**3GPP TSG-SA5 Meeting #132-e *S5-204364***

**Online, , 17th Aug 2020 - 28th Aug 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.541** | **CR** | **0353** | **rev** | **-** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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 | **■** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Rel-17 CR Configurable Parameters Configuration - Option 2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung Electronics Benelux BV | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EMA5SLA | | | | |  | ***Date:*** | | | 2020-08-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***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 can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Section L.2 says: Some of the information in 5GC SliceProfile and NG-RAN SliceProfile is translated to configurable parameters of network function for the control plane SLA support purpose. This requires capturing those configurable parameters into 5GC and NG-RAN NRM.  Please see S5-204347 for details. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * New <<dataType>> sNSSAIInfo is introduced replacing existing sNSSAIList. * The new sNSSAIInfo <<dataType>> contains sNSSAI (sST, sD) and several GST related attributes. * New GST related attributes are defined in “Attribute definitions”. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | In-complete GST management solution. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3, 5.4, 6.3.3, 6.3.4, 6.4.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **■** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **■** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **■** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

# 5 Information Model definitions for 5GC NRM

## 5.1 Imported information entities and local labels

|  |  |
| --- | --- |
| Label reference | Local label |
| TS 28.622 [30], IOC, SubNetwork | SubNetwork |
| TS 28.622 [30], IOC, ManagedElement | ManagedElement |
| TS 28.622 [30], IOC, ManagedFunction | ManagedFunction |
| TS 28.622 [30], IOC, EP\_RP | EP\_RP |
| TS 28.708 [21], IOC, ServingGWFunction | ServingGWFunction |
| TS 28.702 [20], IOC, SmsIwmscFunction | SmsIwmscFunction |
| TS 28.702 [20], IOC, SmsGmscFunction | SmsGmscFunction |
| TS 28.702 [20], IOC, GmlcFunction | GmlcFunction |
| TS 28.658 [19], dataType, PLMNId | PLMNId |

## 5.2 Class diagram

### 5.2.1 Class diagram of 5GC NFs

#### 5.2.1.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for NRM of 5GC NFs definitions. This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes.

The Figure 5.2.1.1-1 shows the 5GC NF NRM containment/naming relationship.

Figure 5.2.1.1-1: 5GC NRM containment/naming relationship

The Figure 5.2.1.1-2 shows the transport view of AMF NRM.



Figure 5.2.1.1-2: Transport view of AMF NRM

The Figure 5.2.1.1-3 shows the transport view of SMF NRM.

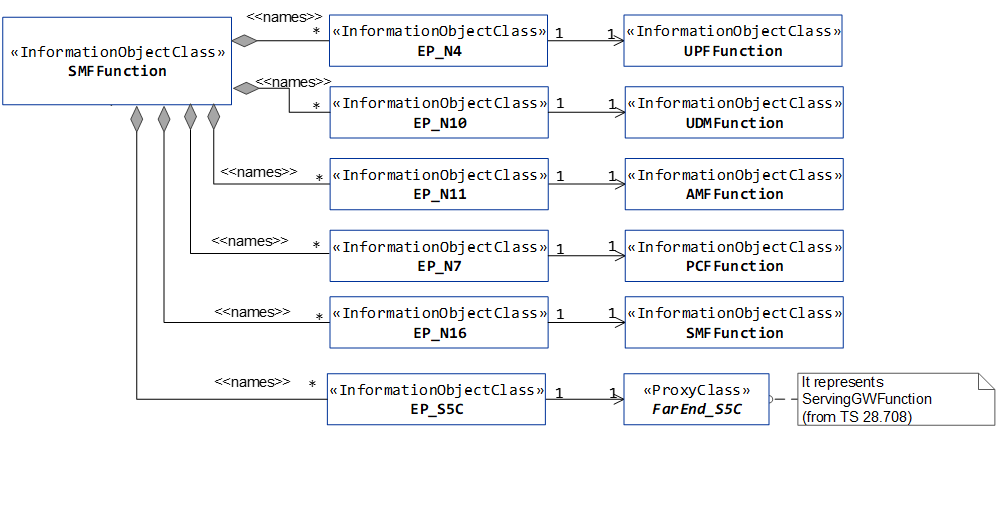


Figure 5.2.1.1-3: Transport view of SMF NRM

The Figure 5.2.1.1-4 shows the transport view of UPF NRM.

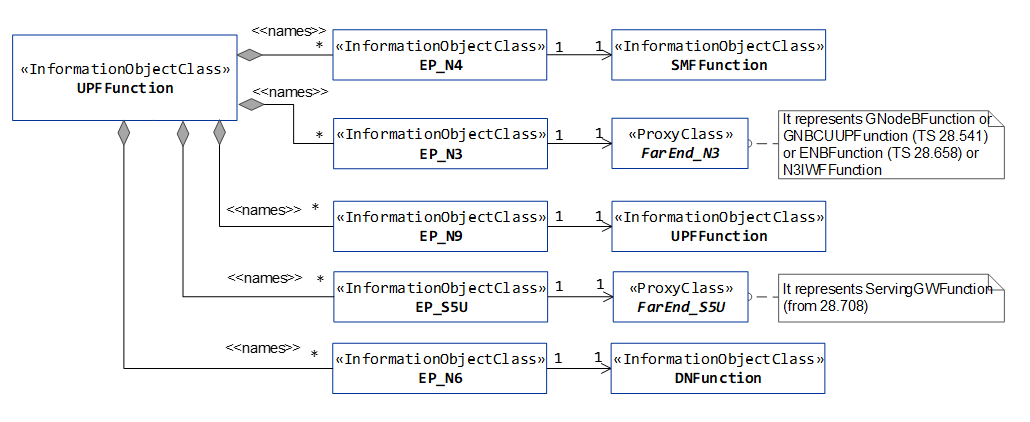


Figure 5.2.1.1-4: Transport view of UPF NRM

The Figure 5.2.1.1-5 shows the transport view of N3IWF NRM.



Figure 5.2.1.1-5: Transport view of N3IWF NRM

The Figure 5.2.1.1-6 shows the transport view of PCF NRM.

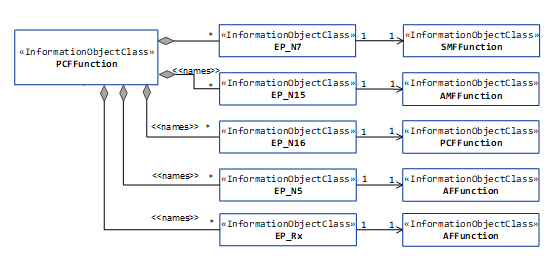


Figure 5.2.1.1-6: Transport view of PCF NRM

The Figure 5.2.1.1-7 shows the transport view of AUSF NRM.

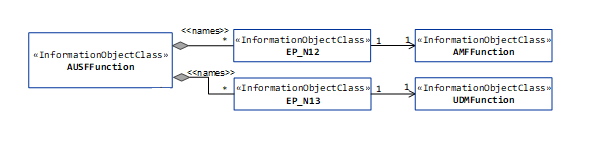


Figure 5.2.1.1-7: Transport view of AUSF NRM

The Figure 5.2.1.1-8 shows the transport view of UDM NRM.

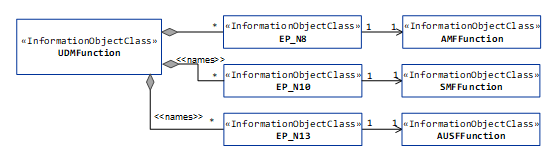


Figure 5.2.1.1-8: Transport view of UDM NRM

The Figure 5.2.1.1-9 shows the transport view of NRF NRM.



Figure 5.2.1.1-9: Transport view of NRF NRM

The Figure 5.2.1.1-10 shows the transport view of NSSF NRM.



Figure 5.2.1.1-10: Transport view of NSSF NRM

The Figure 5.2.1.1-11 shows the transport view of SMSF NRM.



Figure 5.2.1.1-11: Transport view of SMSF NRM

The Figure 5.2.1.1-12 shows the transport view of 5G location service related NRM.



Figure 5.2.1.1-12: Transport view of LMF NRM

The Figure 5.2.1.1-13 shows the transport view of 5G-EIR NRM.



Figure 5.2.1.1-13: Transport view of 5G-EIR NRM

The Figure 5.2.1.1-14 shows the transport view of SEPP NRM.

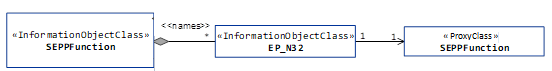


Figure 5.2.1.1-14: Transport view of SEPP NRM

#### 5.2.1.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 5.2.1.2-1 shows the inheritance hierarchy from IOC ManagedFunction related to the 5GC NF NRM.



Figure 5.2.1.2-1: Inheritance hierarchy from IOC ManagedFunction related to the 5GC NF NRM

Figure 5.2.1.2-2 shows the inheritance hierarchy from IOC EP\_RP related to 5GC NF NRM.

