**3GPP TSG-CT WG4 Meeting #110-eC4-223xyz**

**E-Meeting, 12th – 20th May 2022 (was C4-223204)**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.510** | **CR** | **0704** | **rev** | **2** | **Current version:** | **17.5.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Fqdn Data Type Definition |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | SBIProtoc17 |  | ***Date:*** | 2022-04-22 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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:*** | TS 29.571 defines the common type Fqdn for reuse by any APIs.The agreement reached in previous meetings was to update all APIs that were previosly referring to the Fqdn definition in TS 29.510, and migrate to the new definition in TS 29.571.Currently, the only API pending to be updated is TS 29.521 (BSF), and CT3 intends to update it during the ongoing CT3#122-e meeting, so now it can be safely removed from TS 29.510 since it is not used by any API. |
|  |  |
| ***Summary of change:*** | Reuse Fqdn from TS 29.571.Remove the existing definition from TS 29.510. |
|  |  |
| ***Consequences if not approved:*** | The API descriptions are vague in which values are allowed or not as data parameters in signaling messages, leading to inter-operability issues. |
|  |  |
| ***Clauses affected:*** | 6.1.6.1, 6.1.6.3.2, 6.2.6.1, 6.3.5.1, A.2, A.3, A.4 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 29.521 CR 0145,TS 29.563 CR 0061,TS 29.573 CR 0100,TS 29.556 CR 0004 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR introduces backwards-compatible corrections, with impacts on the following APIs:- TS29510\_Nnrf\_NFManagement.yaml- TS29510\_Nnrf\_NFDiscovery.yaml- TS29510\_Nnrf\_AccessToken.yaml |
|  |  |
| ***This CR's revision history:*** | Rev. 1 (to CT4#110-e):- Remove the definition of Fqdn from this TS 29.510, instead of keeping it as an obsoleted data type, after all APIs that were using it have been successfully updated to make use of the definiton in TS 29.571.Rev. 2: - Add dependency to CR#0145 to TS 29.521 |

\* \* \* First Change \* \* \* \*

#### 6.1.6.1 General

This clause specifies the application data model supported by the API.

Table 6.1.6.1-1 specifies the data types defined for the Nnrf\_NFManagement service-based interface protocol.

Table 6.1.6.1-1: Nnrf\_NFManagement specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| NFProfile | 6.1.6.2.2 | Information of an NF Instance registered in the NRF. |
| NFService | 6.1.6.2.3 | Information of a given NF Service Instance; it is part of the NFProfile of an NF Instance. |
| DefaultNotificationSubscription | 6.1.6.2.4 | Data structure for specifying the notifications the NF service subscribes by default along with callback URI. |
| IpEndPoint | 6.1.6.2.5 | IP addressing information of a given NFService; it consists on, e.g. IP address, TCP port, transport protocol... |
| UdrInfo | 6.1.6.2.6 | Information of an UDR NF Instance. |
| UdmInfo | 6.1.6.2.7 | Information of an UDM NF Instance. |
| AusfInfo | 6.1.6.2.8 | Information of an AUSF NF Instance. |
| SupiRange | 6.1.6.2.9 | A range of SUPIs (subscriber identities), either based on a numeric range, or based on regular-expression matching. |
| IdentityRange | 6.1.6.2.10 | A range of subscriber identities, either based on a numeric range, or based on regular-expression matching. |
| AmfInfo | 6.1.6.2.11 | Information of an AMF NF Instance. |
| SmfInfo | 6.1.6.2.12 | Information of an SMF NF Instance. |
| UpfInfo | 6.1.6.2.13 | Information of an UPF NF Instance. |
| SnssaiUpfInfoItem | 6.1.6.2.14 | Set of parameters supported by UPF for a given S-NSSAI. |
| DnnUpfInfoItem | 6.1.6.2.15 | Set of parameters supported by UPF for a given DNN. |
| SubscriptionData | 6.1.6.2.16 | Information of a subscription to notifications to NRF events, included in subscription requests and responses. |
| NotificationData | 6.1.6.2.17 | Data sent in notifications from NRF to subscribed NF Instances. |
| NFServiceVersion | 6.1.6.2.19 | Contains the version details of an NF service. |
| PcfInfo | 6.1.6.2.20 | Information of a PCF NF Instance. |
| BsfInfo | 6.1.6.2.21 | Information of a BSF NF Instance. |
| Ipv4AddressRange | 6.1.6.2.22 | Range of IPv4 addresses. |
| Ipv6PrefixRange | 6.1.6.2.23 | Range of IPv6 prefixes. |
| InterfaceUpfInfoItem | 6.1.6.2.24 | Information of a given IP interface of an UPF. |
| UriList | 6.1.6.2.25 | Set of URIs following 3GPP hypermedia format (containing a "\_links" attribute). |
| N2InterfaceAmfInfo | 6.1.6.2.26 | AMF N2 interface information |
| TaiRange | 6.1.6.2.27 | Range of TAIs (Tracking Area Identities). |
| TacRange | 6.1.6.2.28 | Range of TACs (Tracking Area Codes). |
| SnssaiSmfInfoItem | 6.1.6.2.29 | Set of parameters supported by SMF for a given S-NSSAI. |
| DnnSmfInfoItem | 6.1.6.2.30 | Set of parameters supported by SMF for a given DNN. |
| NrfInfo | 6.1.6.2.31 | Information of an NRF NF Instance, used in hierarchical NRF deployments. |
| ChfInfo | 6.1.6.2.32 | Information of a CHF NF Instance. |
| PlmnRange | 6.1.6.2.34 | Range of PLMN IDs. |
| SubscrCond | 6.1.6.2.35 | Condition to determine the set of NFs to monitor under a certain subscription in NRF. |
| NfInstanceIdCond | 6.1.6.2.36 | Subscription to a given NF Instance Id. |
| NfTypeCond | 6.1.6.2.37 | Subscription to a set of NFs based on their NF Type. |
| ServiceNameCond | 6.1.6.2.38 | Subscription to a set of NFs based on their support for a given Service Name. |
| AmfCond | 6.1.6.2.39 | Subscription to a set of AMFs, based on AMF Set Id and/or AMF Region Id. |
| GuamiListCond | 6.1.6.2.40 | Subscription to a set of AMFs, based on their GUAMIs. |
| NetworkSliceCond | 6.1.6.2.41 | Subscription to a set of NFs, based on the slices (S-NSSAI and NSI) they support . |
| NfGroupCond | 6.1.6.2.42 | Subscription to a set of NFs based on their Group Id. |
| NotifCondition | 6.1.6.2.43 | Condition (list of attributes in the NF Profile) to determine whether a notification must be sent by NRF. |
| PlmnSnssai | 6.1.6.2.44 | List of network slices (S-NSSAIs) for a given PLMN ID. |
| NwdafInfo | 6.1.6.2.45 | Information of a NWDAF NF Instance. |
| LmfInfo | 6.1.6.2.46 | Information of an LMF NF Instance. |
| GmlcInfo | 6.1.6.2.47 | Information of a GMLC NF Instance. |
| NefInfo | 6.1.6.2.48 | Information of an NEF NF Instance. |
| PfdData | 6.1.6.2.49 | List of Application IDs and/or AF IDs managed by a given NEF Instance. |
| AfEventExposureData | 6.1.6.2.50 | AF Event Exposure data managed by a given NEF Instance. |
| WAgfInfo | 6.1.6.2.51 | Information of the W-AGF endpoints. |
| TngfInfo | 6.1.6.2.52 | Information of the TNGF endpoints. |
| PcscfInfo | 6.1.6.2.53 | Information of a P-CSCF NF Instance. |
| NfSetCond | 6.1.6.2.54 | Subscription to a set of NFs based on their Set Id. |
| NfServiceSetCond | 6.1.6.2.55 | Subscription to a set of NFs based on their Service Set Id. |
| NfInfo | 6.1.6.2.56 | Information of a generic NF Instance. |
| HssInfo | 6.1.6.2.57 | Information of an HSS NF Instance. |
| ImsiRange | 6.1.6.2.58 | A range of IMSIs (subscriber identities), either based on a numeric range, or based on regular-expression matching. |
| InternalGroupIdRange | 6.1.6.2.59 | A range of Group IDs (internal group identities), either based on a numeric range, or based on regular-expression matching. |
| UpfCond | 6.1.6.2.60 | Subscription to a set of NF Instances (UPFs), able to serve a certain service area (i.e. SMF serving area or TAI list). |
| TwifInfo | 6.1.6.2.61 | Addressing information (IP addresses, FQDN) of the TWIF. |
| VendorSpecificFeature | 6.1.6.2.62 | Information about a vendor-specific feature |
| UdsfInfo | 6.1.6.2.63 | Information related to UDSF |
| ScpInfo | 6.1.6.2.65 | Information of an SCP Instance |
| ScpDomainInfo | 6.1.6.2.66 | SCP domain information |
| ScpDomainCond | 6.1.6.2.67 | Subscription to an SCP domain  |
| OptionsResponse | 6.1.6.2.68 | Communication options of the NRF |
| NwdafCond | 6.1.6.2.69 | Subscription to a set of NF Instances (NWDAFs), identified by Analytics ID(s), S-NSSAI(s) or NWDAF Serving Area information, i.e. list of TAIs for which the NWDAF can provide analytics. |
| NefCond | 6.1.6.2.70 | Subscription to a set of NF Instances (NEFs), identified by Event ID(s) provided by AF, S-NSSAI(s), AF Instance ID, Application Identifier, External Identifier, External Group Identifier, or domain name. |
| SuciInfo | 6.1.6.2.71 | SUCI information containing Routing Indicator and Home Network Public Key ID. |
| SeppInfo | 6.1.6.2.72 | Information of a SEPP Instance |
| AanfInfo | 6.1.6.2.73 | Information of an AAnF NF Instance. |
| 5GDdnmfInfo | 6.1.6.2.74 | Information of a 5G DDNMF NF Instance. |
| MfafInfo | 6.1.6.2.75 | Information of the MFAF NF Instance. |
| NwdafCapability | 6.1.6.2.76 | Indicates the capability supported by the NWDAF. |
| DccfInfo | 6.1.6.2.80 | Information of a DCCF NF Instance. |
| NsacfInfo | 6.1.6.2.81 | Information of an NSACF NF Instance. |
| NsacfCapability | 6.1.6.2.82 | NSACF service capability. |
| DccfCond | 6.1.6.2.83 | Subscription to a set of NF Instances (DCCFs), identified by NF types, NF Set Id(s) or DCCF Serving Area information, i.e. list of TAIs served by the DCCF. |
| MlAnalyticsInfo | 6.1.6.2.84 | ML Analytics Filter information supported by the Nnwdaf\_MLModelProvision service |
| MbSmfInfo | 6.1.6.2.85 | Information of a MB-SMF NF Instance |
| TmgiRange | 6.1.6.2.86 | Range of TMGIs |
| MbsSession | 6.1.6.2.87 | MBS Session served by an MB-SMF |
| SnssaiMbSmfInfoItem | 6.1.6.2.88 | Parameters supported by an MB-SMF for a given S-NSSAI |
| DnnMbSmfInfoItem | 6.1.6.2.89 | Parameters supported by an MB-SMF for a given DNN |
| MbsAreaSession | 6.1.6.2.90 | MBS Session in a specific MBS Service Area |
| TsctsfInfo | 6.1.6.2.91 | Information of a TSCTSF NF Instance. |
| SnssaiTsctsfInfoItem | 6.1.6.2.92 | Set of parameters supported by TSCTSF for a given S-NSSAI. |
| DnnTsctsfInfoItem | 6.1.6.2.93 | Set of parameters supported by TSCTSF for a given DNN. |
| MbUpfInfo | 6.1.6.2.94 | Information of a MB-UPF NF Instance. |
| UnTrustAfInfo | 6.1.6.2.95 | Information of a untrusted AF Instance. |
| TrustAfInfo | 6.1.6.2.96 | Information of a trusted AF Instance |
| SnssaiInfoItem | 6.1.6.2.97 | Set of parameters supported by NF for a given S-NSSAI. |
| DnnInfoItem | 6.1.6.2.98 | Set of parameters supported by NF for a given DNN. |
| CollocatedNfInstance | 6.1.6.2.99 | Information related to collocated NF type(s) and corresponding NF Instance(s) when the NF is collocated with NFs supporting other NF types. |
| ServiceNameListCond | 6.1.6.2.100 | Subscription to a set of NF Instances that offer a service name in the Service Name list. |
| NfGroupListCond | 6.1.6.2.101 | Subscription to a set of NF Instances, identified by a NF Group Identity in the NF Group Identity list. |
| PlmnOauth2 | 6.1.6.2.102 | Per PLMN Oauth2.0 indication. |
| V2xCapability | 6.1.6.2.103 | Indicate the supported V2X Capability by the PCF. |
| NssaafInfo | 6.1.6.2.104 | Information of a NSSAAF NF Instance. |
| ProSeCapability | 6.1.6.2.105 | Indicate the supported ProSe Capability by the PCF. |
| SharedDataIdRange | 6.1.6.2.106 |  |
| SubscriptionContext | 6.1.6.2.107 | Context data related to a created subscription, to be included in notifications sent by NRF. |
|  |  |  |
| NefId | 6.1.6.3.2 | Identity of the NEF. |
| VendorId | 6.1.6.3.2 | Vendor ID of the NF Service instance (Private Enterprise Number assigned by IANA) |
| WildcardDnai | 6.1.6.3.2 | Wildcard DNAI |
| NFType | 6.1.6.3.3 | NF types known to NRF. |
| NotificationType | 6.1.6.3.4 | Types of notifications used in Default Notification URIs in the NF Profile of an NF Instance. |
| TransportProtocol | 6.1.6.3.5 | Types of transport protocol used in a given IP endpoint of an NF Service Instance. |
| NotificationEventType | 6.1.6.3.6 | Types of events sent in notifications from NRF to subscribed NF Instances. |
| NFStatus | 6.1.6.3.7 | Status of a given NF Instance stored in NRF. |
| DataSetId | 6.1.6.3.8 | Types of data sets stored in UDR. |
| UPInterfaceType | 6.1.6.3.9 | Types of User-Plane interfaces of the UPF. |
| ServiceName | 6.1.6.3.11 | Service names known to NRF. |
| NFServiceStatus | 6.1.6.3.12 | Status of a given NF Service Instance of an NF Instance stored in NRF. |
| AnNodeType | 6.1.6.3.13 | Access Network Node Type (gNB, ng-eNB...). |
| ConditionEventType | 6.1.6.3.14 | Indicates whether a notification is due to the NF Instance to start or stop being part of a condition for a subscription to a set of NFs |
| IpReachability | 6.1.6.3.15 | Indicates the type(s) of IP addresses reachable via an SCP. |
| CollocatedNfType | 6.1.6.3.17 | Possible NF types supported by a collocated NF. |

