”, “3”, “4”.“0”: Can be used with any network slice“1”: Can be used with network slices with same SST value“2”: Can be used with any network slice with same SD value“3”: Cannot be used with another network slice“4”: Cannot be used by a UE in a specific location | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| energyEfficiency | An attribute which describes the energy efficiency, i.e. the ratio between the performance and the energy consumption (EC) when assessed during the same time frame, see clause 3.4.7 of NG.116 [50]. | type: EnergyEfficiencymultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EnergyEfficiency.performance | Depending on the sST value, EnergyEfficiency.performance will be- eMBBEEPerfReqor- uRLLCEEPerfReqor- mIoTEEPerfReqallowedValues:- eMBBEEPerfReq identifies the requirement in terms of energy efficiency, i.e. the performance per consumed Joule, where performance can take the following forms: - number of bits (Integer) (see TS 28.554 [27] clause 6.7.2.2).- uRLLCEEPerfReq identifies the requirement in terms of energy efficiency, i.e. the performance per consumed Joule, where performance can take the following forms: - latency in 0.1ms (Integer) (see TS 28.554 [27] clause 6.7.2.3).- mIoTEEPerfReq identifies the requirement in terms of energy efficiency, i.e. the performance per consumed Joule, where performance can take the following forms: - maximum number of registered subscribers (Integer) (see TS 28.554 [27] clause 6.7.2.4.1), - mean number of active UEs (Integer) (see TS 28.554 [27] clause 6.7.2.4.2).See NOTE 3. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: FalseisNullable: False |
| topSliceSubnetProfile.energyEfficiency | An attribute which describes the energy efficiency through all domains of the network slice, i.e. the ratio between the performance and the energy consumption (EC) when assessed during the same time frame, see clause 3.4.7 of NG.116 [50]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| CNSliceSubnetProfile. energyEfficiency | An attribute which describes the energy efficiency through CN domain of the network slice, i.e. the ratio between the performance and the energy consumption (EC) when assessed during the same time frame, see clause 3.4.7 of NG.116 [50]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| RANSliceSubnetProfile. energyEfficiency | An attribute which describes the energy efficiency through RAN domain of the network slice, i.e. the ratio between the performance and the energy consumption (EC) when assessed during the same time frame, see clause 3.4.7 of NG.116 [50]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| ServiceProfile.n6Protection | An attribute which includes required security functions and corresponding rules of each function for network slice N6 interface protection.allowedValues: N/A | type: N6Protectionmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| CNSliceSubnetProfile. n6Protection | An attribute which includes required security functions and corresponding rules of each function for network slice N6 interface protection.allowedValues: N/A | type: N6Protectionmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| secFuncList | An attribute which holds the list of security control functions/features required by the Network Slice or Network Slice Subnet consumer. allowedValues: N/A | type: SecFuncmultiplicity: 1..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| secFunId | An attribute which identifies a security function.allowedValues: N/A | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| secFunType | An attribute which describes the type of the security function. E.g. Firewall, NAT, antimalware, parental control, DDoS protection function, etc.allowedValues: N/A | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| secRules | An attribute which could be configured on each function. If it's absent, the default rules could be applied.allowedValues: N/A | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: N/AdefaultValue: NoneisNullable: False |
| NOTE 1: There is no direct relationship between localAddress/remoteAddress in EP\_RP and ipAddress in EP\_transport. While the localAddress/remoteAddress in EP\_RP could be exchanged as part of signalling between GTP-u tunnel end points, ipAddress in EP\_transport is used for transport routing. NOTE 2: voidNOTE 3: energy efficiency requirement for V2X is not part of the current document. |

|  |
| --- |
| **Start of next Change** |

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

openapi: 3.0.1

info:

 title: 3GPP 5GC NRM

 version: 17.4.0

 description: >-

 OAS 3.0.1 specification of the 5GC NRM

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externalDocs:

 description: 3GPP TS 28.541; 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

 NetworkSliceInfo:

 type: object

 properties:

 sNSSAI:

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

 cNSIId:

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

 networkSliceRef:

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

 NetworkSliceInfoList:

 type: array

 items:

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

 PacketErrorRate:

 type: object

 properties:

 scalar:

 type: integer

 exponent:

 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: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 maxbrDl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 gbrUl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 gbrDl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/BitRateRm'

 arp:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/Arp'

 qosNotificationControl:

 type: boolean

 reflectiveQos:

 type: boolean

 sharingKeyDl:

 type: string

 sharingKeyUl:

 type: string

 maxPacketLossRateDl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/PacketLossRateRm'

 maxPacketLossRateUl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/PacketLossRateRm'

 extMaxDataBurstVol:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/ExtMaxDataBurstVolRm'

 QosDataList:

 type: array

 items:

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

 SteeringMode:

 type: object

 properties:

 steerModeValue:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/SteerModeValue'

 active:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/AccessType'

 standby:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/AccessTypeRm'

 threeGLoad:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 prioAcc:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/AccessType'

 TrafficControlData:

 type: object

 properties:

 tcId:

 type: string

 flowStatus:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/FlowStatus'

 redirectInfo:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/RedirectInformation'

 addRedirectInfo:

 type: array

 items:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/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: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/RouteToLocation'

 traffCorreInd:

 type: boolean

 upPathChgEvent:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/UpPathChgEvent'

 steerFun:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/SteeringFunctionality'

 steerModeDl:

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

 steerModeUl:

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

 mulAccCtrl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/MulticastAccessControl'

 snssaiList:

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

 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: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/FlowInformation'

 applicationId:

 type: string

 appDescriptor:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/ApplicationDescriptor'

 contentVersion:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/ContentVersion'

 precedence:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 afSigProtocol:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/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: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29512\_Npcf\_SMPolicyControl.yaml#/components/schemas/ConditionData'

 tscaiInputDl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/TscaiInputContainer'

 tscaiInputUl:

 $ref: 'https://forge.3gpp.org/rep/all/5G\_APIs/raw/REL-16/TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/TscaiInputContainer'

 SnssaiInfo:

 type: object

 properties:

 plmnInfo:

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

 administrativeState:

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

 NsacfInfoSnssai:

 type: object

 properties:

 SnssaiInfo:

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

 isSubjectToNsac:

 type: boolean

 maxNumberofUEs:

 type: integer

 eACMode:

 type: string

 enum:

 - INACTIVE

 - ACTIVE

 activeEacThreshhold:

 type: integer

 deactiveEacThreshhold:

 type: integer

 numberofUEs:

 type: integer

 uEIdList:

 type: array

 items:

 type: string

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

 SubNetwork-Single:

 allOf:

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

 - 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'

 Dynamic5QISet:

 $ref: '#/components/schemas/Dynamic5QISet-Multiple'

 ManagedElement-Single:

 allOf:

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

 - 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'

 Dynamic5QISet:

 $ref: '#/components/schemas/Dynamic5QISet-Multiple'

 AmfFunction-Single:

 allOf:

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

 - 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'

 - 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'

 - 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'

 - 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'

 dynamic5QISetRef:

 $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'

 - 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'

 - 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'

 - 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'

 configurable5QISetRef:

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

 dynamic5QISetRef:

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

 - $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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 networkSliceInfoList:

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

 ScpFunction-Single:

 allOf:

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

 - 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'

 - 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'

 isCAPIFSup:

 type: boolean

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

 - type: object

 properties:

 EP\_N33:

 $ref: '#/components/schemas/EP\_N33-Multiple'

 NsacfFunction-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

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

 - type: object

 properties:

 managedNFProfile:

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

 nsacfInfoSnssai:

 type: array

 items:

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

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

 - type: object

 properties:

 EP\_N60:

 $ref: '#/components/schemas/EP\_N60-Multiple'

 DDNMFFunction-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'

 sBIFqdn:

 type: string

 managedNFProfile:

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

 commModelList:

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

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

 - type: object

 properties:

 EP\_N64:

 $ref: '#/components/schemas/EP\_N64-Multiple'

 EP\_N65:

 $ref: '#/components/schemas/EP\_N65-Multiple'

 EP\_N66:

 $ref: '#/components/schemas/EP\_N66-Multiple'

 ExternalAmfFunction-Single:

 allOf:

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

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 epTransportRefs:

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

 EP\_N4-Single:

 allOf:

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

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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\_N33-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\_S5C-Single:

 allOf:

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

 - 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'

 - 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'

 - 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'

 - 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'

 - 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'

 - 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\_N60-Single:

 allOf:

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

 - 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\_N64-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\_N65-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\_N66-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'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 FiveQiDscpMappingList:

 type: array

 items:

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

 FiveQICharacteristics-Single:

 allOf:

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

 - 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

 FiveQICharacteristics-Multiple:

 type: array

 items:

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

 Configurable5QISet-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 configurable5QIs:

 type: array

 items:

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

 Dynamic5QISet-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 dynamic5QIs:

 type: array

 items:

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

 GtpUPathQoSMonitoringControl-Single:

 allOf:

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

 - 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'

 - 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'

 - 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'

 NsacfFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NsacfFunction-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\_N33-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N33-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'

 EP\_N60-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N60-Single'

 EP\_N64-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N64-Single'

 EP\_N65-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N65-Single'

 EP\_N66-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_N66-Single'

 Configurable5QISet-Multiple:

 type: array

 items:

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

 Dynamic5QISet-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/Dynamic5QISet-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/NsacfFunction-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\_N32-Single'

 - $ref: '#/components/schemas/EP\_N33-Single'

 - $ref: '#/components/schemas/EP\_N60-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'

 - $ref: '#/components/schemas/Dynamic5QISet-Single'

|  |
| --- |
| **Start of next Change** |

## J.4.3 OpenAPI document "sliceNrm.yaml"

openapi: 3.0.1

info:

 title: Slice NRM

 version: 17.4.0

 description: >-

 OAS 3.0.1 specification of the Slice NRM

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externalDocs:

 description: 3GPP TS 28.541; 5G NRM, Slice NRM

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

paths: {}

components:

 schemas:

#------------ Type definitions ---------------------------------------------------

 Float:

 type: number

 format: float

 MobilityLevel:

 type: string

 enum:

 - STATIONARY

 - NOMADIC

 - RESTRICTED MOBILITY

 - FULLY MOBILITY

 SynAvailability:

 type: string

 enum:

 - NOT SUPPORTED

 - BETWEEN BS AND UE

 - BETWEEN BS AND UE & UE AND UE

 PositioningAvailability:

 type: array

 items:

 type: string

 enum:

 - CIDE-CID

 - OTDOA

 - RF FINGERPRINTING

 - AECID

 - HYBRID POSITIONING

 - NET-RTK

 Predictionfrequency:

 type: string

 enum:

 - PERSEC

 - PERMIN

 - PERHOUR

 SharingLevel:

 type: string

 enum:

 - SHARED

 - NON-SHARED

 NetworkSliceSharingIndicator:

 type: string

 enum:

 - SHARED

 - NON-SHARED

 ServiceType:

 type: string

 enum:

 - eMBB

 - RLLC

 - MIoT

 - V2X

 SliceSimultaneousUse:

 type: string

 enum:

 - ZERO

 - ONE

 - TWO

 - THREE

 - FOUR

 Category:

 type: string

 enum:

 - CHARACTER

 - SCALABILITY

 Tagging:

 type: array

 items:

 type: string

 enum:

 - PERFORMANCE

 - FUNCTION

 - OPERATION

 Exposure:

 type: string

 enum:

 - API

 - KPI

 ServAttrCom:

 type: object

 properties:

 category:

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

 tagging:

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

 exposure:

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

 Support:

 type: string

 enum:

 - NOT SUPPORTED

 - SUPPORTED

 DelayTolerance:

 type: object

 properties:

 servAttrCom:

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

 support:

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

 DeterministicComm:

 type: object

 properties:

 servAttrCom:

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

 availability:

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

 periodicityList:

 type: string

 XLThpt:

 type: object

 properties:

 servAttrCom:

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

 guaThpt:

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

 maxThpt:

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

 MaxPktSize:

 type: object

 properties:

 servAttrCom:

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

 maxsize:

 type: integer

 MaxNumberofPDUSessions:

 type: object

 properties:

 servAttrCom:

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

 nOofPDUSessions:

 type: integer

 KPIMonitoring:

 type: object

 properties:

 servAttrCom:

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

 kPIList:

 type: string

 NBIoT:

 type: object

 properties:

 servAttrCom:

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

 support:

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

 RadioSpectrum:

 type: object

 properties:

 servAttrCom:

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

 nROperatingBands:

 type: string

 Synchronicity:

 type: object

 properties:

 servAttrCom:

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

 availability:

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

 accuracy:

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

 SynchronicityRANSubnet:

 type: object

 properties:

 availability:

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

 accuracy:

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

 Positioning:

 type: object

 properties:

 servAttrCom:

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

 availability:

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

 predictionfrequency:

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

 accuracy:

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

 PositioningRANSubnet:

 type: object

 properties:

 availability:

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

 predictionfrequency:

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

 accuracy:

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

 UserMgmtOpen:

 type: object

 properties:

 servAttrCom:

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

 support:

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

 V2XCommModels:

 type: object

 properties:

 servAttrCom:

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

 v2XMode:

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

 TermDensity:

 type: object

 properties:

 servAttrCom:

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

 density:

 type: integer

 NsInfo:

 type: object

 properties:

 nsInstanceId:

 type: string

 nsName:

 type: string

 EmbbEEPerfReq:

 type: integer

 UrllcEEPerfReq:

 type: integer

 MIoTEEPerfReq:

 type: object

 properties:

 KpiType:

 type: string

 enum:

 - MAXREGSUBS

 - MEANACTIVEUES

 Req:

 type: integer

 EEPerfReq:

 oneOf:

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

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

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

 EnergyEfficiency:

 type: object

 properties:

 servAttrCom:

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

 performance:

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

SecFunc:

 type: object

 properties:

 secFunId:

 type: string

 secFunType:

 type: string

 secRules:

 type: array

 items:

 type: string

N6Protection:

 type: object

 properties:

 servAttrCom:

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

 secFuncList:

 type: array

 items:

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

 CNSliceSubnetProfile:

 type: object

 properties:

 maxNumberofUEs:

 type: integer

 latency:

 type: integer

 dLThptPerSliceSubnet:

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

 dLThptPerUE:

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

 uLThptPerSliceSubnet:

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

 uLThptPerUE:

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

 maxNumberOfPDUSessions:

 type: integer

 coverageAreaTAList:

 type: integer

 resourceSharingLevel:

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

 dLMaxPktSize:

 type: integer

 uLMaxPktSize:

 type: integer

 delayTolerance:

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

 synchronicity:

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

 sliceSimultaneousUse:

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

 reliability:

 type: string

 energyEfficiency:

 type: integer

 dLDeterministicComm:

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

 uLDeterministicComm:

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

 survivalTime:

 type: string

 n6Protection:

 $ref: '#/components/schemas/N6Protection'

RANSliceSubnetProfile:

 type: object

 properties:

 coverageAreaTAList:

 type: integer

 uEMobilityLevel:

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

 resourceSharingLevel:

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

 maxNumberofUEs:

 type: integer

 activityFactor:

 type: integer

 dLThptPerUE:

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

 uLThptPerUE:

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

 uESpeed:

 type: integer

 reliability:

 type: string

 serviceType:

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

 dLMaxPktSize:

 type: integer

 uLMaxPktSize:

 type: integer

 nROperatingBands:

 type: string

 delayTolerance:

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

 positioning:

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

 sliceSimultaneousUse:

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

 energyEfficiency:

 type: integer

 termDensity:

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

 survivalTime:

 type: string

 synchronicity:

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

 dLDeterministicComm:

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

 uLDeterministicComm:

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

 TopSliceSubnetProfile:

 type: object

 properties:

 latency:

 type: integer

 maxNumberofUEs:

 type: integer

 dLThptPerSliceSubnet:

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

 dLThptPerUE:

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

 uLThptPerSliceSubnet:

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

 uLThptPerUE:

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

 dLMaxPktSize:

 type: integer

 uLMaxPktSize:

 type: integer

 maxNumberOfPDUSessions:

 type: integer

 nROperatingBands:

 type: string

 sliceSimultaneousUse:

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

 energyEfficiency:

 type: integer

 synchronicity:

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

 delayTolerance:

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

 positioning:

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

 termDensity:

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

 activityFactor:

 type: integer

 coverageAreaTAList:

 type: integer

 resourceSharingLevel:

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

 uEMobilityLevel:

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

 uESpeed:

 type: integer

 reliability:

 type: string

 serviceType:

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

 dLDeterministicComm:

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

 uLDeterministicComm:

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

 survivalTime:

 type: string

 ServiceProfile:

 type: object

 properties:

 serviceProfileId:

 type: string

 plmnInfoList:

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

 maxNumberofUEs:

 type: number

 latency:

 type: number

 uEMobilityLevel:

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

 sst:

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

 networkSliceSharingIndicator:

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

 availability:

 type: number

 delayTolerance:

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

 dLDeterministicComm:

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

 uLDeterministicComm:

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

 dLThptPerSlice:

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

 dLThptPerUE:

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

 uLThptPerSlice:

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

 uLThptPerUE:

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

 dLMaxPktSize:

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

 uLMaxPktSize:

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

 maxNumberofPDUSessions:

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

 kPIMonitoring:

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

 nBIoT:

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

 radioSpectrum:

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

 synchronicity:

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

 positioning:

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

 userMgmtOpen:

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

 v2XModels:

 $ref: '#/components/schemas/V2XCommModels'

 coverageArea:

 type: string

 termDensity:

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

 activityFactor:

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

 uESpeed:

 type: integer

 jitter:

 type: integer

 survivalTime:

 type: string

 reliability:

 type: string

 maxDLDataVolume:

 type: string

 maxULDataVolume:

 type: string

 sliceSimultaneousUse:

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

 energyEfficiency:

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

 n6Protection:

 $ref: '#/components/schemas/N6Protection'

 SliceProfile:

 type: object

 properties:

 serviceProfileId:

 type: string

 plmnInfoList:

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

 cNSliceSubnetProfile:

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

 rANSliceSubnetProfile:

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

 topSliceSubnetProfile:

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

 IpAddress:

 oneOf:

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

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

 LogicInterfaceInfo:

 type: object

 properties:

 logicalInterfceType:

 type: string

 enum:

 - VLAN

 - MPLS

 - Segment

 logicalInterfceId:

 type: string

 ServiceProfileList:

 type: array

 items:

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

 SliceProfileList:

 type: array

 items:

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

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

 SubNetwork-Single:

 allOf:

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

 - 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'

 NetworkSlice:

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

 NetworkSliceSubnet:

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

 EP\_Transport:

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

 NetworkSlice-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 networkSliceSubnetRef:

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

 operationalState:

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

 administrativeState:

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

 serviceProfileList:

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

 NetworkSliceSubnet-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 managedFunctionRefList:

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

 networkSliceSubnetRefList:

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

 operationalState:

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

 administrativeState:

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

 nsInfo:

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

 sliceProfileList:

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

 epTransportRefList:

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

 priorityLabel:

 type: integer

 EP\_Transport-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 type: object

 properties:

 ipAddress:

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

 logicInterfaceInfo:

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

 nextHopInfo:

 type: string

 qosProfile:

 type: string

 epApplicationRefs:

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

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

 SubNetwork-Multiple:

 type: array

 items:

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

 NetworkSlice-Multiple:

 type: array

 items:

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

 NetworkSliceSubnet-Multiple:

 type: array

 items:

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

 EP\_Transport-Multiple:

 type: array

 items:

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

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

 resources-sliceNrm:

 oneOf:

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

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

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

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

|  |
| --- |
| **End of Changes** |