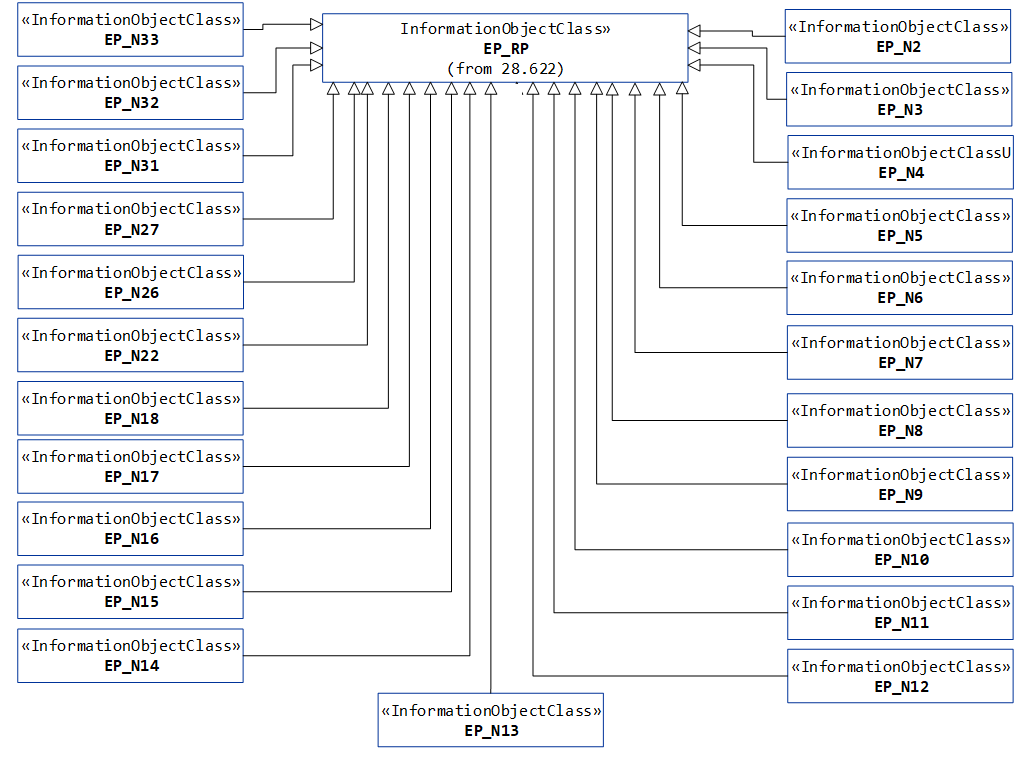


Figure 5.2.1.2-2: Inheritance hierarchy from IOC EP\_RP related to the 5GC NF NRM

### 5.2.2 Class diagram of AMF Region/AMF Set

#### 5.2.2.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for NRM of AMF Region/AMF Set definitions. This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes.

The Figure 5.2.2.1-1 shows the AMF Region/AMF Set NRM containment/naming relationship.



Figure 5.2.2.1-1: AMF Region/AMF Set NRM

#### 5.2.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 5.2.2.2-1 shows the inheritance hierarchy from IOC ManagedFunction related to the AMF Region/AMF Set NRM.



Figure 5.2.2.2-1: AMF Region/AMF Set Inheritance

## 5.3 Class definitions

### 5.3.1 AMFFunction

#### 5.3.1.1 Definition

This IOC represents the AMF functionality in 5GC. For more information about the AMF, see 3GPP TS 23.501 [2].

#### 5.3.1.2 Attributes

The AMFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| aMFIdentifier | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | F | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.1.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.1.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.2 SMFFunction

#### 5.3.2.1 Definition

This IOC represents the SMF function in 5GC. For more information about the SMF, see 3GPP TS 23.501 [2].

#### 5.3.2.2 Attributes

The SMFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| nRTAClist | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.2.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.2.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.3 UPFFunction

#### 5.3.3.1 Definition

This IOC represents the UPF function in 5GC. For more information about the UPF, see 3GPP TS 23.501 [2].

#### 5.3.3.2 Attributes

The UPFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| nRTAClist | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| supportedBMOList | O | T | T | F | T |

#### 5.3.3.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList CM Support Qualifier | The condition is "network slicing feature is supported". |

#### 5.3.3.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.4 N3IWFFunction

#### 5.3.4.1 Definition

This IOC represents the N3IWF function which is used to enable non-3GPP access networks connected to the 5GC. For more information about the N3IWF, see 3GPP TS 23.501 [2].

#### 5.3.4.2 Attributes

The N3IWFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.4.3 Attribute constraints

None.

#### 5.3.4.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.5 PCFFunction

#### 5.3.5.1 Definition

This IOC represents the PCF function in 5GC. For more information about the PCF, see 3GPP TS 23.501 [2].

#### 5.3.5.2 Attributes

The PCFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |
| supportedBMOList | O | T | T | F | T |

#### 5.3.5.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: network slicing feature is supported. |

#### 5.3.5.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.6 AUSFFunction

#### 5.3.6.1 Definition

This IOC represents the AUSF function in 5GC. For more information about the AUSF, see 3GPP TS 23.501 [2].

#### 5.3.6.2 Attributes

The AUSFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.6.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.6.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.7 UDMFunction

#### 5.3.7.1 Definition

This IOC represents the UDM function in 5GC. For more information about the UDM, see 3GPP TS 23.501 [2].

#### 5.3.7.2 Attributes

The UDMFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.5.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: network slicing feature is supported. |

#### 5.3.5.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.8 UDRFunction

#### 5.3.8.1 Definition

This IOC represents the UDR function in 5GC. For more information about the UDR, see 3GPP TS 23.501 [2].

#### 5.3.8.2 Attributes

The UDRFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |

#### 5.3.8.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.8.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.9 UDSFFunction

#### 5.3.9.1 Definition

This IOC represents the UDSF function which can be interacted with any other 5GC NF defined in 3GPP TS 23.501 [2]. For more information about the UDSF, see 3GPP TS 23.501 [2].

#### 5.3.9.2 Attributes

The UDSFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |

#### 5.3.9.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.9.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.10 NRFFunction

#### 5.3.10.1 Definition

This IOC represents the NRF function in 5GC. For more information about the NRF, see 3GPP TS 23.501 [2].

#### 5.3.10.2 Attributes

The NRFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| nFProfileList | CM | T | T | F | T |
| nSIIdList | O | T | T | F | T |

#### 5.3.10.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: network slicing feature is supported. |
| nfProfileList Support Qualifier | Condition: NF profile is registered and deregistered by management system. |
| nSIIdList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.10.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.11 NSSFFunction

#### 5.3.11.1 Definition

This IOC represents the NSSF function in 5GC. For more information about the NSSF, see 3GPP TS 23.501 [2].

#### 5.3.11.2 Attributes

The NSSFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | M | T | T | F | T |
| nSIIdList | O | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.11.3 Attribute constraints

None.

#### 5.3.11.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.12 AFFunction

#### 5.3.12.1 Definition

This IOC is defined for only purpose to describe the IOCs representing its interaction interface with 5GC (i.e. EP\_Rx and EP\_N5). It has no any attributes defined.

### 5.3.13 DNFunction

#### 5.3.13.1 Definition

This IOC is defined for only purpose to describe the IOCs representing Data Network (DN) interaction interface with 5GC (i.e. EP\_N6). It has no any attributes defined.

### 5.3.14 SMSFFunction

#### 5.3.14.1 Definition

This IOC represents the SMSF function defined in 3GPP TS 23.501 [2].

#### 5.3.14.2 Attributes

The SMSFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.14.3 Attribute constraints

None.

#### 5.3.14.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.15 LMFFunction

#### 5.3.15.1 Definition

This IOC represents the LMF function defined in 3GPP TS 23.501 [2].

#### 5.3.15.2 Attributes

The LMFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.15.3 Attribute constraints

None.

#### 5.3.15.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.16 NGEIRFunction

#### 5.3.16.1 Definition

This IOC represents the 5G-EIR function in 5GC. For more information about the 5G-EIR, see 3GPP TS 23.501 [2].

#### 5.3.16.2 Attributes

The NGEIRFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.16.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: network slicing feature is supported. |

#### 5.3.16.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.17 SEPPFunction

#### 5.3.17.1 Definition

This IOC represents the SEPP function which support message filtering and policing on inter-PLMN control plane interface. For more information about the SEPP, see 3GPP TS 23.501 [2].

#### 5.3.17.2 Attributes

The SEPPFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNId | M | T | F | T | T |
| sEPPType | M | T | F | T | T |
| sEPPId | M | T | F | T | T |
| fqdn | M | T | T | F | T |

#### 5.3.17.3 Attribute constraints

None.

#### 5.3.17.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.18 NWDAFFunction

#### 5.3.18.1 Definition

This IOC represents the NWDAF function in 5GC. For more information about the NWDAF, see 3GPP TS 23.501 [2].

#### 5.3.18.2 Attributes

The NWDAFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| commModelList | M | T | T | F | T |

#### 5.3.18.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.18.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.19 EP\_N2

#### 5.3.19.1 Definition

This IOC represents the N2 interface between (R)AN and AMF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.19.2 Attributes

The EP\_N2 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.19.3 Attribute constraints

None.