Editor's Note: A general solution of NRF handling towards absent attributes (not registered by the NF or not supported by NF with early version) is FFS.

Table 6.1.6.1-2 specifies data types re-used by the Nnrf\_NFManagement service-based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nnrf\_NFManagement service-based interface.

Table 6.1.6.1-2: Nnrf\_NFManagement re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| N1MessageClass | 3GPP TS 29.518 [6] | The N1 message type |
| N2InformationClass | 3GPP TS 29.518 [6] | The N2 information type |
| IPv4Addr | 3GPP TS 29.571 [7] |  |
| IPv6Addr | 3GPP TS 29.571 [7] |  |
| IPv6Prefix | 3GPP TS 29.571 [7] |  |
| Uri | 3GPP TS 29.571 [7] |  |
| Dnn | 3GPP TS 29.571 [7] |  |
| SupportedFeatures | 3GPP TS 29.571 [7] |  |
| Snssai | 3GPP TS 29.571 [7] |  |
| PlmnId | 3GPP TS 29.571 [7] |  |
| Guami | 3GPP TS 29.571 [7] |  |
| Tai | 3GPP TS 29.571 [7] |  |
| NfInstanceId | 3GPP TS 29.571 [7] |  |
| LinksValueSchema | 3GPP TS 29.571 [7] | 3GPP Hypermedia link |
| UriScheme | 3GPP TS 29.571 [7] |  |
| AmfName | 3GPP TS 29.571 [7] |  |
| DateTime | 3GPP TS 29.571 [7] |  |
| Dnai | 3GPP TS 29.571 [7] |  |
| ChangeItem | 3GPP TS 29.571 [7] |  |
| DiameterIdentity | 3GPP TS 29.571 [7] |  |
| AccessType | 3GPP TS 29.571 [7] |  |
| NfGroupId | 3GPP TS 29.571 [7] | Network Function Group Id |
| AmfRegionId | 3GPP TS 29.571 [7] |  |
| AmfSetId | 3GPP TS 29.571 [7] |  |
| PduSessionType | 3GPP TS 29.571 [7] |  |
| AtsssCapability | 3GPP TS 29.571 [7] | Capability to support procedures related to Access Traffic Steering, Switching, Splitting. |
| Nid | 3GPP TS 29.571 [7] |  |
| PlmnIdNid | 3GPP TS 29.571 [7] |  |
| NfSetId | 3GPP TS 29.571 [7] | NF Set ID (see clause 28.12 of 3GPP TS 23.003 [12]) |
| NfServiceSetId | 3GPP TS 29.571 [7] | NF Service Set ID (see clause 28.13 of 3GPP TS 23.003 [12]) |
| GroupId | 3GPP TS 29.571 [7] | Internal Group Identifier |
| RatType | 3GPP TS 29.571 [7] | RAT Type |
| DurationSec | 3GPP TS 29.571 [7] |  |
| RedirectResponse | 3GPP TS 29.571 [7] | Response body of the redirect response message. |
| ExtSnssai | 3GPP TS 29.571 [7] |  |
| AreaSessionId | 3GPP TS 29.571 [7] | Area Session Identifier used for an MBS session with location dependent content |
| MbsSessionId | 3GPP TS 29.571 [7] | MBS Session Identifier |
| MbsServiceArea | 3GPP TS 29.571 [7] | MBS Service Area |
| IpAddr | 3GPP TS 29.571 [7] | IP Address |
| Fqdn | 3GPP TS 29.571 [7] | Fully Qualified Domain Name |
| EventId | 3GPP TS 29.520 [32] | Defined in Nnwdaf\_AnalyticsInfo API. |
| NwdafEvent | 3GPP TS 29.520 [32] | Defined in Nnwdaf\_EventsSubscription API. |
| ExternalClientType | 3GPP TS 29.572 [33] |  |
| LMFIdentification | 3GPP TS 29.572 [33] | LMF Identification |
| AfEvent | 3GPP TS 29.517 [35] | Defined in Naf\_EventExposure API |
| SupportedGADShapes | 3GPP TS 29.572 [33] | Supported GAD Shapes |

\* \* \* Next Change \* \* \* \*

##### 6.1.6.3.2 Simple data types

The simple data types defined in table 6.1.6.3.2-1 shall be supported.

Table 6.1.6.3.2-1: Simple data types

|  |  |  |
| --- | --- | --- |
| Type Name | Type Definition | Description |
|  |  |  |
| NefId | string | The NEF ID as specified in clause 4.25.2 of 3GPP TS 23.502 [3].For combined SCEF+NEF, the NEF ID shall contain the SCEF ID encoded as specified in clause 8.4.5 of 3GPP TS 29.336 [37]. |
| VendorId | string | Vendor ID, according to the IANA-assigned "SMI Network Management Private Enterprise Codes" [38].It shall be formatted as a fixed 6-digit string, padding with leading digits "0" to complete a 6-digit length.Pattern: "^[0-9]{6}$" |
| WildcardDnai | string | String representing the Wildcard DNAI.It shall contain the string "\*".Pattern: '^[\*]$' |

\* \* \* Next Change \* \* \* \*

#### 6.2.6.1 General

This clause specifies the application data model supported by the API.

Table 6.2.6.1-1 specifies the data types defined for the Nnrf service based interface protocol.

Table 6.2.6.1-1: Nnrf\_NFDiscovery specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| SearchResult | 6.2.6.2.2 | Contains the list of NF Profiles returned in a Discovery response. |
| NFProfile | 6.2.6.2.3 | Information of an NF Instance discovered by the NRF. |
| NFService | 6.2.6.2.4 | Information of a given NF Service Instance; it is part of the NFProfile of an NF Instance discovered by the NRF. |
| StoredSearchResult | 6.2.6.2.5 | Contains a complete search result (i.e. a number of discovered NF Instances), stored by NRF as a consequence of a prior search result. |
| PreferredSearch | 6.2.6.2.6 | Contains information on whether the returned NFProfiles match the preferred query parameters. |
| NfInstanceInfo | 6.2.6.2.7 | Contains information on an NF profile matching a discovery request. |
| ScpDomainRoutingInfo | 6.2.6.2.8 | SCP Domain Routing Information |
| ScpDomainConnectivity | 6.2.6.2.9 | SCP Domain Routing Information |
| ScpDomainRoutingInfoSubscription | 6.2.6.2.10 | SCP Domain Routing Information Subscription  |
| ScpDomainRoutingInfoNotification | 6.2.6.2.11 | Notification for SCP Domain Routing Information Update |

Table 6.2.6.1-2 specifies data types re-used by the Nnrf\_NFDiscovery service-based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nnrf\_NFDiscovery service-based interface.

Table 6.2.6.1-2: Nnrf\_NFDiscovery re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| Snssai | 3GPP TS 29.571 [7] |  |
| PlmnId | 3GPP TS 29.571 [7] |  |
| Dnn | 3GPP TS 29.571 [7] |  |
| Tai | 3GPP TS 29.571 [7] |  |
| SupportedFeatures | 3GPP TS 29.571 [7] |  |
| NfInstanceId | 3GPP TS 29.571 [7] |  |
| Uri | 3GPP TS 29.571 [7] |  |
| Gpsi | 3GPP TS 29.571 [7] |  |
| GroupId | 3GPP TS 29.571 [7] |  |
| Guami | 3GPP TS 29.571 [7] |  |
| IPv4Addr | 3GPP TS 29.571 [7] |  |
| IPv6Addr | 3GPP TS 29.571 [7] |  |
| UriScheme | 3GPP TS 29.571 [7] |  |
| Dnai | 3GPP TS 29.571 [7] |  |
| NfGroupId | 3GPP TS 29.571 [7] | Identifier of a NF Group |
| PduSessionType | 3GPP TS 29.571 [7] |  |
| AtsssCapability | 3GPP TS 29.571 [7] |  |
| PlmnIdNid | 3GPP TS 29.571 [7] |  |
| NfSetId | 3GPP TS 29.571 [7] |  |
| NfServiceSetId | 3GPP TS 29.571 [7] |  |
| ExtSnssai | 3GPP TS 29.571 [7] |  |
| DurationSec | 3GPP TS 29.571 [7] |  |
| RedirectResponse | 3GPP TS 29.571 [7] | Response body of the redirect response message. |
| MbsSessionId | 3GPP TS 29.571 [7] | MBS Session Identifier |
| IpAddr | 3GPP TS 29.571 [7] | IP Address |
| AreaSessionId | 3GPP TS 29.571 [7] | Area Session Identifier used for an MBS session with location dependent content |
| Fqdn | 3GPP TS 29.571 [7] | Fully Qualified Domain Name |
| EventId | 3GPP TS 29.520 [32] | Defined in Nnwdaf\_AnalyticsInfo API. |
| NwdafEvent | 3GPP TS 29.520 [32] | Defined in Nnwdaf\_EventsSubscription API. |
| ExtGroupId | 3GPP TS 29.503 [36] |  |
| SharedDataId | 3GPP TS 29.503 [36] |  |
| ExternalClientType | 3GPP TS 29.572 [33] |  |
| SupportedGADShapes | 3GPP TS 29.572 [33] | Supported GAD Shapes |
| DefaultNotificationSubscription | 3GPP TS 29.510 | See clause 6.1.6.2.4 |
| IPEndPoint | 3GPP TS 29.510 | See clause 6.1.6.2.5 |
| NFType | 3GPP TS 29.510 | See clause 6.1.6.3.3 |
| UdrInfo | 3GPP TS 29.510 | See clause 6.1.6.2.6 |
| UdmInfo | 3GPP TS 29.510 | See clause 6.1.6.2.7 |
| AusfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.8 |
| SupiRange | 3GPP TS 29.510 | See clause 6.1.6.2.9 |
| AmfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.11 |
| SmfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.12 |
| UpfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.13 |
| PcfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.20 |
| BsfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.21 |
| ChfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.32 |
| NFServiceVersion | 3GPP TS 29.510 | See clause 6.1.6.2.19 |
| PlmnSnssai | 3GPP TS 29.510 | See clause 6.1.6.2.44 |
| NwdafInfo | 3GPP TS 29.510 | See clause 6.1.6.2.45 |
| NFStatus | 3GPP TS 29.510 | See clause 6.1.6.3.7 |
| DataSetId | 3GPP TS 29.510 | See clause 6.1.6.3.8 |
| ServiceName | 3GPP TS 29.510 | See clause 6.1.6.3.11 |
| NFServiceStatus | 3GPP TS 29.510 | See clause 6.1.6.3.12 |
| LmfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.46 |
| GmlcInfo | 3GPP TS 29.510 | See clause 6.1.6.2.47 |
| NefInfo | 3GPP TS 29.510 | See clause 6.1.6.2.48 |
| PfdData | 3GPP TS 29.510 | See clause 6.1.6.2.49 |
| AfEventExposureData | 3GPP TS 29.510 | See clause 6.1.6.2.50 |
| PcscfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.53 |
| HssInfo | 3GPP TS 29.510 | See clause 6.1.6.2.57 |
| ImsiRange | 3GPP TS 29.510 | See clause 6.1.6.2.58 |
| VendorSpecificFeature | 3GPP TS 29.510 | See clause 6.1.6.2.62 |
| ScpInfo | 3GPP TS 29.510 | See clause 6.1.6.2.65 |
| NefId | 3GPP TS 29.510 | See clause 6.1.6.3 |
| VendorId | 3GPP TS 29.510 | See clause 6.1.6.3 |
| AnNodeType | 3GPP TS 29.510 | See clause 6.1.6.3.13 |
| SuciInfo | 3GPP TS 29.510 | See clause 6.1.6.2.71 |
| SeppInfo | 3GPP TS 29.510 | See clause 6.1.6.2.72 |
| NsacfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.81 |
| NsacfCapability | 3GPP TS 29.510 | See clause 6.1.6.2.82 |
| MbSmfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.85 |
| TsctsfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.91 |
| MbUpfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.94 |
| TrustAfInfo | 3GPP TS 29.510 | See clause 6.1.6.2.96 |
| CollocatedNfInstance | 3GPP TS 29.510 | See clause 6.1.6.2.99 |
| NssaafInfo | 3GPP TS 29.510 | See clause 6.1.6.2.104 |

\* \* \* Next Change \* \* \* \*

#### 6.3.5.1 General

This clause specifies the application data model supported by the API.

Table 6.3.5.1-1 specifies the data types defined for the OAuth 2.0 Authorization Service API. The AccessTokenReq data structure shall be converted to the content type "application/x-www-form-urlencoded" when the OAuth 2.0 Access Token Request is invoked.

Table 6.3.5.1-1: OAuth 2.0 Authorization service specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| AccessTokenReq | 6.3.5.2.2 | Contains information related to the access token request. |
| AccessTokenRsp | 6.3.5.2.3 | Contains information related to the access token response. |
| AccessTokenClaims | 6.3.5.2.4 | The claims data structure for the access token. |
| AccessTokenErr | 6.3.5.2.5 | Contains error information returned in the access token response. |
| Audience | 6.3.5.4.1 | Contains the audience claim of the access token. |

Table 6.3.5.1-2 specifies data types re-used by the OAuth 2.0 Authorization service from other specifications, including a reference to their respective specifications and when needed, a short description of their use.

Table 6.3.5.1-2: OAuth 2.0 Authorization service re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| NfInstanceId | 3GPP TS 29.571 [7] |  |
| PlmnId | 3GPP TS 29.571 [7] | PLMN ID |
| NFType | 3GPP TS 29.510 | See clause 6.1.6.3.3 |
| Snssai | 3GPP TS 29.571 [7] |  |
| NfSetId | 3GPP TS 29.571 [7] | NF Set ID (see clause 28.12 of 3GPP TS 23.003 [12]) |
| Uri | 3GPP TS 29.571 [7] |  |
| RedirectResponse | 3GPP TS 29.571 [7] | Response body of the redirect response message. |
| Fqdn | 3GPP TS 29.571 [7] | Fully Qualified Domain Name |

\* \* \* Next Change \* \* \* \*

## A.2 Nnrf\_NFManagement API

*(... text not shown for clarity ...)*

 NFProfile:

 description: Information of an NF Instance registered in the NRF

 type: object

 required:

 - nfInstanceId

 - nfType

 - nfStatus

 anyOf:

 - required: [ fqdn ]

 - required: [ ipv4Addresses ]

 - required: [ ipv6Addresses ]

 properties:

 nfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 nfInstanceName:

 type: string

 nfType:

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

 nfStatus:

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

 collocatedNfInstances:

 type: array

 items:

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

 minimum: 1

 heartBeatTimer:

 type: integer

 minimum: 1

 plmnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 snpnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 sNssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 perPlmnSnssaiList:

 type: array

 items:

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

 minItems: 1

 nsiList:

 type: array

 items:

 type: string

 minItems: 1

 fqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 interPlmnFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 ipv4Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 allowedPlmns:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 allowedSnpns:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 allowedNfTypes:

 type: array

 items:

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

 minItems: 1

 allowedNfDomains:

 type: array

 items:

 type: string

 minItems: 1

 allowedNssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 priority:

 type: integer

 minimum: 0

 maximum: 65535

 capacity:

 type: integer

 minimum: 0

 maximum: 65535

 load:

 type: integer

 minimum: 0

 maximum: 100

 loadTimeStamp:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 locality:

 type: string

 udrInfo:

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

 udrInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UdrInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 udmInfo:

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

 udmInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UdmInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 ausfInfo:

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

 ausfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of AusfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 amfInfo:

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

 amfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of AmfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 smfInfo:

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

 smfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of SmfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 upfInfo:

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

 upfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UpfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 pcfInfo:

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

 pcfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of PcfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 bsfInfo:

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

 bsfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of BsfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 chfInfo:

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

 chfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of ChfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 nefInfo:

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

 nrfInfo:

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

 udsfInfo:

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

 udsfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UdsfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 nwdafInfo:

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

 nwdafInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 pcscfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of PcscfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 hssInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of HssInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 customInfo:

 type: object

 recoveryTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 nfServicePersistence:

 type: boolean

 default: false

 nfServices:

 deprecated: true

 type: array

 items:

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

 minItems: 1

 nfServiceList:

 description: A map (list of key-value pairs) where serviceInstanceId serves as key of NFService

 type: object

 additionalProperties:

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

 minProperties: 1

 nfProfileChangesSupportInd:

 type: boolean

 default: false

 writeOnly: true

 nfProfileChangesInd:

 type: boolean

 default: false

 readOnly: true

 defaultNotificationSubscriptions:

 type: array

 items:

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

 lmfInfo:

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

 gmlcInfo:

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

 nfSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 minItems: 1

 servingScope:

 type: array

 items:

 type: string

 minItems: 1

 lcHSupportInd:

 type: boolean

 default: false

 olcHSupportInd:

 type: boolean

 default: false

 nfSetRecoveryTimeList:

 description: A map (list of key-value pairs) where NfSetId serves as key of DateTime

 type: object

 additionalProperties:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 minProperties: 1

 serviceSetRecoveryTimeList:

 description: A map (list of key-value pairs) where NfServiceSetId serves as key of DateTime

 type: object

 additionalProperties:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 minProperties: 1

 scpDomains:

 type: array

 items:

 type: string

 minItems: 1

 scpInfo:

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

 seppInfo:

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

 vendorId:

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

 supportedVendorSpecificFeatures:

 description: the key of the map is the IANA-assigned SMI Network Management Private Enterprise Codes

 type: object

 additionalProperties:

 type: array

 items:

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

 minItems: 1

 minProperties: 1

 aanfInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 5gDdnmfInfo:

 $ref: '#/components/schemas/5GDdnmfInfo'

 mfafInfo:

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

 easdfInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 dccfInfo:

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

 nsacfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of nsacfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 mbSmfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of MbSmfInfo

 type: object

 additionalProperties:

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

 minProperties: 1

 tsctsfInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 mbUpfInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 trustAfInfo:

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

 nssaafInfo:

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

 hniList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 minItems: 1

 NFService:

 description: Information of a given NF Service Instance; it is part of the NFProfile of an NF Instance

 type: object

 required:

 - serviceInstanceId

 - serviceName

 - versions

 - scheme

 - nfServiceStatus

 properties:

 serviceInstanceId:

 type: string

 serviceName:

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

 versions:

 type: array

 items:

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

 minItems: 1

 scheme:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/UriScheme'

 nfServiceStatus:

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

 fqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 interPlmnFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 ipEndPoints:

 type: array

 items:

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

 minItems: 1

 apiPrefix:

 type: string

 defaultNotificationSubscriptions:

 type: array

 items:

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

 minItems: 1

 allowedPlmns:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 allowedSnpns:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 allowedNfTypes:

 type: array

 items:

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

 minItems: 1

 allowedNfDomains:

 type: array

 items:

 type: string

 minItems: 1

 allowedNssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 allowedOperationsPerNfType:

 description: A map (list of key-value pairs) where NF Type serves as key

 type: object

 additionalProperties:

 type: array

 items:

 type: string

 minItems: 1

 minProperties: 1

 allowedOperationsPerNfInstance:

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 type: object

 additionalProperties:

 type: array

 items:

 type: string

 minItems: 1

 minProperties: 1

 priority:

 type: integer

 minimum: 0

 maximum: 65535

 capacity:

 type: integer

 minimum: 0

 maximum: 65535

 load:

 type: integer

 minimum: 0

 maximum: 100

 loadTimeStamp:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 recoveryTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 nfServiceSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfServiceSetId'

 minItems: 1

 sNssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 perPlmnSnssaiList:

 type: array

 items:

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

 minItems: 1

 vendorId:

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

 supportedVendorSpecificFeatures:

 description: A map (list of key-value pairs) where IANA-assigned SMI Network Management Private Enterprise Codes serves as key

 type: object

 additionalProperties:

 type: array

 items:

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

 minItems: 1

 minProperties: 1

 oauth2Required:

 type: boolean

 perPlmnOauth2ReqList:

 $ref: '#/components/schemas/PlmnOauth2'

 NFType:

 description: NF types known to NRF

 anyOf:

 - type: string

 enum:

 - NRF

 - UDM

 - AMF

 - SMF

 - AUSF

 - NEF

 - PCF

 - SMSF

 - NSSF

 - UDR

 - LMF

 - GMLC

 - 5G\_EIR

 - SEPP

 - UPF

 - N3IWF

 - AF

 - UDSF

 - BSF

 - CHF

 - NWDAF

 - PCSCF

 - CBCF

 - HSS

 - UCMF

 - SOR\_AF

 - SPAF

 - MME

 - SCSAS

 - SCEF

 - SCP

 - NSSAAF

 - ICSCF

 - SCSCF

 - DRA

 - IMS\_AS

 - AANF

 - 5G\_DDNMF

 - NSACF

 - MFAF

 - EASDF

 - DCCF

 - MB-SMF

 - TSCTSF

 - ADRF

 - GBA\_BSF

 - CEF

 - MB-UPF

 - NSWOF

 - type: string

 NefId:

 description: Identity of the NEF

 type: string

 IpEndPoint:

 description: IP addressing information of a given NFService; it consists on, e.g. IP address, TCP port, transport protocol...

 type: object

 properties:

 ipv4Address:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 ipv6Address:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 transport:

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

 port:

 type: integer

 minimum: 0

 maximum: 65535

 SubscriptionData:

 description: Information of a subscription to notifications to NRF events, included in subscription requests and responses

 type: object

 required:

 - nfStatusNotificationUri

 - subscriptionId

 properties:

 nfStatusNotificationUri:

 type: string

 reqNfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 subscrCond:

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

 subscriptionId:

 type: string

 pattern: '^([0-9]{5,6}-)?[^-]+$'

 readOnly: true

 validityTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 reqNotifEvents:

 type: array

 items:

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

 minItems: 1

 plmnId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 nid:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Nid'

 notifCondition:

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

 reqNfType:

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

 reqNfFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 reqSnssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 reqPerPlmnSnssais:

 type: array

 items:

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

 minItems: 1

 reqPlmnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 reqSnpnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 servingScope:

 type: array

 items:

 type: string

 minItems: 1

 requesterFeatures:

 writeOnly: true

 allOf:

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 nrfSupportedFeatures:

 readOnly: true

 allOf:

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 hnrfUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 onboardingCapability:

 type: boolean

 default: false

 targetHni:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 SubscrCond:

 oneOf:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

 NfInstanceIdCond:

 description: Subscription to a given NF Instance Id

 type: object

 required:

 - nfInstanceId

 properties:

 nfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 NfInstanceIdListCond:

 description: Subscription to a list of NF Instances

 type: object

 required:

 - nfInstanceIdList

 properties:

 nfInstanceIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 minItems: 1

 NfTypeCond:

 description: Subscription to a set of NFs based on their NF Type

 type: object

 required:

 - nfType

 not:

 required: [ nfGroupId ]

 properties:

 nfType:

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

 ServiceNameCond:

 description: Subscription to a set of NFs based on their support for a given Service Name

 type: object

 required:

 - serviceName

 properties:

 serviceName:

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

 ServiceNameListCond:

 description: Subscription to a set of NFs based on their support for a Service Name in the Servic Name list

 type: object

 required:

 - conditionType

 - serviceNameList

 properties:

 conditionType:

 type: string

 enum: [ SERVICE\_NAME\_LIST\_COND ]

 serviceNameList:

 type: array

 items:

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

 minItems: 1

 AmfCond:

 description: Subscription to a set of AMFs, based on AMF Set Id and/or AMF Region Id

 type: object

 anyOf:

 - required: [ amfSetId ]

 - required: [ amfRegionId ]

 properties:

 amfSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfSetId'

 amfRegionId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfRegionId'

 GuamiListCond:

 description: Subscription to a set of AMFs, based on their GUAMIs

 type: object

 required:

 - guamiList

 properties:

 guamiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 NetworkSliceCond:

 description: Subscription to a set of NFs, based on the slices (S-NSSAI and NSI) they support

 type: object

 required:

 - snssaiList

 properties:

 snssaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 nsiList:

 type: array

 items:

 type: string

 NfGroupCond:

 description: Subscription to a set of NFs based on their Group Id

 type: object

 required:

 - nfType

 - nfGroupId

 properties:

 nfType:

 type: string

 enum:

 - UDM

 - AUSF

 - UDR

 - PCF

 - CHF

 - HSS

 nfGroupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 NfGroupListCond:

 description: Subscription to a set of NFs based on their Group Ids

 type: object

 required:

 - conditionType

 - nfType

 - nfGroupIdList

 properties:

 conditionType:

 type: string

 enum: [ NF\_GROUP\_LIST\_COND ]

 nfType:

 type: string

 enum:

 - UDM

 - AUSF

 - UDR

 - PCF

 - CHF

 - HSS

 nfGroupIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 minItems: 1

 NotifCondition:

 description: Condition (list of attributes in the NF Profile) to determine whether a notification must be sent by NRF

 type: object

 not:

 required: [ monitoredAttributes, unmonitoredAttributes ]

 properties:

 monitoredAttributes:

 type: array

 items:

 type: string

 minItems: 1

 unmonitoredAttributes:

 type: array

 items:

 type: string

 minItems: 1

 UdrInfo:

 description: Information of an UDR NF Instance

 type: object

 properties:

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 supiRanges:

 type: array

 items:

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

 minItems: 1

 gpsiRanges:

 type: array

 items:

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

 minItems: 1

 externalGroupIdentifiersRanges:

 type: array

 items:

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

 minItems: 1

 supportedDataSets:

 type: array

 items:

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

 minItems: 1

 sharedDataIdRanges:

 type: array

 items:

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

 minItems: 1

 SharedDataIdRange:

 description: A range of SharedDataIds based on regular-expression matching

 type: object

 properties:

 pattern:

 type: string

 SupiRange:

 description: A range of SUPIs (subscriber identities), either based on a numeric range, or based on regular-expression matching

 type: object

 properties:

 start:

 type: string

 pattern: '^[0-9]+$'

 end:

 type: string

 pattern: '^[0-9]+$'

 pattern:

 type: string

 IdentityRange:

 description: A range of GPSIs (subscriber identities), either based on a numeric range, or based on regular-expression matching

 type: object

 properties:

 start:

 type: string

 pattern: '^[0-9]+$'

 end:

 type: string

 pattern: '^[0-9]+$'

 pattern:

 type: string

 InternalGroupIdRange:

 description: A range of Group IDs (internal group identities), either based on a numeric range, or based on regular-expression matching

 type: object

 properties:

 start:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/GroupId'

 end:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/GroupId'

 pattern:

 type: string

 DataSetId:

 description: Types of data sets and subsets stored in UDR

 anyOf:

 - type: string

 enum:

 - SUBSCRIPTION

 - POLICY

 - EXPOSURE

 - APPLICATION

 - A\_PFD

 - A\_AFTI

 - A\_IPTV

 - A\_BDT

 - A\_SPD

 - A\_EASD

 - A\_AMI

 - A\_TSD

 - P\_UE

 - P\_SCD

 - P\_BDT

 - P\_PLMNUE

 - P NSSCD

 - type: string

 UdmInfo:

 description: Information of an UDM NF Instance

 type: object

 properties:

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 supiRanges:

 type: array

 items:

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

 minItems: 1

 gpsiRanges:

 type: array

 items:

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

 minItems: 1

 externalGroupIdentifiersRanges:

 type: array

 items:

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

 minItems: 1

 routingIndicators:

 type: array

 items:

 type: string

 pattern: '^[0-9]{1,4}$'

 minItems: 1

 internalGroupIdentifiersRanges:

 type: array

 items:

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

 minItems: 1

 suciInfos:

 type: array

 items:

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

 minItems: 1

 AusfInfo:

 description: Information of an AUSF NF Instance

 type: object

 properties:

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 supiRanges:

 type: array

 items:

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

 minItems: 1

 routingIndicators:

 type: array

 items:

 type: string

 pattern: '^[0-9]{1,4}$'

 minItems: 1

 suciInfos:

 type: array

 items:

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

 minItems: 1

 AmfInfo:

 description: Information of an AMF NF Instance

 type: object

 required:

 - amfSetId

 - amfRegionId

 - guamiList

 properties:

 amfSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfSetId'

 amfRegionId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfRegionId'

 guamiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 backupInfoAmfFailure:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 minItems: 1

 backupInfoAmfRemoval:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 minItems: 1

 n2InterfaceAmfInfo:

 $ref: '#/components/schemas/N2InterfaceAmfInfo'

 amfOnboardingCapability:

 type: boolean

 default: false

 SmfInfo:

 description: Information of an SMF NF Instance

 type: object

 required:

 - sNssaiSmfInfoList

 properties:

 sNssaiSmfInfoList:

 type: array

 items:

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

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 pgwFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 pgwIpAddrList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/IpAddr'

 minItems: 1

 accessType:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AccessType'

 minItems: 1

 priority:

 type: integer

 minimum: 0

 maximum: 65535

 vsmfSupportInd:

 type: boolean

 default: false

 pgwFqdnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 minItems: 1

 smfOnboardingCapability:

 type: boolean

 default: false

 SnssaiSmfInfoItem:

 description: Set of parameters supported by SMF for a given S-NSSAI

 type: object

 required:

 - sNssai

 - dnnSmfInfoList

 properties:

 sNssai:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 dnnSmfInfoList:

 type: array

 items:

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

 minItems: 1

 DnnSmfInfoItem:

 description: Set of parameters supported by SMF for a given DNN

 type: object

 required:

 - dnn

 properties:

 dnn:

 anyOf:

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/WildcardDnn'

 dnaiList:

 type: array

 items:

 anyOf:

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

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

 minItems: 1

 UpfInfo:

 description: Information of an UPF NF Instance

 type: object

 required:

 - sNssaiUpfInfoList

 properties:

 sNssaiUpfInfoList:

 type: array

 items:

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

 minItems: 1

 smfServingArea:

 type: array

 items:

 type: string

 minItems: 1

 interfaceUpfInfoList:

 type: array

 items:

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

 minItems: 1

 iwkEpsInd:

 type: boolean

 default: false

 pduSessionTypes:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PduSessionType'

 minItems: 1

 atsssCapability:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AtsssCapability'

 ueIpAddrInd:

 type: boolean

 default: false

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 wAgfInfo:

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

 tngfInfo:

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

 twifInfo:

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

 priority:

 type: integer

 minimum: 0

 maximum: 65535

 redundantGtpu:

 type: boolean

 default: false

 ipups:

 type: boolean

 default: false

 dataForwarding:

 type: boolean

 default: false

 supportedPfcpFeatures:

 type: string

 SnssaiUpfInfoItem:

 description: Set of parameters supported by UPF for a given S-NSSAI

 type: object

 required:

 - sNssai

 - dnnUpfInfoList

 properties:

 sNssai:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 dnnUpfInfoList:

 type: array

 items:

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

 minItems: 1

 redundantTransport:

 type: boolean

 default: false

 DnnUpfInfoItem:

 description: Set of parameters supported by UPF for a given DNN

 type: object

 required:

 - dnn

 properties:

 dnn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 dnaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

 minItems: 1

 pduSessionTypes:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PduSessionType'

 minItems: 1

 ipv4AddressRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv4AddressRange'

 minItems: 1

 ipv6PrefixRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv6PrefixRange'

 minItems: 1

 dnaiNwInstanceList:

 description: Map of network instance per DNAI for the DNN, where the key of the map is the DNAI. When present, the value of each entry of the map shall contain a N6 network instance that is configured for the DNAI indicated by the key.

 type: object

 additionalProperties:

 type: string

 minProperties: 1

 InterfaceUpfInfoItem:

 description: Information of a given IP interface of an UPF

 type: object

 required:

 - interfaceType

 properties:

 interfaceType:

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

 ipv4EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 endpointFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 networkInstance:

 type: string

 UPInterfaceType:

 description: Types of User-Plane interfaces of the UPF

 anyOf:

 - type: string

 enum:

 - N3

 - N6

 - N9

 - DATA\_FORWARDING

 - N3MB

 - N6MB

 - N19MB

 - NMB9

 - type: string

 WAgfInfo:

 description: Information of the W-AGF end-points

 type: object

 properties:

 ipv4EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 endpointFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 TngfInfo:

 description: Infomation of the TNGF endpoints

 type: object

 properties:

 ipv4EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 endpointFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 PcfInfo:

 description: Information of a PCF NF Instance

 type: object

 properties:

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 dnnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 minItems: 1

 supiRanges:

 type: array

 items:

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

 minItems: 1

 gpsiRanges:

 type: array

 items:

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

 minItems: 1

 rxDiamHost:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

 rxDiamRealm:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

 v2xSupportInd:

 type: boolean

 default: false

 proseSupportInd:

 type: boolean

 default: false

 proseCapability:

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

 v2xCapability:

 $ref: '#/components/schemas/V2xCapability'

 BsfInfo:

 description: Information of a BSF NF Instance

 type: object

 properties:

 dnnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 minItems: 1

 ipDomainList:

 type: array

 items:

 type: string

 minItems: 1

 ipv4AddressRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv4AddressRange'

 minItems: 1

 ipv6PrefixRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv6PrefixRange'

 minItems: 1

 rxDiamHost:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

 rxDiamRealm:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 supiRanges:

 type: array

 items:

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

 minItems: 1

 gpsiRanges:

 type: array

 items:

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

 minItems: 1

 ChfInfo:

 description: Information of a CHF NF Instance

 type: object

 not:

 required: [ primaryChfInstance, secondaryChfInstance ]

 properties:

 supiRangeList:

 type: array

 items:

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

 minItems: 1

 gpsiRangeList:

 type: array

 items:

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

 minItems: 1

 plmnRangeList:

 type: array

 items:

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

 minItems: 1

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 primaryChfInstance:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 secondaryChfInstance:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 Ipv4AddressRange:

 description: Range of IPv4 addresses

 type: object

 properties:

 start:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 end:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 Ipv6PrefixRange:

 description: Range of IPv6 prefixes

 type: object

 properties:

 start:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

 end:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

 DefaultNotificationSubscription:

 description: Data structure for specifying the notifications the NF service subscribes by default along with callback URI

 type: object

 required:

 - notificationType

 - callbackUri

 properties:

 notificationType:

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

 callbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 n1MessageClass:

 $ref: 'TS29518\_Namf\_Communication.yaml#/components/schemas/N1MessageClass'

 n2InformationClass:

 $ref: 'TS29518\_Namf\_Communication.yaml#/components/schemas/N2InformationClass'

 versions:

 type: array

 items:

 type: string

 minItems: 1

 binding:

 type: string

 acceptedEncoding:

 type: string

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 NfSetCond:

 description: Subscription to a set of NFs based on their Set Id

 type: object

 required:

 - nfSetId

 properties:

 nfSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 NfServiceSetCond:

 description: Subscription to a set of NFs based on their Service Set Id

 type: object

 required:

 - nfServiceSetId

 properties:

 nfServiceSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfServiceSetId'

 nfSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 UpfCond:

 description: Subscription to a set of NF Instances (UPFs), able to serve a certain service area (i.e. SMF serving area or TAI list)

 type: object

 required:

 - conditionType

 properties:

 conditionType:

 type: string

 enum: [ UPF\_COND ]

 smfServingArea:

 type: array

 items:

 type: string

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 NwdafCond:

 description: Subscription to a set of NF Instances (NWDAFs), identified by Analytics ID(s), S-NSSAI(s) or NWDAF Serving Area information, i.e. list of TAIs for which the NWDAF can provide analytics.

 type: object

 required:

 - conditionType

 properties:

 conditionType:

 type: string

 enum: [ NWDAF\_COND ]

 analyticsIds:

 type: array

 items:

 type: string

 minItems: 1

 snssaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 servingNfTypeList:

 type: array

 items:

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

 minItems: 1

 servingNfSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 minItems: 1

 mlAnalyticsList:

 type: array

 items:

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

 minItems: 1

 NefCond:

 description: Subscription to a set of NF Instances (NEFs), identified by Event ID(s) provided by AF, S-NSSAI(s), AF Instance ID, Application Identifier, External Identifier, External Group Identifier, or domain name.

 type: object

 required:

 - conditionType

 properties:

 conditionType:

 type: string

 enum: [ NEF\_COND ]

 afEvents:

 type: array

 items:

 $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AfEvent'

 minItems: 1

 snssaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 pfdData:

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

 gpsiRanges:

 type: array

 items:

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

 minItems: 1

 externalGroupIdentifiersRanges:

 type: array

 items:

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

 minItems: 1

 servedFqdnList:

 type: array

 items:

 type: string

 minItems: 1

 NotificationType:

 description: Types of notifications used in Default Notification URIs in the NF Profile of an NF Instance

 anyOf:

 - type: string

 enum:

 - N1\_MESSAGES

 - N2\_INFORMATION

 - LOCATION\_NOTIFICATION

 - DATA\_REMOVAL\_NOTIFICATION

 - DATA\_CHANGE\_NOTIFICATION

 - LOCATION\_UPDATE\_NOTIFICATION

 - NSSAA\_REAUTH\_NOTIFICATION

 - NSSAA\_REVOC\_NOTIFICATION

 - MATCH\_INFO\_NOTIFICATION

 - DATA\_RESTORATION\_NOTIFICATION

 - type: string

 TransportProtocol:

 description: Types of transport protocol used in a given IP endpoint of an NF Service Instance

 anyOf:

 - type: string

 enum:

 - TCP

 - type: string

 NotificationEventType:

 description: Types of events sent in notifications from NRF to subscribed NF Instances

 anyOf:

 - type: string

 enum:

 - NF\_REGISTERED

 - NF\_DEREGISTERED

 - NF\_PROFILE\_CHANGED

 - type: string

 NotificationData:

 description: Data sent in notifications from NRF to subscribed NF Instances

 type: object

 required:

 - event

 - nfInstanceUri

 allOf:

 #

 # Condition: If 'event' takes value 'NF\_PROFILE\_CHANGED',

 # then either 'nfProfile' or 'profileChanges' (but not both) must be present

 #

 - anyOf:

 - not:

 properties:

 event:

 type: string

 enum:

 - NF\_PROFILE\_CHANGED

 - oneOf:

 - required: [ nfProfile ]

 - required: [ profileChanges ]

 #

 # Condition: If 'event' takes value 'NF\_REGISTERED',

 # then 'nfProfile' must be present

 #

 - anyOf:

 - not:

 properties:

 event:

 type: string

 enum:

 - NF\_REGISTERED

 - required: [ nfProfile ]

 properties:

 event:

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

 nfInstanceUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 nfProfile:

 allOf:

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

 - not:

 required: [ interPlmnFqdn ]

 - not:

 required: [ allowedPlmns ]

 - not:

 required: [ allowedSnpns ]

 - not:

 required: [ allowedNfTypes ]

 - not:

 required: [ allowedNfDomains ]

 - not:

 required: [ allowedNssais ]

 - properties:

 nfServices:

 type: array

 items:

 allOf:

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

 - not:

 required: [ interPlmnFqdn ]

 - not:

 required: [ allowedPlmns ]

 - not:

 required: [ allowedSnpns ]

 - not:

 required: [ allowedNfTypes ]

 - not:

 required: [ allowedNfDomains ]

 - not:

 required: [ allowedNssais ]

 profileChanges:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ChangeItem'

 minItems: 1

 conditionEvent:

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

 subscriptionContext:

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

 NFStatus:

 description: Status of a given NF Instance stored in NRF

 anyOf:

 - type: string

 enum:

 - REGISTERED

 - SUSPENDED

 - UNDISCOVERABLE

 - type: string

 NFServiceVersion:

 description: Contains the version details of an NF service

 type: object

 required:

 - apiVersionInUri

 - apiFullVersion

 properties:

 apiVersionInUri:

 type: string

 apiFullVersion:

 type: string

 expiry:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 ServiceName:

 description: Service names known to NRF

 anyOf:

 - type: string

 enum:

 - nnrf-nfm

 - nnrf-disc

 - nnrf-oauth2

 - nudm-sdm

 - nudm-uecm

 - nudm-ueau

 - nudm-ee

 - nudm-pp

 - nudm-niddau

 - nudm-mt

 - nudm-ssau

 - namf-comm

 - namf-evts

 - namf-mt

 - namf-loc

 - namf-mbs-comm

 - namf-mbs-bc

 - nsmf-pdusession

 - nsmf-event-exposure

 - nsmf-nidd

 - nausf-auth

 - nausf-sorprotection

 - nausf-upuprotection

 - nnef-pfdmanagement

 - nnef-smcontext

 - nnef-eventexposure

 - nnef-eas-deployment-info

 - 3gpp-cp-parameter-provisioning

 - 3gpp-device-triggering

 - 3gpp-bdt

 - 3gpp-traffic-influence

 - 3gpp-chargeable-party

 - 3gpp-as-session-with-qos

 - 3gpp-msisdn-less-mo-sms

 - 3gpp-service-parameter

 - 3gpp-monitoring-event

 - 3gpp-nidd-configuration-trigger

 - 3gpp-nidd

 - 3gpp-analyticsexposure

 - 3gpp-racs-parameter-provisioning

 - 3gpp-ecr-control

 - 3gpp-applying-bdt-policy

 - 3gpp-mo-lcs-notify

 - 3gpp-time-sync

 - 3gpp-am-influence

 - 3gpp-am-policyauthorization

 - 3gpp-akma

 - 3gpp-eas-deployment

 - 3gpp-iptvconfiguration

 - 3gpp-mbs-tmgi

 - 3gpp-mbs-session

 - 3gpp-authentication

 - npcf-am-policy-control

 - npcf-smpolicycontrol

 - npcf-policyauthorization

 - npcf-bdtpolicycontrol

 - npcf-eventexposure

 - npcf-ue-policy-control

 - npcf-am-policyauthorization

 - nsmsf-sms

 - nnssf-nsselection

 - nnssf-nssaiavailability

 - nudr-dr

 - nudr-group-id-map

 - nlmf-loc

 - n5g-eir-eic

 - nbsf-management

 - nchf-spendinglimitcontrol

 - nchf-convergedcharging

 - nchf-offlineonlycharging

 - nnwdaf-eventssubscription

 - nnwdaf-analyticsinfo

 - nnwdaf-datamanagement

 - nnwdaf-mlmodelprovision

 - ngmlc-loc

 - nucmf-provisioning

 - nucmf-uecapabilitymanagement

 - nhss-sdm

 - nhss-uecm

 - nhss-ueau

 - nhss-ee

 - nhss-ims-sdm

 - nhss-ims-uecm

 - nhss-ims-ueau

 - nhss-gba-sdm

 - nhss-gba-ueau

 - nsepp-telescopic

 - nsoraf-sor

 - nspaf-secured-packet

 - nudsf-dr

 - nudsf-timer

 - nnssaaf-nssaa

 - nnssaaf-aiw

 - naanf-akma

 - n5gddnmf-discovery

 - nmfaf-3dadm

 - nmfaf-3cadm

 - neasdf-dnscontext

 - neasdf-baselinednspattern

 - ndccf-dm

 - ndccf-cm

 - nnsacf-nsac

 - nnsacf-slice-ee

 - nmbsmf-tmgi

 - nmbsmf-mbssession

 - nadrf-dm

 - nbsp-gba

 - ntsctsf-time-sync

 - ntsctsf-qos-tscai

 - type: string

 N2InterfaceAmfInfo:

 description: AMF N2 interface information

 type: object

 properties:

 ipv4EndpointAddress:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6EndpointAddress:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 amfName:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfName'

 NFServiceStatus:

 description: Status of a given NF Service Instance of an NF Instance stored in NRF

 anyOf:

 - type: string

 enum:

 - REGISTERED

 - SUSPENDED

 - UNDISCOVERABLE

 - type: string

 TaiRange:

 description: Range of TAIs (Tracking Area Identities)

 type: object

 required:

 - plmnId

 - tacRangeList

 properties:

 plmnId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 tacRangeList:

 type: array

 items:

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

 minItems: 1

 nid:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Nid'

 TacRange:

 description: Range of TACs (Tracking Area Codes)

 type: object

 properties:

 start:

 type: string

 pattern: '^([A-Fa-f0-9]{4}|[A-Fa-f0-9]{6})$'

 end:

 type: string

 pattern: '^([A-Fa-f0-9]{4}|[A-Fa-f0-9]{6})$'

 pattern:

 type: string

 PlmnRange:

 description: Range of PLMN IDs

 type: object

 properties:

 start:

 type: string

 pattern: '^[0-9]{3}[0-9]{2,3}$'

 end:

 type: string

 pattern: '^[0-9]{3}[0-9]{2,3}$'

 pattern:

 type: string

 NrfInfo:

 description: Information of an NRF NF Instance, used in hierarchical NRF deployments

 type: object

 properties:

 servedUdrInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedUdrInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedUdmInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedUdmInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedAusfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedAusfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedAmfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedAmfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedSmfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedSmfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedUpfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedUpfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedPcfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedPcfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedBsfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedBsfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedChfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedChfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedNefInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedNwdafInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedNwdafInfoList:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 minProperties: 1

 servedPcscfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedGmlcInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedLmfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedNfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

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

 minProperties: 1

 servedHssInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedUdsfInfo:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedUdsfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedScpInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedSeppInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 servedAanfInfoList:

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 served5gDdnmfInfo:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/5GDdnmfInfo'

 minProperties: 1

 servedMfafInfoList:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

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

 minProperties: 1

 servedEasdfInfoList:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 servedDccfInfoList:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

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

 minProperties: 1

 servedMbSmfInfoList:

 description: A map (list of key-value pairs) where nfInstanceId serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 type: object

 additionalProperties:

 anyOf:

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

 - $ref: 'TS29571\_CommonData.yaml#/components/schemas/EmptyObject'

 minProperties: 1

 minProperties: 1

 servedTsctsfInfoList:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 minProperties: 1

 servedMbUpfInfoList:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

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

 minProperties: 1

 minProperties: 1

 servedTrustAfInfo:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

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

 minProperties: 1

 servedNssaafInfo:

 type: object

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 additionalProperties:

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

 minProperties: 1

 PlmnSnssai:

 description: List of network slices (S-NSSAIs) for a given PLMN ID

 type: object

 required:

 - plmnId

 - sNssaiList

 properties:

 plmnId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 sNssaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 nid:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Nid'

 NefInfo:

 description: Information of an NEF NF Instance

 type: object

 properties:

 nefId:

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

 pfdData:

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

 afEeData:

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

 gpsiRanges:

 type: array

 items:

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

 minItems: 1

 externalGroupIdentifiersRanges:

 type: array

 items:

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

 minItems: 1

 servedFqdnList:

 type: array

 items:

 type: string

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 dnaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

 minItems: 1

 unTrustAfInfoList:

 type: array

 items:

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

 minItems: 1

 uasNfFunctionalityInd:

 type: boolean

 default: false

 PfdData:

 description: List of Application IDs and/or AF IDs managed by a given NEF Instance

 type: object

 properties:

 appIds:

 type: array

 items:

 type: string

 minItems: 1

 afIds:

 type: array

 items:

 type: string

 minItems: 1

 NwdafInfo:

 description: Information of a NWDAF NF Instance

 type: object

 properties:

 eventIds:

 type: array

 items:

 $ref: 'TS29520\_Nnwdaf\_AnalyticsInfo.yaml#/components/schemas/EventId'

 minItems: 1

 nwdafEvents:

 type: array

 items:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NwdafEvent'

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 nwdafCapability:

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

 analyticsDelay:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DurationSec'

 servingNfSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 minItems: 1

 servingNfTypeList:

 type: array

 items:

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

 minItems: 1

 mlAnalyticsList:

 type: array

 items:

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

 minItems: 1

 LmfInfo:

 description: Information of an LMF NF Instance

 type: object

 properties:

 servingClientTypes:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/ExternalClientType'

 minItems: 1

 lmfId:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LMFIdentification'

 servingAccessTypes:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AccessType'

 minItems: 1

 servingAnNodeTypes:

 type: array

 items:

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

 minItems: 1

 servingRatTypes:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RatType'

 minItems: 1

 taiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 taiRangeList:

 type: array

 items:

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

 minItems: 1

 supportedGADShapes:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/SupportedGADShapes'

 minItems: 1

 GmlcInfo:

 description: Information of a GMLC NF Instance

 type: object

 properties:

 servingClientTypes:

 type: array

 items:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/ExternalClientType'

 minItems: 1

 gmlcNumbers:

 type: array

 items:

 type: string

 pattern: '^[0-9]{5,15}$'

 minItems: 1

 AfEventExposureData:

 description: AF Event Exposure data managed by a given NEF Instance

 type: object

 required:

 - afEvents

 properties:

 afEvents:

 type: array

 items:

 $ref: 'TS29517\_Naf\_EventExposure.yaml#/components/schemas/AfEvent'

 minItems: 1

 afIds:

 type: array

 items:

 type: string

 minItems: 1

 appIds:

 type: array

 items:

 type: string

 minItems: 1

 PcscfInfo:

 description: Information of a P-CSCF NF Instance

 type: object

 properties:

 accessType:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AccessType'

 minItems: 1

 dnnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 minItems: 1

 gmFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 gmIpv4Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 gmIpv6Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 mwFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 mwIpv4Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 mwIpv6Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 servedIpv4AddressRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv4AddressRange'

 minItems: 1

 servedIpv6PrefixRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv6PrefixRange'

 minItems: 1

 NfInfo:

 description: Information of a generic NF Instance

 type: object

 properties:

 nfType:

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

 HssInfo:

 description: Information of an HSS NF Instance

 type: object

 properties:

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 imsiRanges:

 type: array

 items:

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

 minItems: 1

 imsPrivateIdentityRanges:

 type: array

 items:

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

 minItems: 1

 imsPublicIdentityRanges:

 type: array

 items:

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

 minItems: 1

 msisdnRanges:

 type: array

 items:

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

 minItems: 1

 externalGroupIdentifiersRanges:

 type: array

 items:

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

 minItems: 1

 ImsiRange:

 description: A range of IMSIs (subscriber identities), either based on a numeric range, or based on regular-expression matching

 type: object

 properties:

 start:

 type: string

 pattern: '^[0-9]+$'

 end:

 type: string

 pattern: '^[0-9]+$'

 pattern:

 type: string

 TwifInfo:

 description: Addressing information (IP addresses, FQDN) of the TWIF

 type: object

 properties:

 ipv4EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6EndpointAddresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 endpointFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 VendorId:

 description: Vendor ID of the NF Service instance (Private Enterprise Number assigned by IANA)

 type: string

 pattern: '^[0-9]{6}$'

 VendorSpecificFeature:

 description: Information about a vendor-specific feature

 type: object

 required:

 - featureName

 - featureVersion

 properties:

 featureName:

 type: string

 featureVersion:

 type: string

 AnNodeType:

 description: Access Network Node Type (gNB, ng-eNB...)

 anyOf:

 - type: string

 enum:

 - GNB

 - NG\_ENB

 - type: string

 UdsfInfo:

 description: Information related to UDSF

 type: object

 properties:

 groupId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 supiRanges:

 type: array

 items:

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

 minItems: 1

 storageIdRanges:

 description: A map (list of key-value pairs) where realmId serves as key and each value in the map is an array of IdentityRanges. Each IdentityRange is a range of storageIds.

 type: object

 additionalProperties:

 type: array

 items:

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

 minItems: 1

 minProperties: 1

 ScpInfo:

 description: Information of an SCP Instance

 type: object

 properties:

 scpDomainInfoList:

 description: A map (list of key-value pairs) where the key of the map shall be the string identifying an SCP domain

 type: object

 additionalProperties:

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

 minProperties: 1

 scpPrefix:

 type: string

 scpPorts:

 description: Port numbers for HTTP and HTTPS. The key of the map shall be "http" or "https"

 type: object

 additionalProperties:

 type: integer

 minimum: 0

 maximum: 65535

 minProperties: 1

 addressDomains:

 type: array

 items:

 type: string

 minItems: 1

 ipv4Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6Prefixes:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

 minItems: 1

 ipv4AddrRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv4AddressRange'

 minItems: 1

 ipv6PrefixRanges:

 type: array

 items:

 $ref: '#/components/schemas/Ipv6PrefixRange'

 minItems: 1

 servedNfSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 minItems: 1

 remotePlmnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 ipReachability:

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

 scpCapabilities:

 type: array

 items:

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

 ScpDomainInfo:

 description: SCP Domain specific information

 type: object

 properties:

 scpFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 scpIpEndPoints:

 type: array

 items:

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

 minItems: 1

 scpPrefix:

 type: string

 scpPorts:

 description: Port numbers for HTTP and HTTPS. The key of the map shall be "http" or "https"

 type: object

 additionalProperties:

 type: integer

 minimum: 0

 maximum: 65535

 minProperties: 1

*(... text not shown for clarity ...)*

\* \* \* Next Change \* \* \* \*

## A.3 Nnrf\_NFDiscovery API

*(... text not shown for clarity ...)*

 - name: requester-nf-instance-fqdn

 in: query

 description: FQDN of the requester NF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 - name: target-plmn-list

 in: query

 description: Id of the PLMN of either the target NF, or in SNPN scenario the Credentials Holder in the PLMN

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 - name: requester-plmn-list

 in: query

 description: Id of the PLMN where the NF issuing the Discovery request is located

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 - name: target-nf-instance-id

 in: query

 description: Identity of the NF instance being discovered

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 - name: target-nf-fqdn

 in: query

 description: FQDN of the NF instance being discovered

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 - name: hnrf-uri

 in: query

 description: Uri of the home NRF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 - name: snssais

 in: query

 description: Slice info of the target NF

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 - name: requester-snssais

 in: query

 description: Slice info of the requester NF

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 - name: plmn-specific-snssai-list

 in: query

 description: PLMN specific Slice info of the target NF

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PlmnSnssai'

 minItems: 1

 - name: requester-plmn-specific-snssai-list

 in: query

 description: PLMN-specific slice info of the NF issuing the Discovery request

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PlmnSnssai'

 minItems: 1

 - name: dnn

 in: query

 description: Dnn supported by the BSF, SMF or UPF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 - name: nsi-list

 in: query

 description: NSI IDs that are served by the services being discovered

 schema:

 type: array

 items:

 type: string

 minItems: 1

 style: form

 explode: false

 - name: smf-serving-area

 in: query

 schema:

 type: string

 - name: mbsmf-serving-area

 in: query

 schema:

 type: string

 - name: tai

 in: query

 description: Tracking Area Identity

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 - name: amf-region-id

 in: query

 description: AMF Region Identity

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfRegionId'

 - name: amf-set-id

 in: query

 description: AMF Set Identity

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AmfSetId'

 - name: guami

 in: query

 description: Guami used to search for an appropriate AMF

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 - name: supi

 in: query

 description: SUPI of the user

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Supi'

 - name: ue-ipv4-address

 in: query

 description: IPv4 address of the UE

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 - name: ip-domain

 in: query

 description: IP domain of the UE, which supported by BSF

 schema:

 type: string

 - name: ue-ipv6-prefix

 in: query

 description: IPv6 prefix of the UE

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

 - name: pgw-ind

 in: query

 description: Combined PGW-C and SMF or a standalone SMF

 schema:

 type: boolean

 - name: preferred-pgw-ind

 in: query

 description: Indicates combined PGW-C+SMF or standalone SMF are preferred

 schema:

 type: boolean

 - name: pgw

 in: query

 description: PGW FQDN of a combined PGW-C and SMF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 - name: pgw-ip

 in: query

 description: PGW IP Address of a combined PGW-C and SMF

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/IpAddr'

 - name: gpsi

 in: query

 description: GPSI of the user

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 - name: external-group-identity

 in: query

 description: external group identifier of the user

 schema:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/ExtGroupId'

 - name: internal-group-identity

 in: query

 description: internal group identifier of the user

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/GroupId'

 - name: pfd-data

 in: query

 description: PFD data

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PfdData'

 - name: data-set

 in: query

 description: data set supported by the NF

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/DataSetId'

 - name: routing-indicator

 in: query

 description: routing indicator in SUCI

 schema:

 type: string

 pattern: '^[0-9]{1,4}$'

 - name: group-id-list

 in: query

 description: Group IDs of the NFs being discovered

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfGroupId'

 minItems: 1

 style: form

 explode: false

 - name: dnai-list

 in: query

 description: Data network access identifiers of the NFs being discovered

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnai'

 minItems: 1

 style: form

 explode: false

 - name: pdu-session-types

 in: query

 description: list of PDU Session Type required to be supported by the target NF

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PduSessionType'

 minItems: 1

 style: form

 explode: false

 - name: event-id-list

 in: query

 description: Analytics event(s) requested to be supported by the Nnwdaf\_AnalyticsInfo service

 schema:

 type: array

 items:

 $ref: 'TS29520\_Nnwdaf\_AnalyticsInfo.yaml#/components/schemas/EventId'

 minItems: 1

 style: form

 explode: false

 - name: nwdaf-event-list

 in: query

 description: Analytics event(s) requested to be supported by the Nnwdaf\_EventsSubscription service.

 schema:

 type: array

 items:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NwdafEvent'

 minItems: 1

 style: form

 explode: false

 - name: supported-features

 in: query

 description: Features required to be supported by the target NF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 - name: upf-iwk-eps-ind

 in: query

 description: UPF supporting interworking with EPS or not

 schema:

 type: boolean

 - name: chf-supported-plmn

 in: query

 description: PLMN ID supported by a CHF

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 - name: preferred-locality

 in: query

 description: preferred target NF location

 schema:

 type: string

 - name: access-type

 in: query

 description: AccessType supported by the target NF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AccessType'