#### 5.3.19.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.20 EP\_N3

#### 5.3.20.1 Definition

This IOC represents the N3 interface between (R)AN and UPF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.20.2 Attributes

The EP\_N3 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.20.3 Attribute constraints

None.

#### 5.3.20.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.21 EP\_N4

#### 5.3.21.1 Definition

This IOC represents the N4 interface between SMF and UPF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.21.2 Attributes

The EP\_N4 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.21.3 Attribute constraints

None.

#### 5.3.21.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.22 EP\_N5

#### 5.3.22.1 Definition

This IOC represents the N5 interface between PCF and AF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.22.2 Attributes

The EP\_N5 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.22.3 Attribute constraints

None.

#### 5.3.22.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.23 EP\_N6

#### 5.3.23.1 Definition

This IOC represents the N6 interface between UPF and DN, which is defined in 3GPP TS 23.501 [2].

#### 5.3.23.2 Attributes

The EP\_N6 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.23.3 Attribute constraints

None.

#### 5.3.23.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.24 EP\_N7

#### 5.3.24.1 Definition

This IOC represents the N7 interface between SMF and PCF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.24.2 Attributes

The EP\_N7 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.24.3 Attribute constraints

None.

#### 5.3.24.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.25 EP\_N8

#### 5.3.25.1 Definition

This IOC represents the N8 interface between AMF and UDM, which is defined in 3GPP TS 23.501 [2].

#### 5.3.25.2 Attributes

The EP\_N8 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.25.3 Attribute constraints

None.

#### 5.3.25.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.26 EP\_N9

#### 5.3.26.1 Definition

This IOC represents the N7 interface between two UPFs, which is defined in 3GPP TS 23.501 [2].

#### 5.3.26.2 Attributes

The EP\_N9 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.26.3 Attribute constraints

None.

#### 5.3.26.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.27 EP\_N10

#### 5.3.27.1 Definition

This IOC represents the N10 interface between SMF and UDM, which is defined in 3GPP TS 23.501 [2].

#### 5.3.27.2 Attributes

The EP\_N10 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.27.3 Attribute constraints

None.

#### 5.3.27.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.28 EP\_N11

#### 5.3.28.1 Definition

This IOC represents the N11 interface between AMF and SMF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.28.2 Attributes

The EP\_N11 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.28.3 Attribute constraints

None.

#### 5.3.28.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.29 EP\_N12

#### 5.3.29.1 Definition

This IOC represents the N12 interface between AMF and AUSF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.29.2 Attributes

The EP\_N12 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.29.3 Attribute constraints

None.

#### 5.3.29.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.30 EP\_N13

#### 5.3.30.1 Definition

This IOC represents the N13 interface between AUSF and UDM, which is defined in 3GPP TS 23.501 [2].

#### 5.3.30.2 Attributes

The EP\_N13 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.30.3 Attribute constraints

None.

#### 5.3.30.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.31 EP\_N14

#### 5.3.31.1 Definition

This IOC represents the N14 interface between two AMFs, which is defined in 3GPP TS 23.501 [2].

#### 5.3.31.2 Attributes

The EP\_N14 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.31.3 Attribute constraints

None.

#### 5.3.31.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.32 EP\_N15

#### 5.3.32.1 Definition

This IOC represents the N15 interface between AMF and PCF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.32.2 Attributes

The EP\_N15 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.32.3 Attribute constraints

None.

#### 5.3.32.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.33 EP\_N16

#### 5.3.33.1 Definition

This IOC represents the N16 interface between two SMFs, which is defined in 3GPP TS 23.501 [2].

#### 5.3.33.2 Attributes

The EP\_N16 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.33.3 Attribute constraints

None.

#### 5.3.33.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.34 EP\_N17

#### 5.3.34.1 Definition

This IOC represents the N17 interface between AMF and 5G-EIR, which is defined in 3GPP TS 23.501 [2].

#### 5.3.34.2 Attributes

The EP\_N17 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.34.3 Attribute constraints

None.

#### 5.3.34.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.35 EP\_N20

#### 5.3.35.1 Definition

This IOC represents the N20 interface between AMF and SMSF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.35.2 Attributes

The EP\_N20 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.35.3 Attribute constraints

None.

#### 5.3.35.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.36 EP\_N21

#### 5.3.36.1 Definition

This IOC represents the N21 interface between SMSF and UDM, which is defined in 3GPP TS 23.501 [2].

#### 5.3.36.2 Attributes

The EP\_N21 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.36.3 Attribute constraints

None.

#### 5.3.36.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.37 EP\_N22

#### 5.3.37.1 Definition

This IOC represents the N22 interface between AMF and NSSF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.37.2 Attributes

The EP\_N22 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.37.3 Attribute constraints

None.

#### 5.3.37.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.38 EP\_N26

#### 5.3.38.1 Definition

This IOC represents the N26 interface between AMF and MME, which is defined in 3GPP TS 23.501 [2].

#### 5.3.38.2 Attributes

The EP\_N26 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.38.3 Attribute constraints

None.

#### 5.3.38.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.39 Void

### 5.3.40 Void

### 5.3.41 EP\_S5C

#### 5.3.41.1 Definition

This IOC represents the S5-C interface between SGW and SMF/PGW-C, which is defined in 3GPP TS 23.501 [2].

#### 5.3.41.2 Attributes

The EP\_S5C IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.41.3 Attribute constraints

None.

#### 5.3.41.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.42 EP\_S5U

#### 5.3.42.1 Definition

This IOC represents the S5-U interface between SGW and UPF/PGW-U, which is defined in 3GPP TS 23.501 [2].

#### 5.3.42.2 Attributes

The EP\_S5U IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.42.3 Attribute constraints

None.

#### 5.3.42.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.43 EP\_Rx

#### 5.3.43.1 Definition

This IOC represents the Rx interface between PCF and AF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.43.2 Attributes

The EP\_Rx IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.43.3 Attribute constraints

None.

#### 5.3.43.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.44 EP\_MAP\_SMSC

#### 5.3.44.1 Definition

This IOC represents the MAP interface between SMSF and MSC-IWMSC/GMSC, which is defined in 3GPP TS 23.040 [22].

#### 5.3.44.2 Attributes

The EP\_MAP\_SMSC IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.44.3 Attribute constraints

None.

#### 5.3.44.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.45 EP\_NLS

#### 5.3.45.1 Definition

This IOC represents the NLs interface between AMF and LMF, which is defined in 3GPP TS 23.501 [2].

#### 5.3.45.2 Attributes

The EP\_NLS IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.45.3 Attribute constraints

None.

#### 5.3.45.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.46 EP\_NLG

#### 5.3.46.1 Definition

This IOC represents the NLg interface between AMF and GMLC, which is defined in 3GPP TS 23.501 [2].

#### 5.3.46.2 Attributes

The EP\_NLG IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.46.3 Attribute constraints

None.

#### 5.3.46.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.47 EP\_N27

#### 5.3.47.1 Definition

This IOC represents an end point of N27 interface between vNRF and hNRF, which is defined in 3GPP TS 29.510 [10].

#### 5.3.47.2 Attributes

The EP\_N27 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.47.3 Attribute constraints

None.

#### 5.3.47.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.48 EP\_N31

#### 5.3.48.1 Definition

This IOC represents an end point of N31 interface between vNSSF and hNSSF, which is defined in 3GPP TS 29.531 [11].

#### 5.3.48.2 Attributes

The EP\_N31 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| localAddress | O | T | T | F | T |
| remoteAddress | O | T | T | F | T |

#### 5.3.48.3 Attribute constraints

None.

#### 5.3.48.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.49 ExternalNRFFunction

#### 5.3.49.1 Definition

This IOC represents external NRF function controlled by another management domain. For more information about the NRF, see 3GPP TS 23.501 [2].

#### 5.3.49.2 Attributes

The ExternalNRFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| id | M | T | F | F | T |
| pLMNIdList | M | T | T | F | T |

#### 5.3.49.3 Attribute constraints

None.

#### 5.3.49.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.50 ExternalNSSFFunction

#### 5.3.50.1 Definition

This IOC represents external NSSF function controlled by another management domain. For more information about the NSSF, see 3GPP TS 23.501 [2].

#### 5.3.50.2 Attributes

The ExternalNSSFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| id | M | T | F | F | T |
| pLMNIdList | M | T | T | F | T |

#### 5.3.50.3 Attribute constraints

None.

#### 5.3.50.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.51 AMFSet

#### 5.3.51.1 Definition

This IOC represents the AMF Set which consists of some AMFs that serve a given area and Network Slice. For more information about the AMF Set, see 3GPP TS 23.501 [2].

#### 5.3.51.2 Attributes

The AMFSet IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| nRTAClist | M | T | T | F | T |
| aMFSetId | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| **Attribute related to role** |  |  |  |  |  |
| aMFRegion | M | T | T | F | T |
| aMFSetMemberList | M | T | T | F | T |

#### 5.3.51.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.51.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.52 AMFRegion

#### 5.3.52.1 Definition

This IOC represents the AMF Region which consists one or multiple AMF Sets. For more information about the AMF Region, see 3GPP TS 23.501 [2].

#### 5.3.52.2 Attributes

The AMFRegion IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNIdList | M | T | T | F | T |
| nRTAClist | M | T | T | F | T |
| aMFRegionId | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| **Attribute related to role** |  |  |  |  |  |
| aMFSet | M | T | T | F | T |

#### 5.3.52.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.52.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.53 ExternalAMFFunction

#### 5.3.53.1 Definition

This IOC represents an external AMF functionality used in EN-DC. For more information about the AMF, see 3GPP TS 23.501 [2].

#### 5.3.53.2 Attributes

The ExternalAMFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| Id | M | T | F | F | T |
| pLMNIdList | M | T | T | F | T |
| aMFIdentifier | M | T | T | F | T |

#### 5.3.53.3 Attribute constraints

None.

#### 5.3.53.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.54 ManagedNFProfile <<dataType>>

#### 5.3.54.1 Definition

This data type represents a Profile definition of a Managed NF (See TS 23.501 [22]).

#### 5.3.54.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| nfInstanceID | M | T | F | T | F |
| nfType | M | T | F | F | F |
| hostAddr | M | T | T | F | T |
| authzInfo | O | T | T | F | T |
| location | O | T | T | F | T |
| capacity | O | T | T | F | T |
| nFInfo | M | T | T | F | T |

#### 5.3.54.3 Attribute constraints

None.

#### 5.3.54.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.55 HostAddr <<choice>>

#### 5.3.55.1 Definition

This <<choice>> stereotype represents one of a set of data types as shown in Figure 5.3.55.1-1: HostAddr <<choice>> for data types.



Figure 5.3.55.1-1: HostAddr <<choice>> for data types

NOTE: The IpAddress can be IPv4 address (See RFC 791 [24]) or IPv6 address (See RFC 2373 [25]). Refer TS 23.003 [5] for Fqdn.

### 5.3.56 NFInfo <<choice>>

#### 5.3.56.1 Definition

This <<choice>> stereotype represents one of a set of data types as shown in Figure 5.3.56.1-1: NFInfo <<choice>> for data types.



Figure 5.3.56.1-1: NFInfo choice for data types

NOTE: The AmfInfo <<dataType>> is chosed for AFMFunction, the UdrInfo <<dataType>> is chosed for UDRFunction, the UdmInfo <<dataType>> is chosed for UDMFunction, the AusfInfo<<dataType>> is chosed for AUSFFunction, the UpfInfo <<dataType>> is chosed for UPFFunction

### 5.3.57 UdmInfo <<dataType>>

#### 5.3.57.1 Definition

This data type represents a generic NFProfile definition (See TS 23.501 [22]).

#### 5.3.57.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| nFSrvGroupId | M | T | F | F | F |

#### 5.3.57.3 Attribute constraints

None

#### 5.3.57.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.58 AusfInfo <<dataType>>

#### 5.3.58.1 Definition

This data type represents a generic NFProfile definition (See TS 23.501 [22]).

#### 5.3.58.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| nFSrvGroupId | M | T | F | T | F |

#### 5.3.58.3 Attribute constraints

None.

#### 5.3.58.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.59 UpfInfo <<dataType>>

#### 5.3.59.1 Definition

This data type represents a generic NFProfile definition (See TS 23.501 [22]).

#### 5.3.59.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| smfServingAreas | O | T | T | F | T |

#### 5.3.59.3 Attribute constraints

None.

#### 5.3.59.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.60 AmfInfo <<dataType>>

#### 5.3.60.1 Definition

This data type represents AMF specific data in NFProfile definition (See TS 23.501 [22]).

#### 5.3.60.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| priority | O | T | T | F | T |

#### 5.3.60.3 Attribute constraints

None.

#### 5.3.60.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.61 Udrinfo <<dataType>>

#### 5.3.61.1 Definition

This data type represents UDR specific data in NFProfile definition (See TS 23.501 [22]).

#### 5.3.61.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| supportedDataSetIds | O | T | T | F | T |
| nFSrvGroupId | O | T | T | F | T |

#### 5.3.61.3 Attribute constraints

None.

#### 5.3.61.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.62 EP\_N32

#### 5.3.62.1 Definition

This IOC represents an end point of N32 interface between cSEPP and pSEPP, which is defined in 3GPP TS 23.501 [2] and 33.501 [52].

#### 5.3.62.2 Attributes

The EP\_N32 IOC includes attributes inherited from EP\_RP IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| remotePlmnId | M | T | T | F | T |
| remoteSeppAddress | M | T | T | F | T |
| remoteSeppId | O | T | T | F | T |
| n32cParas | O | T | T | F | T |
| n32fPolicy | O | T | T | F | T |
| withIPX | M | T | T | F | T |

#### 5.3.62.3 Attribute constraints

None.

#### 5.3.62.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.63 ExternalSEPPFunction

#### 5.3.63.1 Definition

This IOC represents the properties, known by the management function, of a SEPP managed by another management function. For more information about SEPPFunction, see subclause 5.3.17.

#### 5.3.63.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| pLMNId | M | T | F | F | T |
| sEPPId | M | T | F | T | T |
| fqdn | M | T | F | F | T |

#### 5.3.63.3 Attribute constraints

None.

#### 5.3.63.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.64 SEPPFunction <<ProxyClass>>

#### 5.3.64.1 Definition

This IOC represents an <<IOC>>SEPPFunction and <<IOC>>ExternalSEPPFunction.

#### 5.3.64.2 Attributes

See that defined in <<IOC>>SEPPFunction and <<IOC>>ExternalSEPPFunction.

#### 5.3.64.3 Attribute constraints

See respective IOCs.

#### 5.3.64.4 Notifications

See respective IOCs.

### 5.3.65 NEFFunction

#### 5.3.65.1 Definition

This IOC represents the NEF function in 5GC. For more information about the NEF, see 3GPP TS 23.501 [2].

#### 5.3.65.2 Attributes

The NEFFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| sBIFQDN | M | T | T | F | T |
| sNSSAIInfoList | CM | T | T | F | T |
| managedNFProfile | M | T | T | F | T |
| capabilityList | M | T | T | F | T |
| isINEF | O | T | F | T | F |
| isCAPIFSup | M | T | F | T | F |

#### 5.3.65.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| sNSSAIInfoList Support Qualifier | Condition: Network slicing feature is supported. |

#### 5.3.65.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.66 SCPFunction

#### 5.3.67.1 Definition

This IOC represents a Service Communication Proxy, which is defined in 3GPP TS 23.501 [2].

#### 5.3.67.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| supportedFuncList | M | T | T | F | T |
| address | M | T | T | F | T |

#### 5.3.67.3 Attribute constraints

None.

#### 5.3.67.4 Notifications

The common notifications defined in subclause 5.5 are valid for this IOC, without exceptions or additions.

### 5.3.68 SupportedFunction <<dataType>>

#### 5.3.68.1 Definition

This dataType represents a functionality supported by a SCP, which is defined in 3GPP TS 23.501 [2].

#### 5.3.68.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| function | M | T | T | F | T |
| policy | O | T | T | F | T |

#### 5.3.68.3 Attribute constraints

None.

#### 5.3.68.4 Notifications

The subclause 5.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.69 CommModel <<dataType>>

#### 5.3.69.1 Definition

This data type represents a communication model definition (See TS 23.501 [22]).

#### 5.3.69.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| groupId | M | T | T | F | T |
| commModelType | M | T | T | F | T |
| targetNFServiceList | M | T | T | F | T |
| commModelConfiguration | M | T | T | F | T |

#### 5.3.69.3 Attribute constraints

None

#### 5.3.69.4 Notifications

The subclause 5.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 5.3.xx sNSSAIInfo<<dataType>>

#### 5.3.xx.1 Definition

This data type represents a supported SNSSAI.