 - name: limit

 in: query

 description: Maximum number of NFProfiles to return in the response

 required: false

 schema:

 type: integer

 minimum: 1

 - name: required-features

 in: query

 description: Features required to be supported by the target NF

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 minItems: 1

 style: form

 explode: false

 - name: complex-query

 in: query

 description: the complex query condition expression

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ComplexQuery'

 - name: max-payload-size

 in: query

 description: Maximum payload size of the response expressed in kilo octets

 required: false

 schema:

 type: integer

 maximum: 2000

 default: 124

 - name: max-payload-size-ext

 in: query

 description: Extended query for maximum payload size of the response expressed in kilo octets

 required: false

 schema:

 type: integer

 default: 124

 - name: atsss-capability

 in: query

 description: ATSSS Capability

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AtsssCapability'

 - name: upf-ue-ip-addr-ind

 in: query

 description: UPF supporting allocating UE IP addresses/prefixes

 schema:

 type: boolean

 - name: client-type

 in: query

 description: Requested client type served by the NF

 content:

 application/json:

 schema:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/ExternalClientType'

 - name: lmf-id

 in: query

 description: LMF identification to be discovered

 content:

 application/json:

 schema:

 $ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LMFIdentification'

 - name: an-node-type

 in: query

 description: Requested AN node type served by the NF

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AnNodeType'

 - name: rat-type

 in: query

 description: Requested RAT type served by the NF

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RatType'

 - name: preferred-tai

 in: query

 description: preferred Tracking Area Identity

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 - name: preferred-nf-instances

 in: query

 description: preferred NF Instances

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 minItems: 1

 style: form

 explode: false

 - name: If-None-Match

 in: header

 description: Validator for conditional requests, as described in IETF RFC 7232, 3.2

 schema:

 type: string

 - name: target-snpn

 in: query

 description: Target SNPN Identity, or the Credentials Holder in the SNPN

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 - name: requester-snpn-list

 in: query

 description: SNPN ID(s) of the NF instance issuing the Discovery request

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 - name: af-ee-data

 in: query

 description: NEF exposured by the AF

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AfEventExposureData'

 - name: w-agf-info

 in: query

 description: UPF collocated with W-AGF

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/WAgfInfo'

 - name: tngf-info

 in: query

 description: UPF collocated with TNGF

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/TngfInfo'

 - name: twif-info

 in: query

 description: UPF collocated with TWIF

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/TwifInfo'

 - name: target-nf-set-id

 in: query

 description: Target NF Set ID

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 - name: target-nf-service-set-id

 in: query

 description: Target NF Service Set ID

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfServiceSetId'

 - name: nef-id

 in: query

 description: NEF ID

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NefId'

 - name: notification-type

 in: query

 description: Notification Type

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NotificationType'

 - name: n1-msg-class

 in: query

 description: N1 Message Class

 schema:

 $ref: 'TS29518\_Namf\_Communication.yaml#/components/schemas/N1MessageClass'

 - name: n2-info-class

 in: query

 description: N2 Information Class

 schema:

 $ref: 'TS29518\_Namf\_Communication.yaml#/components/schemas/N2InformationClass'

 - name: serving-scope

 in: query

 description: areas that can be served by the target NF

 schema:

 type: array

 items:

 type: string

 minItems: 1

 style: form

 explode: false

 - name: imsi

 in: query

 description: IMSI of the requester UE to search for an appropriate NF (e.g. HSS)

 schema:

 type: string

 pattern: '^[0-9]{5,15}$'

 - name: ims-private-identity

 in: query

 description: IMPI of the requester UE to search for a target HSS

 schema:

 type: string

 - name: ims-public-identity

 in: query

 description: IMS Public Identity of the requester UE to search for a target HSS

 schema:

 type: string

 - name: msisdn

 in: query

 description: MSISDN of the requester UE to search for a target HSS

 schema:

 type: string

 - name: preferred-api-versions

 in: query

 description: Preferred API version of the services to be discovered

 content:

 application/json:

 schema:

 description: A map (list of key-value pairs) where ServiceName serves as key

 type: object

 additionalProperties:

 type: string

 minProperties: 1

 - name: v2x-support-ind

 in: query

 description: PCF supports V2X

 schema:

 type: boolean

 - name: redundant-gtpu

 in: query

 description: UPF supports redundant gtp-u to be discovered

 schema:

 type: boolean

 - name: redundant-transport

 in: query

 description: UPF supports redundant transport path to be discovered

 schema:

 type: boolean

 - name: ipups

 in: query

 description: UPF which is configured for IPUPS functionality to be discovered

 schema:

 type: boolean

 - name: scp-domain-list

 in: query

 description: SCP domains the target SCP or SEPP belongs to

 schema:

 type: array

 items:

 type: string

 minItems: 1

 style: form

 explode: false

 - name: address-domain

 in: query

 description: Address domain reachable through the SCP

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 - name: ipv4-addr

 in: query

 description: IPv4 address reachable through the SCP

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 - name: ipv6-prefix

 in: query

 description: IPv6 prefix reachable through the SCP

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

 - name: served-nf-set-id

 in: query

 description: NF Set ID served by the SCP

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 - name: remote-plmn-id

 in: query

 description: Id of the PLMN reachable through the SCP or SEPP

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 - name: data-forwarding

 in: query

 description: UPF Instance(s) configured for data forwarding are requested

 schema:

 type: boolean

 - name: preferred-full-plmn

 in: query

 description: NF Instance(s) serving the full PLMN are preferred

 schema:

 type: boolean

 - name: requester-features

 in: query

 description: Features supported by the NF Service Consumer that is invoking the Nnrf\_NFDiscovery service

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 - name: realm-id

 in: query

 description: realm-id to search for an appropriate UDSF

 schema:

 type: string

 - name: storage-id

 in: query

 description: storage-id to search for an appropriate UDSF

 schema:

 type: string

 - name: vsmf-support-ind

 in: query

 description: V-SMF capability supported by the target NF instance(s)

 schema:

 type: boolean

 - name: nrf-disc-uri

 in: query

 description: Uri of the NRF holding the NF profile of a target NF Instance

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 - name: preferred-vendor-specific-features

 in: query

 description: Preferred vendor specific features of the services to be discovered

 content:

 application/json:

 schema:

 description: A map (list of key-value pairs) where ServiceName serves as key

 type: object

 additionalProperties:

 description: A map (list of key-value pairs) where IANA-assigned SMI Network Management Private Enterprise Codes serves as key

 type: object

 additionalProperties:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/VendorSpecificFeature'

 minItems: 1

 minProperties: 1

 minProperties: 1

 - name: preferred-vendor-specific-nf-features

 in: query

 description: Preferred vendor specific features of the network function to be discovered

 content:

 application/json:

 schema:

 description: A map (list of key-value pairs) where IANA-assigned SMI Network Management Private Enterprise Codes serves as key

 type: object

 additionalProperties:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/VendorSpecificFeature'

 minItems: 1

 minProperties: 1

 - name: required-pfcp-features

 in: query

 description: PFCP features required to be supported by the target UPF

 schema:

 type: string

 - name: home-pub-key-id

 in: query

 description: Indicates the Home Network Public Key ID which shall be able to be served by the NF instance

 schema:

 type: integer

 - name: prose-support-ind

 in: query

 description: PCF supports ProSe Capability

 schema:

 type: boolean

 - name: analytics-aggregation-ind

 in: query

 description: analytics aggregation is supported by NWDAF or not

 schema:

 type: boolean

 - name: serving-nf-set-id

 in: query

 description: NF Set Id served by target NF

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 - name: serving-nf-type

 in: query

 description: NF type served by the target NF

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFType'

 - name: ml-analytics-id-list

 in: query

 description: Analytics Id(s) of Nnwdaf\_MLModelProvision service

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/NwdafEvent'

 minItems: 1

 - name: analytics-metadata-prov-ind

 in: query

 description: analytics matadata provisioning is supported by NWDAF or not

 schema:

 type: boolean

 - name: nsacf-capability

 in: query

 description: the service capability supported by the target NSACF

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NsacfCapability'

 - name: mbs-session-id-list

 in: query

 description: List of MBS Session ID(s)

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MbsSessionId'

 minItems: 1

 - name: area-session-id

 in: query

 description: Area Session ID

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AreaSessionId'

 - name: gmlc-number

 in: query

 description: The GMLC Number supported by the GMLC

 schema:

 type: string

 pattern: '^[0-9]{5,15}$'

 - name: upf-n6-ip

 in: query

 description: N6 IP address of PSA UPF supported by the EASDF

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/IpAddr'

 - name: tai-list

 in: query

 description: Tracking Area Identifiers of the NFs being discovered

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Tai'

 minItems: 1

 - name: preferences-precedence

 in: query

 description: Indicating the precedence of the preference query parameters (from higher to lower).

 content:

 application/json:

 schema:

 type: array

 items:

 type: string

 minItems: 2

 - name: support-onboarding-capability

 in: query

 description: Indicating the support for onboarding.

 schema:

 type: boolean

 default: false

 - name: uas-nf-functionality-ind

 in: query

 description: UAS NF functionality is supported by NEF or not

 schema:

 type: boolean

 - name: v2x-capability

 in: query

 description: indicates the V2X capability that the target PCF needs to support.

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/V2xCapability'

 - name: prose-capability

 in: query

 description: indicates the ProSe capability that the target PCF needs to support.

 content:

 application/json:

 schema:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ProSeCapability'

 - name: shared-data-id

 in: query

 description: Identifier of shared data stored in the NF being discovered

 schema:

 $ref: 'TS29503\_Nudm\_SDM.yaml#/components/schemas/SharedDataId'

 - name: target-hni

 in: query

 description: Home Network Identifier query.

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 links:

 search:

 operationId: RetrieveStoredSearch

 parameters:

 searchId: $response.body#/searchId

 description: >

 The 'searchId' parameter returned in the response can be used as the

 'searchId' parameter in the GET request to '/searches/{searchId}'

 completeSearch:

 operationId: RetrieveCompleteSearch

 parameters:

 searchId: $response.body#/searchId

 description: >

 The 'searchId' parameter returned in the response can be used as the

 'searchId' parameter in the GET request to '/searches/{searchId}/complete'

 headers:

 Cache-Control:

 description: Cache-Control containing max-age, described in IETF RFC 7234, 5.2

 schema:

 type: string

 ETag:

 description: Entity Tag containing a strong validator, described in IETF RFC 7232, 2.3

 schema:

 type: string

 Content-Encoding:

 description: Content-Encoding, described in IETF RFC 7231

 schema:

 type: string

 '307':

 description: Temporary Redirect

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RedirectResponse'

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 '308':

 description: Permanent Redirect

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RedirectResponse'

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/406'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '501':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/501'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 /searches/{searchId}:

 get:

 operationId: RetrieveStoredSearch

 tags:

 - Stored Search (Document)

 parameters:

 - $ref: '#/components/parameters/searchId'

 - name: Accept-Encoding

 in: header

 description: Accept-Encoding, described in IETF RFC 7231

 schema:

 type: string

 responses:

 '200':

 $ref: '#/components/responses/200'

 '307':

 description: Temporary Redirect

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RedirectResponse'

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 '308':

 description: Permanent Redirect

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RedirectResponse'

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 /searches/{searchId}/complete:

 get:

 operationId: RetrieveCompleteSearch

 tags:

 - Complete Stored Search (Document)

 parameters:

 - $ref: '#/components/parameters/searchId'

 - name: Accept-Encoding

 in: header

 description: Accept-Encoding, described in IETF RFC 7231

 schema:

 type: string

 responses:

 '200':

 $ref: '#/components/responses/200'

 '307':

 description: Temporary Redirect

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RedirectResponse'

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 '308':

 description: Permanent Redirect

 content:

 application/json:

 schema:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RedirectResponse'

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 /scp-domain-routing-info:

 get:

 operationId: SCPDomainRoutingInfoGet

 tags:

 - SCP Domain Routing Information (Document)

 security:

 - {}

 - oAuth2ClientCredentials:

 - nnrf-disc

 - oAuth2ClientCredentials:

 - nnrf-disc

 - nnrf-disc:scp-domain:read

 parameters:

 - name: local

 in: query

 description: Indication of local SCP Domain Routing Information

 required: false

 schema:

 type: boolean

 default: false

 - name: Accept-Encoding

 in: header

 description: Accept-Encoding, described in IETF RFC 7231

 schema:

 type: string

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 headers:

 Content-Encoding:

 description: Content-Encoding, described in IETF RFC 7231

 schema:

 type: string

 '307':

 description: Temporary Redirect

 headers:

 Location:

 description: 'The URI pointing to the resource located on the redirect target NRF'

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/406'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '501':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/501'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 /scp-domain-routing-info-subs:

 post:

 summary: Create a new subscription

 operationId: ScpDomainRoutingInfoSubscribe

 tags:

 - SCP Domain Routing Information Subscriptions (Collection)

 security:

 - {}

 - oAuth2ClientCredentials:

 - nnrf-disc

 - oAuth2ClientCredentials:

 - nnrf-disc

 - nnrf-disc:scp-domain-subs:write

 parameters:

 - name: Content-Encoding

 in: header

 description: Content-Encoding, described in IETF RFC 7231

 schema:

 type: string

 - name: Accept-Encoding

 in: header

 description: Accept-Encoding, described in IETF RFC 7231

 schema:

 type: string

 requestBody:

 content:

 application/json:

 schema:

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

 required: true

 responses:

 '201':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/nnrf-disc/v1/scp-domain-routing-info-subs/{subscriptionID}'

 required: true

 schema:

 type: string

 Accept-Encoding:

 description: Accept-Encoding, described in IETF RFC 7694

 schema:

 type: string

 Content-Encoding:

 description: Content-Encoding, described in IETF RFC 7231

 schema:

 type: string

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '501':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/501'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 callbacks:

 onScpDomainRoutingInformationChange:

 '{$request.body#/callbackUri}':

 post:

 parameters:

 - name: Content-Encoding

 in: header

 description: Content-Encoding, described in IETF RFC 7231

 schema:

 type: string

 requestBody:

 description: Notification Payload

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: Expected response to a successful callback processing

 headers:

 Accept-Encoding:

 description: Accept-Encoding, described in IETF RFC 7694

 schema:

 type: string

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '501':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/501'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

 /scp-domain-routing-info-subs/{subscriptionID}:

 delete:

 summary: Deletes a subscription

 operationId: ScpDomainRoutingInfoUnsubscribe

 tags:

 - Individual SCP Domain Routing Information Subscription (Document)

 security:

 - {}

 - oAuth2ClientCredentials:

 - nnrf-disc

 - oAuth2ClientCredentials:

 - nnrf-disc

 - nnrf-disc:scp-domain-subs-id:write

 parameters:

 - name: subscriptionID

 in: path

 required: true

 description: Unique ID of the subscription to remove

 schema:

 type: string

 responses:

 '204':

 description: Expected response to a successful subscription removal

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '501':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/501'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '/oauth2/token'

 scopes:

 nnrf-disc: Access to the Nnrf\_NFDiscovery API

 nnrf-disc:scp-domain:read: Access to read the scp-domain-routing-info resource

 nnrf-disc:scp-domain-subs:write: Access to create/delete a scp-domain subscription resource

 parameters:

 searchId:

 name: searchId

 in: path

 description: Id of a stored search

 required: true

 schema:

 type: string

 responses:

 '200':

 description: Expected response to a valid request

 content:

 application/json:

 schema:

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

 headers:

 Cache-Control:

 description: Cache-Control containing max-age, described in IETF RFC 7234, 5.2

 schema:

 type: string

 ETag:

 description: Entity Tag containing a strong validator, described in IETF RFC 7232, 2.3

 schema:

 type: string

 Content-Encoding:

 description: Content-Encoding, described in IETF RFC 7231

 schema:

 type: string

 schemas:

 SearchResult:

 description: Contains the list of NF Profiles returned in a Discovery response

 type: object

 required:

 - nfInstances

 properties:

 validityPeriod:

 type: integer

 nfInstances:

 type: array

 items:

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

 searchId:

 type: string

 numNfInstComplete:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 preferredSearch:

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

 nrfSupportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 nfInstanceList:

 description: List of matching NF instances. The key of the map is the NF instance ID.

 type: object

 additionalProperties:

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

 minProperties: 1

 alteredPriorityInd:

 type: boolean

 StoredSearchResult:

 description: Contains a complete search result (i.e. a number of discovered NF Instances), stored by NRF as a consequence of a prior search result

 type: object

 required:

 - nfInstances

 properties:

 nfInstances:

 type: array

 items:

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

 NFProfile:

 description: Information of an NF Instance discovered by the NRF

 type: object

 required:

 - nfInstanceId

 - nfType

 - nfStatus

 properties:

 nfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 nfInstanceName:

 type: string

 nfType:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFType'

 nfStatus:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFStatus'

 collocatedNfInstances:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/CollocatedNfInstance'

 minimum: 1

 plmnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 1

 sNssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 perPlmnSnssaiList:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PlmnSnssai'

 minItems: 1

 nsiList:

 type: array

 items:

 type: string

 minItems: 1

 fqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 interPlmnFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 ipv4Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 minItems: 1

 ipv6Addresses:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 minItems: 1

 capacity:

 type: integer

 minimum: 0

 maximum: 65535

 load:

 type: integer

 minimum: 0

 maximum: 100

 loadTimeStamp:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 locality:

 type: string

 priority:

 type: integer

 minimum: 0

 maximum: 65535

 udrInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UdrInfo'

 udrInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UdrInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UdrInfo'

 minProperties: 1

 udmInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UdmInfo'

 udmInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UdmInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UdmInfo'

 minProperties: 1

 ausfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AusfInfo'

 ausfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of AusfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AusfInfo'

 minProperties: 1

 amfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AmfInfo'

 amfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of AmfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AmfInfo'

 minProperties: 1

 smfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/SmfInfo'

 smfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of SmfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/SmfInfo'

 minProperties: 1

 upfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UpfInfo'

 upfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UpfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UpfInfo'

 minProperties: 1

 pcfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PcfInfo'

 pcfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of PcfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PcfInfo'

 minProperties: 1

 bsfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/BsfInfo'

 bsfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of BsfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/BsfInfo'

 minProperties: 1

 chfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ChfInfo'

 chfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of ChfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ChfInfo'

 minProperties: 1

 udsfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UdsfInfo'

 udsfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of UdsfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/UdsfInfo'

 minProperties: 1

 nwdafInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NwdafInfo'

 nwdafInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NwdafInfo'

 minProperties: 1

 nefInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NefInfo'

 pcscfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of PcscfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PcscfInfo'

 minProperties: 1

 hssInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of HssInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/HssInfo'

 minProperties: 1

 customInfo:

 type: object

 recoveryTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 nfServicePersistence:

 type: boolean

 default: false

 nfServices:

 deprecated: true

 type: array

 items:

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

 minItems: 1

 nfServiceList:

 description: A map (list of key-value pairs) where serviceInstanceId serves as key of NFService

 type: object

 additionalProperties:

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

 minProperties: 1

 defaultNotificationSubscriptions:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/DefaultNotificationSubscription'

 lmfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/LmfInfo'

 gmlcInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/GmlcInfo'

 snpnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 nfSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 minItems: 1

 servingScope:

 type: array

 items:

 type: string

 minItems: 1

 lcHSupportInd:

 type: boolean

 default: false

 olcHSupportInd:

 type: boolean

 default: false

 nfSetRecoveryTimeList:

 description: A map (list of key-value pairs) where NfSetId serves as key of DateTime

 type: object

 additionalProperties:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 minProperties: 1

 serviceSetRecoveryTimeList:

 description: A map (list of key-value pairs) where NfServiceSetId serves as key of DateTime

 type: object

 additionalProperties:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 minProperties: 1

 scpDomains:

 type: array

 items:

 type: string

 minItems: 1

 scpInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ScpInfo'

 seppInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/SeppInfo'

 vendorId:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/VendorId'

 supportedVendorSpecificFeatures:

 description: the key of the map is the IANA-assigned SMI Network Management Private Enterprise Codes

 type: object

 additionalProperties:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/VendorSpecificFeature'

 minItems: 1

 minProperties: 1

 aanfInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/AanfInfo'

 minProperties: 1

 mfafInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/MfafInfo'

 easdfInfoList:

 type: object

 description: A map(list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/EasdfInfo'

 minProperties: 1

 dccfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/DccfInfo'

 nsacfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of nsacfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NsacfInfo'

 minProperties: 1

 mbSmfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of MbSmfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/MbSmfInfo'

 minProperties: 1

 tsctsfInfoList:

 type: object

 description: A map (list of key-value pairs) where a valid JSON string serves as key

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/TsctsfInfo'

 minProperties: 1

 mbUpfInfoList:

 description: A map (list of key-value pairs) where a (unique) valid JSON string serves as key of MbUpfInfo

 type: object

 additionalProperties:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/MbUpfInfo'

 minProperties: 1

 trustAfInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/TrustAfInfo'

 nssaafInfo:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NssaafInfo'

 hniList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 minItems: 1

 NFService:

 description: Information of a given NF Service Instance; it is part of the NFProfile of an NF Instance discovered by the NRF

 type: object

 required:

 - serviceInstanceId

 - serviceName

 - versions

 - scheme

 - nfServiceStatus

 properties:

 serviceInstanceId:

 type: string

 serviceName:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ServiceName'

 versions:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFServiceVersion'

 minItems: 1

 scheme:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/UriScheme'

 nfServiceStatus:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFServiceStatus'

 fqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 interPlmnFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 ipEndPoints:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/IpEndPoint'

 minItems: 1

 apiPrefix:

 type: string

 defaultNotificationSubscriptions:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/DefaultNotificationSubscription'

 minItems: 1

 capacity:

 type: integer

 minimum: 0

 maximum: 65535

 load:

 type: integer

 minimum: 0

 maximum: 100

 loadTimeStamp:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 priority:

 type: integer

 minimum: 0

 maximum: 65535

 recoveryTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 nfServiceSetIdList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfServiceSetId'

 minItems: 1

 sNssais:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtSnssai'

 minItems: 1

 perPlmnSnssaiList:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/PlmnSnssai'

 minItems: 1

 vendorId:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/VendorId'

 supportedVendorSpecificFeatures:

 description: the key of the map is the IANA-assigned SMI Network Management Private Enterprise Codes

 type: object

 additionalProperties:

 type: array

 items:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/VendorSpecificFeature'

 minItems: 1

 minProperties: 1

 oauth2Required:

 type: boolean

 allowedOperationsPerNfType:

 description: A map (list of key-value pairs) where NF Type serves as key

 type: object

 additionalProperties:

 type: array

 items:

 type: string

 minItems: 1

 minProperties: 1

 allowedOperationsPerNfInstance:

 description: A map (list of key-value pairs) where NF Instance Id serves as key

 type: object

 additionalProperties:

 type: array

 items:

 type: string

 minItems: 1

 minProperties: 1

*(... text not shown for clarity ...)*

\* \* \* Next Change \* \* \* \*

## A.4 Nnrf\_AccessToken API (NRF OAuth2 Authorization)

*(... text not shown for clarity ...)*

 schemas:

 AccessTokenReq:

 description: Contains information related to the access token request

 type: object

 required:

 - grant\_type

 - nfInstanceId

 - scope

 properties:

 grant\_type:

 type: string

 enum:

 - client\_credentials

 nfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 nfType:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFType'

 targetNfType:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/NFType'

 scope:

 type: string

 pattern: '^([a-zA-Z0-9\_:-]+)( [a-zA-Z0-9\_:-]+)\*$'

 targetNfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 requesterPlmn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 requesterPlmnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 minItems: 2

 requesterSnssaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 requesterFqdn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Fqdn'

 requesterSnpnList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnIdNid'

 minItems: 1

 targetPlmn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 targetSnssaiList:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 minItems: 1

 targetNsiList:

 type: array

 items:

 type: string

 minItems: 1

 targetNfSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfSetId'

 targetNfServiceSetId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfServiceSetId'

 hnrfAccessTokenUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 sourceNfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

*(... text not shown for clarity ...)*

\* \* \* End of Changes \* \* \* \*