#### 5.3.xx.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| sNSSAI | O | T | T | F | T |
| maxDlThptPerSlice | O | T | T | F | T |
| maxUlThptPerSlice | O | T | T | F | T |
| maxDlThptPerUe | O | T | T | F | T |
| maxULThptPerUe | O | T | T | F | T |
| maxNumofSubPerSlice | O | T | T | F | T |
| maxNumofPDUSessionPerSlice | O | T | T | F | T |
| maxMTUSize | O | T | T | F | T |
|  |  |  |  |  |  |

#### 5.3.xx.3 Attribute constraints

None

#### 5.3.xx.4 Notifications

The subclause 5.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

## 5.4 Attribute definitions

### 5.4.1 Attribute properties

The following table defines the attributes that are present in several Information Object Classes (IOCs) of the present document.

| Attribute Name | | | Documentation and Allowed Values | | Properties | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| aMFIdentifier | | | The AMFI is constructed from an AMF Region ID, an AMF Set ID and an AMF Pointer. The AMF Region ID identifies the region, the AMF Set ID uniquely identifies the AMF Set within the AMF Region, and the AMF Pointer uniquely identifies the AMF within the AMF Set. (Ref. 3GPP TS 23.003 [13]) | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| aMFSetId | | | It represents the AMF Set ID, which is uniquely identifies the AMF Set within the AMF Region.  allowedValues: defined in subclause 2.10.1 of 3GPP TS 23.003 [13]. | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| aMFSetMemberList | | | It is the list of DNs of AMFFunction instances of the AMFSet.  allowedValues: N/A | | type: DN  multiplicity: 1  isOrdered: N/A  isUnique: True  defaultValue: None  isNullable: False | | | | |
| aMFRegionId | | | It represents the AMF Region ID, which identifies the region.  allowedValues: defined in subclause 2.10.1 of 3GPP TS 23.003 [13]. | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| localAddress | | | This parameter specifies the localAddress including IP address and VLAN ID used for initialization of the underlying transport.  First string is IP address, IP address can be an IPv4 address (See RFC 791 [37]) or an IPv6 address (See RFC 2373 [38]).  Second string is VLAN Id (See IEEE 802.1Q [39]). | | | | | | type: String  multiplicity: 2  isOrdered: True  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| remoteAddress | | | Remote address including IP address used for initialization of the underlying transport.  IP address can be an IPv4 address (See RFC 791 [37]) or an IPv6 address (See RFC 2373 [38]). | | | | | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| nfProfileList | | | It is a set of NFProfile(s) to be registered in the NRF instance. NFProfile is defined in 3GPP TS 29.510 [23]. | | type: <<dataType>>  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| nSIIdList | | | It is a set of NSI Id. The NSI ID is defined in subclause 6.1.6.2.8 of 3GPP TS 29.531 [24]. | | type: String  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| sNSSAIList | | | See subclause 4.4.1. | |  | | | | |
| sNSSAIInfoList | | | It is a set of supported SNSSAI. It includes the set of GST driven attributes to be enforced at run time by the respective managed functions. | | type: sNSSAIInfo  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| sNSSAIInfo.sNSSAI | | | It defines the supported SNSSAI. | | Type: S-NSSAI  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| maxNumberofUE | | | This attribute specifies the maximum number of UE supported by the slice, refer NG.116 [50]. This attribute relates to AMF configurations. | | | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| maxNumofPDUSessionPerSlice | | | This attribute specifies the maximum number of PDU sessions supported by the slice. refer NG.116 [50]. This attribute relates to SMF configurations. | | | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| minDlThptPerSlice | | | This attribute describes the guaranteed data rate supported by the network slice in downlink, refer NG.116[50]. This attribute relates to UPF and gNB configurations. | | | | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| minUlThptPerSlice | | | This attribute describes the guaranteed data rate supported by the network slice in uplink, refer NG.116[50]. This attribute relates to UPF and gNB configurations. | | | | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| maxDlThptPerSlice | | | This attribute describes the maximum data rate supported by the network slice in downlink, refer NG.116[50]. This attribute relates to UPF configurations. | | | | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| maxUlThptPerSlice | | | This attribute describes the maximum data rate supported by the network slice in uplink, refer NG.116[50]. This attribute relates to UPF configurations. | | | | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| sliceSimultaneousUse | | | This attribute describes whether a network slice can be simultaneously used with other network slices and if so, with which other network slices. This attribute relates to NSSF configurations.  allowedValues:  0: Can be used with any network slice  1: Can be used with network slices with same SST value  2: Can be used with any network slice with same SD value  3: Cannot be used with another network slice | | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| maxDlThptPerUe | | | This attribute describes the maximum data rate supported by the network slice per UE in downlink, refer NG. 116[50]. This attribute relates to UDM and gNB configurations. | | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| maxULThptPerUe | | | This attribute describes the maximum data rate supported by the network slice per UE in uplink, refer NG. 116[50]. This attribute relates to UDM and gNB configurations. | | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| maxMTUSize | | | This attribute describes the maximum packet size supported by the network slice, refer NG.116[50]. This attribute relates to UPF configurations. | | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True | | |
| sBIFQDN | | | It is used to indicate the FQDN of the registered NF instance in service-based interface, for example, NF instance FQDN structure is:  nftype<nfnum>.slicetype<sliceid>.mnc<MNC>.mcc<MCC>.3gppnetwork.org | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| sBIServiceList | | | It is used to indicate the all supported NF services registered on service-based interface. | | type: String  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| nRTACList | | | It is the list of Tracking Area Codes (either legacy TAC or extended TAC).  allowedValues:  Legacy TAC and Extended TAC are defined in clause 9.3.3.10 of TS 38.413 [5]. | | type: Integer  multiplicity: 1..\*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| supportedBMOList | | | It is used to indicate the list of supported BMOs (Bridge Managed Objects) required for integration with TSN system. | | type: String  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | | |
| managedNFProfile | | | This parameter defines profile for managed NF (See TS 23.501 [22]).  allowedValues: N/A | | | type: ManagedNFProfile  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| nfInstanceID | | | This parameter defines unique identity of the NF Instance. The format of the NF Instance ID shall be a Universally Unique Identifier (UUID) version 4, as described in IETF RFC 4122 [44]  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| nfType | | | This parameter defines type of Network Function  allowedValues: See TS 23.501[22] for NF types | | | type: ENUM  multiplicity: 1..\*  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| fqdn | | | This parameter defines FQDN of the Network Function (See TS 23.003 [5])  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| ipAddress | | | This parameter defines IP Address of the Network Function. It can be IPv4 address (See RFC 791 [24]) or IPv6 address (See RFC 2373 [25]).  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| authzInfo | | | This parameter defines NF Specific Service authorization information. It shall include the NF type (s) and NF realms/origins allowed to consume NF Service(s) of NF Service Producer (See TS 23.501[22]).  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: True | | | |
| locality | | | The parameter defines information about the location of the NF instance (e.g. geographic location, data center) defined by operator (See TS 29.510[23]).  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: True | | | |
| capacity | | | This parameter defines static capacity information in the range of 0-65535, expressed as a weight relative to other NF instances of the same type; if capacity is also present in the nfServiceList parameters, those will have precedence over this value (See TS 29.510[23])  allowedValues: 0-65535 | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| nFInfo | | | This parameter includes NF specific data in Managed NF profile  allowedValues: N/A | | | type: NFInfo  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| hostAddr | | | This parameter defines host address of a NF  allowedValues: N/A | | | type: HostAddr  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| priority | | | This parameter defines Priority (relative to other NFs of the same type) in the range of 0-65535, to be used for NF selection; lower values indicate a higher priority. If priority is also present in the nfServiceList parameters, those will have precedence over this value (See TS 29.510[23]).  allowedValues: 0-65535 | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| supportedDataSetIds | | | This parameter defines list of supported data sets in the UDR instance (See TS 29.510[23]).  allowedValues: "SUBSCRIPTION", "POLICY", EXPOSURE", "APPLICATION" | | | type: ENUM  multiplicity: 1..\*  isOrdered: N/A  isUnique: False  defaultValue: None  isNullable: False | | | |
| nFSrvGroupId | | | This parameter defines identity of the group that is served by the NF instance (See TS 29.510[23]).  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| smfServingAreas | | | This parameter defines the SMF service area(s) the UPF can serve (See TS 29.510[23]).  allowedValues: N/A | | | type: String  multiplicity: 1..\*  isOrdered: F  isUnique: True  defaultValue: None  isNullable: False | | | |
| isRemoveAllowed | | | This indicates if the subject NRCellRelation can be removed (deleted) or not.  If TRUE, the subject NRCellRelation instance can be removed (deleted).  If FALSE, the subject NRCellRelation instance shall not be removed (deleted) by any entity but an MnS consumer.  allowedValues: TRUE,FALSE | | | type: Boolean  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| isHOAllowed | | | This indicates if HO is allowed or prohibited.  If TRUE, handover is allowed from source cell to target cell. The source cell is identified by the name-containing NRCellCU of the NRCellRelation that contains the isHOAllowed. The target cell is referenced by the NRCellRelation that contains this isHOAllowed.  If FALSE, handover shall not be allowed.  allowedValues: TRUE,FALSE | | | type: Boolean  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| x2BlackList | | | This is a list of DNs of NRCellCU and ExternalNRCellCU. If the target node DN is a member of the source node’s NRCellCU.x2BlackList, the source node is:  1) Prohibited from sending X2 connection request to target node;  2) Forced to tear down established X2 connection to target node  3) Not allowed to accept incoming X2 connection request from target node.  The same DN may appear here and in NRCellCU.x2WhiteList. In such case, the DN in x2WhiteList shall be treated as if it is absent. | | | type: DN  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False | | | |
| xnBlackList | | | This is a list of DNs of NRCellCU and ExternalNRCellCU. If the target node DN is a member of the source node’s NRCellCU.xnBlackList, the source node is:  1) Prohibited from sending Xn connection request to target node;  2) Forced to tear down established Xn connection to target node  3) Not allowed to accept incoming Xn connection request from target node.  The same DN may appear here and in NRCellCU.xnWhiteList. In such case, the DN in xnWhiteList shall be treated as if it is absent. | | | type: DN  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False | | | |
| x2WhiteList | | | This is a list of DNs of NRCellCU and ExternalNRCellCU. If the target node DN is a member of the source node’s NRCellCU.x2WhiteList, the source node:  - is allowed to request the establishment of X2 connection with the target node;  - is not allowed to initiate the tear down of established X2 connection to target node  The same DN may appear here and in NRCellCU.x2BlackList. In such case, the DN here shall be treated as if it is absent. | | | type: String  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False | | | |
| xnWhiteList | | | This is a list of DNs of NRCellCU and ExternalNRCellCU. If the target node DN is a member of the source node’s NRCellCU.xnWhiteList, the source node:  - is allowed to request the establishment of Xn connection with the target node;  - is not allowed to initiate the tear down of established Xn connection to target node  The same DN may appear here and in NRCellCU.xnBlackList. In such case, the DN here shall be treated as if it is absent. | | | type: String  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False | | | |
| x2XnHOBlackList | | | This is a list of DNs of any number and combination of cells represented by the following IoCs:  NRCellCU  ExternalNRCellCU.  ExternalEUtranCellTDD  ExternalEUtranCellFDD  EUtranCellTDD  EUtranCellFDD  For all the entries in NRCellCU.x2XnHOBlackList, the subject NRCellCU is prohibited to use the X2 or Xn interface for HOs even if an X2 or Xn interface exists to the target cell. | | | type: DN  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False | | | |
| groupId | | | This parameter identiies a list of target NF services on which the same communication model is applied to.  allowedValues: N/A | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: False  defaultValue: None  isNullable: False | | | |
| commModelType | | | This parameter defines communication model used by a NF to interact with NF service(s) (See TS 23.501 [2]).  allowedValues:”DIRECT\_COMMUNICATION\_WO\_NRF”, “DIRECT\_COMMUNICATION\_WITH\_NRF”, “INDIRECT\_COMMUNICATION\_WO\_DEDICATED\_DISCOVERY”, “INDIRECT\_COMMUNICATION\_WITH\_DEDICATED\_DISCOVERY” | | | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| targetNFServiceList | | | This parameter lists target NF services sharing same communication model and configuration.  allowedValues: N/A | | | type: DN  multiplicity: 1..\*  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| commModelConfiguration | | | This parameter defines configuration parameters for specific communication model for a group of NF Services.  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| supportedFuncList | | | This parameter lists functionalities supported by a SCP. Refer to TS 23.501 [2]. | | | type: SupportedFunction  multiplicity: 1..\*  isOrdered: N/A  isUnique: False  defaultValue: None  isNullable: False | | | |
| address | | | This parameter defines address of a SCP instance, it can be IP address (either IPv4 address (See RFC 791 [24]) or IPv6 address (See RFC 2373 [25])) or FQDN (See TS 23.003 [5]). | | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| function | | | This parameter defines name of a functionality supported by a SCP. | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| policy | | | This parameter defines configuration policies of a functionality supported by a SCP. | | | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| capabilityList | | | This parameter lists capabilities supported by a NEF. Refer to TS 23.501 [2].  allowedValues: N/A | | | type: String  multiplicity: 1..\*  isOrdered: N/A  isUnique: False  defaultValue: None  isNullable: False | | | |
| isINEF | | | This parameter defines if the NEF is an Intermediate NEF.  allowedValues: TRUE, FALSE | | | type: Boolean  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| isCAPIFSup | | | This parameter defines if the NEF support Common API Framework.  allowedValues: TRUE, FALSE | | | type: Boolean  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| sEPPType | | | This parameter defines the type of a SEPP entity. Refer to TS 33.501 [52].  allowedValues: “CSEPP”, “PSEPP” | | | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: False  defaultValue: None  isNullable: False | | | |
| sEPPId | | | This parameter is identifier of a SEPP, it is unique inside a PLMN.  allowedValues: N/A | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| remotePlmnId | | | This parameter defines PLMNId of the remote SEPP.  allowedValues: N/A | | | Type: PLMNId  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| remoteSeppAddress | | | This parameter defines address of the remote SEPP. It can be IP address (either IPv4 address (See RFC 791 [24]) or IPv6 address (See RFC 2373 [25])) or FQDN(See TS 23.003 [5]).  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| remoteSeppId | | | This parameter defines identifier of the remote SEPP. it is unique inside a PLMN.  allowedValues: N/A | | | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |
| n32cParas | | | This attribute is used to configure parameters to establish security link between two SEPPs.  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| n32fPolicy | | | This attribute is used to configure policies to protect the messages exchanged between SEPPs.  allowedValues: N/A | | | type: String  multiplicity: 1  isOrdered: F  isUnique: N/A  defaultValue: None  isNullable: False | | | |
| withIPX | | | This attribute defines if there’s an IPX interconnected between two SEPPs.  allowedValues: TRUE, FALSE | | | type: Boolean  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False | | | |

## 5.5 Common notifications

This subclause presents a list of notifications, defined in [35], that provisioning management service consumer can receive. The notification parameter objectClass/objectInstance, defined in [26], would capture the DN of an instance of an IOC defined in the present document.

| Name | Qualifier | Notes |
| --- | --- | --- |
| notifyMOIAttributeValueChanges | O |  |
| notifyMOICreation | O |  |
| notifyMOIDeletion | O |  |

# 6 Information model definitions for network slice NRM

## 6.1 Imported information entities and local labels

|  |  |
| --- | --- |
| Label reference | Local label |
| TS 28.622 [30], IOC, Top | Top |
| TS 28.622 [30], IOC, SubNetwork | SubNetwork |
| TS 28.622 [30], IOC, ManagedFunction | ManagedFunction |
| TS 28.658 [19], dataType, PLMNId | PLMNId |

## 6.2 Class diagram

### 6.2.1 Relationships

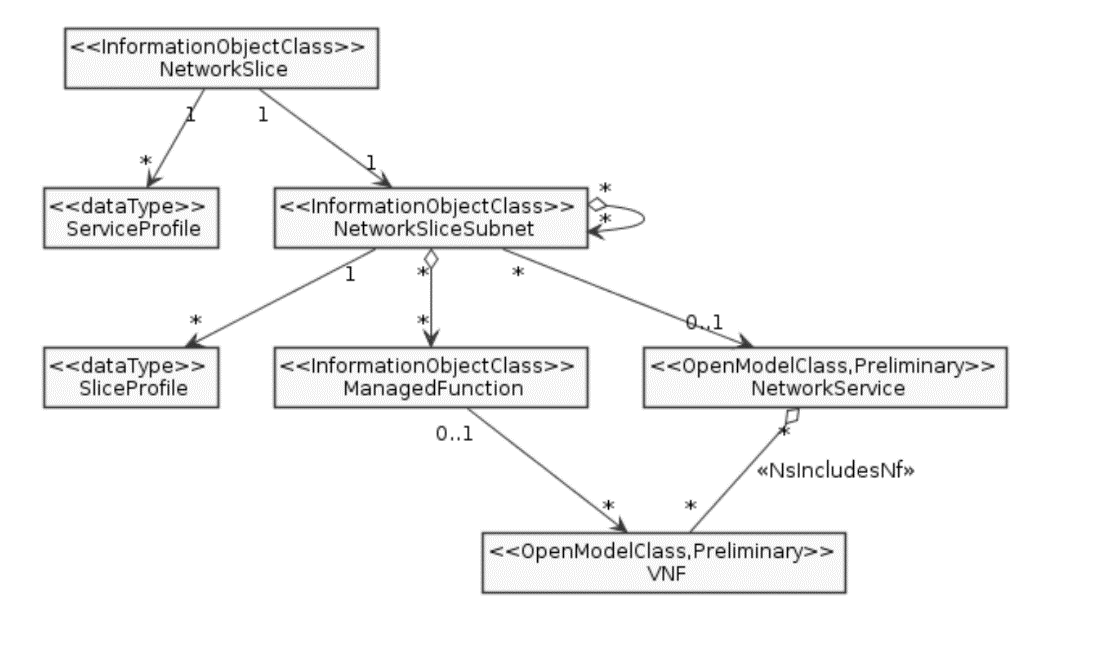


Figure 6.2.1-1: Network slice NRM fragment relationship

NOTE 1: The <<OpenModelClass>> NetworkService and <<OpenModelClass>> VNF are defined in [40].

NOTE 2: The target Network Service (NS) instance represents a group of VNFs and PNFs that are supporting the source network slice subnet instance.

NOTE 3: The instance tree of this NRM fragment would not contain the instances of NetworkService and VNF. However, the NetworkSliceSubNet instances would have an attribute holding the identifiers of NetworkService instances and the ManagedFunction instance would have an attribute holding identifiers of VNF instances.

### 6.2.2 Inheritance



Figure 6.2.2-1: Network slice inheritance relationship

## 6.3 Class definitions

### 6.3.1 NetworkSlice

#### 6.3.1.1 Definition

This IOC represents the properties of a network slice instance in a 5G network. For more information about the network slice instance, see 3GPP TS 28.531 [26].

#### 6.3.1.2 Attributes

The NetworkSlice IOC includes attributes inherited from SubNetwork IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable | |
| operationalState | M | T | F | F | T | |
| administrativeState | M | T | T | F | T |
| serviceProfileList | M | T | T | F | T | |
| **Attribute related to role** |  |  |  |  |  | |
| networkSliceSubnetRef | M | T | F | F | T | |

#### 6.3.1.3 Attribute constraints

None.

#### 6.3.1.4 Notifications

The common notifications defined in subclause 6.5 are valid for this IOC, without exceptions or additions.

### 6.3.2 NetworkSliceSubnet

#### 6.3.2.1 Definition

This IOC represents the properties of a network slice subnet instance in a 5G network. For more information about the network slice subnet instance, see 3GPP TS 28.531 [26].

#### 6.3.2.2 Attributes

The NetworkSliceSubnet IOC includes attributes inherited from SubNetwork IOC (defined in TS 28.622[30]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| operationalState | M | T | F | F | T |
| administrativeState | M | T | T | F | T |
| nsInfo | CM | T | F | F | T |
| sliceProfileList | M | T | T | F | T |
| **Attribute related to role** |  |  |  |  |  |
| managedFunctionRef | M | T | F | F | T |
| networkSliceSubnetRef | M | T | F | F | T |

#### 6.3.2.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| nsInfo Support Qualifier | Condition: It shall be supported if the NSS instance is realized in the virtualized environment. Otherwise this attribute shall be absent. |

#### 6.3.2.4 Notifications

The common notifications defined in subclause 6.5 are valid for this IOC, without exceptions or additions.

### 6.3.3 ServiceProfile <<dataType>>

#### 6.3.3.1 Definition

This data type represents the properties of network slice related requirement that should be supported by the network slice instance in 5G network. The network slice can be tailored based on the specific requirements adhered to SLA agreed between Network Slice Customer (NSC) and Network Slice Provider (NSP), see clause 2 of [50]. A network slicing provider may add additional requirements not directly derived from SLA’s, associated to the provider internal [business] goals. The GST defined by GSMA (see [50]) and the service performance requirements defined in 3GPP TS 22.261 [28] and TS 22.104 [51] are all considered as input for the network slice related requirements.

#### 6.3.3.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| serviceProfileId | M | T | F | T | T |
| sNSSAIList | M | T | T | F | T |
| pLMNIdList | M | T | T | F | T |
| maxNumberofUEs | O | T | T | F | T |
| coverageArea | O | T | T | F | T |
| latency | O | T | T | F | T |
| uEMobilityLevel | O | T | T | F | T |
| resourceSharingLevel | O | T | T | F | T |
| sST | M | T | T | F | T |
| availability | O | T | T | F | T |
| delayTolerance | O | T | T | F | T |
| deterministicComm | O | T | T | F | T |
| dLThptPerSlice | O | T | T | F | T |
| dLThptPerUE | O | T | T | F | T |
| uLThptPerSlic | O | T | T | F | T |
| uLThptPerUE | O | T | T | F | T |
| maxPktSize | O | T | T | F | T |
| maxNumberofConns | O | T | T | F | T |
| kPIMonitoring | O | T | T | F | T |
| supportedAccessTech | O | T | T | F | T |
| userMgmtOpen | O | T | T | F | T |
| v2XCommModels | O | T | T | F | T |
| termDensity | O | T | T | F | T |
| activityFactor | O | T | T | F | T |
| uESpeed | O | T | T | F | T |
| jitter | O | T | T | F | T |
| survivalTime | O | T | T | F | T |
| reliability | O | T | T | F | T |

#### 6.3.3.3 Attribute constraints

None.

#### 6.3.3.4 Notifications

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

### 6.3.4 SliceProfile <<dataType>>

#### 6.3.4.1 Definition

This data type represents the properties of network slice subnet related requirement that should be supported by the network slice subnet instance in a 5G network.

#### 6.3.4.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| sliceProfileId | M | T | F | T | T |
| sNSSAIList | M | T | T | F | T |
| pLMNIdList | M | T | T | F | T |
| perfReq | M | T | T | F | T |
| maxNumberofUEs | O | T | T | F | T |
| coverageAreaTAList | O | T | T | F | T |
| latency | O | T | T | F | T |
| uEMobilityLevel | O | T | T | F | T |
| resourceSharingLevel | O | T | T | F | T |

#### 6.3.4.3 Attribute constraints

None.

#### 6.3.4.4 Notifications

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

### 6.3.5 NsInfo <<dataType>>

#### 6.3.5.1 Definition

This data type represents the properties of network service information (See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]) corresponding to the network slice subnet instance.

#### 6.3.5.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| nSInstanceId | M | T | F | F | T |
| nsName | O | T | F | F | T |
| description | O | T | F | F | T |

#### 6.3.5.3 Attribute constraints

None.

#### 6.3.5.4 Notifications

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

### 6.3.6 ServAttrCom <<dataType>>

#### 6.3.x.1 Definition

This data type represents the common properties of service requirement related attributes (see GSMA NG.116 [50] corresponding to Attribute categories, tagging and exposure).

#### 6.3.6.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| category | M | T | F | F | T |
| tagging | CM | T | F | F | T |
| exposure | M | T | F | F | T |

#### 6.3.6.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| tagging Support Qualifier | Condition: It shall be supported if the category is character. Otherwise this attribute shall be absent. |

#### 6.3.6.4 Notifications

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

### 6.3.7 DelayTolerance<<dataType>>

#### 6.3.7.1 Definition

This data type represents the delay tolerance (See Clause 3.4.3 of GSMA NG.116 [50]).

#### 6.3.7.2 Attributes

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

#### 6.3.7.3 Attribute constraints

None.

#### 6.3.7.4 Notifications

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

### 6.3.7 DeterminComm <<dataType>>

#### 6.3.7.1 Definition

This data type represents the properties of the deterministic communication for periodic user traffic. Periodic traffic refers to the type of traffic with periodic transmissions.

#### 6.3.7.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| servAttrCom | M | T | F | F | T |
| availability | M | T | F | F | T |
| periodicityList | M | T | T | F | T |

#### 6.3.7.3 Attribute constraints

None.

#### 6.3.7.4 Notifications

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

### 6.3.8 DLThpt<<dataType>>

#### 6.3.8.1 Definition

This data type represents the downlink throughput per slice or per UE (See Clause 3.4.5 and 3.4.6 of GSMA NG.116 [50]).

#### 6.3.8.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| servAttrCom | M | T | F | F | T |
| guaThpt | M | T | F | F | T |
| maxThpt | C | T | F | F | T |

#### 6.3.8.3 Attribute constraints

None.

#### 6.3.8.4 Notifications

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

### 6.3.9 ULThpt<<dataType>>

#### 6.3.9.1 Definition

This data type represents the uplink throughput per slice or per UE (See Clause 3.4.31 and 3.4.32 of GSMA NG.116 [50]).

#### 6.3.9.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| servAttrCom | M | T | F | F | T |
| guaThpt | O | T | F | F | T |
| maxThpt | O | T | F | F | T |

#### 6.3.9.3 Attribute constraints

None.

#### 6.3.9.4 Notifications

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

### 6.3.10 MaxPktSize <<dataType>>

#### 6.3.10.1 Definition

This data type represents the maximum packet size (See Clause 3.4.11 of GSMA NG.116 [50]).

#### 6.3.10.2 Attributes

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

#### 6.3.10.3 Attribute constraints

None.

#### 6.3.10.4 Notifications

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

### 6.3.11 MaxNumberofConns <<dataType>>

#### 6.3.11.1 Definition

This data type represents maximun number of connections (See Clause 3.4.15 of GSMA NG.116 [50]).

#### 6.3.11.2 Attributes

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

#### 6.3.11.3 Attribute constraints

None.

#### 6.3.11.4 Notifications

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

### 6.3.12 SupportedAccessTech<<dataType>>

#### 6.3.12.1 Definition

This data type represents supported access technologies (See Clause 3.4.27 of GSMA NG.116 [50]).

#### 6.3.12.2 Attributes

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

#### 6.3.12.3 Attribute constraints

None.

#### 6.3.12.4 Notifications

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

### 6.3.13 KPIMonitoring <<dataType>>

#### 6.3.13.1 Definition

This data type represents performance monitoring (See Clause 3.4.17 of GSMA NG.116 [50]).

#### 6.3.13.2 Attributes

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

#### 6.3.13.3 Attribute constraints

None.

#### 6.3.13.4 Notifications

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

### 6.3.14 UserMgmtOpen<<dataType>>

#### 6.3.14.1 Definition

This data type represents User management openness (See Clause 3.4.33 of GSMA NG.116 [50]).

#### 6.3.14.2 Attributes

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

#### 6.3.14.3 Attribute constraints

None.

#### 6.3.14.4 Notifications

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

### 6.3.15 V2XCommMode<<dataType>>

#### 6.3.15.1 Definition

This data type represents V2X communication mode (See Clause 3.4.35 of GSMA NG.116 [50]).

#### 6.3.15.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| servAttrCom | M | T | F | F | T |
| v2XMode | M | T | F | F | T |

#### 6.3.15.3 Attribute constraints

None.

#### 6.3.15.4 Notifications

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

### 6.3.16 TermDensity<<dataType>>

#### 6.3.16.1 Definition

This data type represents Terminal density (See Clause 3.4.30 of GSMA NG.116 [50]).

#### 6.3.16.2 Attributes

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

#### 6.3.16.3 Attribute constraints

None.

#### 6.3.16.4 Notifications

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

## 6.4 Attribute definition

### 6.4.1 Attribute properties

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| availability | This parameter specifies the communication service availability requirement, expressed as a percentage. The communication service availability is defined in clause 3.1 of TS 22.261 [28]. | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: True |
| serviceProfileId | A unique identifier of property of network slice related requirement should be supported by the network slice instance. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| sliceProfileId | A unique identifier of the property of network slice subnet related requirement should be supported by the network slice subnet instance. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| operationalState | It indicates the operational state of the network slice instance or the network slice subnet instance. It describes whether or not the resource is physically installed and working.  allowedValues: "ENABLED", "DISABLED".  The meaning of these values is as defined in 3GPP TS 28.625 [17] and ITU-T X.731 [18]. | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| administrativeState | It indicates the administrative state of the network slice instance or the network slice subnet instance. It describes the permission to use or prohibition against using the instance, imposed through the OAM services.  allowedValues: “LOCKED”, “UNLOCKED”, SHUTTINGDOWN”  The meaning of these values is as defined in 3GPP TS 28.625 [17] and ITU-T X.731 [18]. | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| nsInfo | This attribute contains the NsInfo of the NS instance corresponding to the network slice subnet instance. The NsInfo is described in clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: NsInfo  multiplicity: 1  isOrdered: N/A  isUnique: True  defaultValue: No default value  isNullable: True |
| nSInstanceId | This attribute specifies the identifier of NS instance corresponding to the network slice subnet instance.  See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: True  defaultValue: No default value  isNullable: True |
| nsName | This attribute specifies the name of NS instance corresponding to the network slice subnet instance.  See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: True  defaultValue: No default value  isNullable: True |
| description | This attribute specifies the description of NS instance corresponding to the network slice subnet instance.  See clause 8.3.3.2.2 of ETSI GS NFV-IFA 013 [29]. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: True  defaultValue: No default value  isNullable: True |
| category | This attribute specifies the category of a service requirement/attribute of GST (see GSMA NG.116 [50]).  allowedValues: character, scalability | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| tagging | This attribute specifies the tagging of a service requirement/attribute of GST in character catogary (see GSMA NG.116 [50]).  allowedValues: performance, function, operation | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| exposure | This attribute specifies exposure mode of a service requirement/attribute of GST (see GSMA NG.116 [50]).  allowedValues: API, KPI | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| sNSSAIList | This parameter specifies the S-NSSAI list to be supported by the new NSI to be created or the existing NSI to be re-used.  sNSSAList is defined in subclause 4.4.1 |  |
| maxNumberofUEs | An attribute specifies the maximum number of UEs may simultaneously access the network slice instance. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| coverageAreaTAList | An attribute specifies a list of TrackingAreas where the NSI can be selected.  allowedValues:  Legacy TAC and Extended TAC are defined in clause 9.3.3.10 of TS 38.413 [5]. | type: Integer  multiplicity: 1..\*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| latency | An attribute specifies the packet transmission latency (millisecond) through the RAN, CN, and TN part of 5G network and is used to evaluate utilization performance of the end-to-end network slice instance. See clause 6.3.1 of 28.554 [27]. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| uEMobilityLevel | An attribute specifies the mobility level of UE accessing the network slice instance. See 6.2.1 of TS 22.261 [28].  allowedValues: stationary, nomadic, restricted mobility, fully mobility. | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: True |
| serviceProfile.resourceSharingLevel | An attribute specifies whether the resources to be allocated to the network slice instance may be shared with another network slice instance(s).  allowedValues: shared, non-shared. | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: Yes  isNullable: True |
| sliceProfile.resourceSharingLevel | An attribute specifies whether the resources to be allocated to the network slice subnet instance may be shared with another network slice subnet instance(s).  allowedValues: shared, non-shared. | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: Yes  isNullable: True |
| serviceProfileList | An attribute specifies a list of ServiceProfile (see clause 6.3.3) supported by the network slice instance | type: ServiceProfile  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| sliceProfileList | An attribute specifies a list of SliceProfile (see clause 6.3.4) supported by the network slice subnet instance | type: SliceProfile  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| sST | This parameter specifies the slice/service type for a ServiceProfile.  See clause 5.15.2 of 3GPP TS 23.501 [2]. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| delayTolerance | An attribute specifies the properties of service delivery flexibility, especially for the vertical services that are not chasing a high system performance. See clause 4.3 of TS 22.104 [51]. | type: DelayTolerance  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| DelayTolerance.support | An attribute specifies whether or not the NSI supports service delivery flexibility, especially for the vertical services that are not chasing a high system performance.  allowedValues:  "NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| deterministicComm | An attribute specifies the properties of the deterministic communication for periodic user traffic, see clause 4.3 of TS 22.104 [51]. | type: <<DeterminComm>>  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| DeterminComm.availability | An attribute specifies whether or not the NSI supports deterministic communication for period user traffic.  allowedValues:  "NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| DeterminComm.periodicityList | An attribute specifies a list of periodicities supported by the NSI for deterministic communication. | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| dLThptPerSlice | This attribute defines achievable data rate of the network slice in downlink that is available ubiquitously across the coverage area of the slice, refer NG.116 [50]. | type: DLThpt  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| dLThptPerUE | This attribute defines data rate supported by the network slice per UE, refer NG.116 [50]. | type: DLThpt  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| guaThpt | This attribute describes the guaranteed data rate. | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| maxThpt | This attribute describes the maximum data rate. | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| uLThptPerSlice | This attribute defines achievable data rate of the network slice in uplink that is available ubiquitously across the coverage area of the slice, refer NG.116 [50]. | type: ULThpt  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| uLThptPerUE | This attribute defines data rate supported by the network slice per UE, refer NG.116 [50]. | type: ULThpt  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| maxPktSize | This parameter specifies the maximum packet size supported by the network slice, refer NG.116 [50]. | type: MaxPktSize  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| MaxPktSize.maxsize | This parameter specifies the maximum packet size supported by the network slice, refer NG.116 [50]. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| maxNumberofConns | This parameter defines the maximum number of concurrent sessions supported by the network slice, refer NG.116 [50]. | type: MaxNumberofConns  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| MaxNumberofConns.nOofConn | This parameter defines the maximum number of concurrent sessions supported by the network slice, refer NG.116 [50]. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |
| kPIMonitoring | An attribute specifies the name list of KQIs and KPIs available for performance monitoring. | type: KPIMonitoring  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| KPIMonitoring. kPIList | An attribute specifies the name list of KQIs and KPIs available for performance monitoring. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| supportedAccessTech | An attribute specifies which access technologies are supported by the NSI. | type: SupportedAccessTech  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| SupportedAccessTech.accTechList | An attribute specifies which access technologies are supported by the NSI.  allowedValues:  1: NR  2: NB-IoT  3: WI-Fi  4: Fixed access (e.g. DSL, Fibre) | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| userMgmtOpen | An attribute specifies whether or not the NSI supports the capability for the NSC to manage their users or groups of users’ network services and corresponding requirements. | type: UserMgmtOpen  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| UserMgmtOpen.support | An attribute specifies whether or not the NSI supports the capability for the NSC to manage their users or groups of users’ network services and corresponding requirements.  allowedValues:  "NOT SUPPORTED", "SUPPORTED". | type: <<enumeration>>  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| v2XCommModels | An attribute specifies whether or not the V2X communication mode is supported by the NSI. | type: V2XCommMode  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| V2XCommMode.v2XMode | An attribute specifies whether or not the V2X communication mode is supported by the NSI.  allowedValues:  "NOT SUPPORTED", "SUPPORTED BY NR". | type: <<enumeration>>  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: False |
| coverageArea | An attribute specifies the coverage area of the network slice, i.e. the geographic region where a 3GPP communication service is accessible, see Table 7.1-1 of TS 22.261 [28]) and NG.116 [50]. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| termDensity | An attribute specifies the overall user density over the coverage area of the network slice. See Table 7.1-1 of TS 22.261 [28]). | type: TermDensity  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| TermDensity.density | An attribute specifies the overall user density over the coverage area of the network slice. See Table 7.1-1 of TS 22.261 [28]). | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| activityFactor | An attribute specfies the percentage value of the amount of simultaneous active UEs to the total number of UEs where active means the UEs are exchanging data with the network. See Table 7.1-1 of TS 22.261 [28]). | type: Float  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| uESpeed | An attribute specifies the maximum speed (in km/hour) supported by the network slice at which a defined QoS can be achieved. See Table 7.1-1 of TS 22.261 [28]). | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| jitter | An attribute specifies the deviation from the desired value to the actual value when assessing time parameters, see clause C.4.1 of TS 22.104 [51]. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| survivalTime | An attribute specifies the time that an application consuming a communication service may continue without an anticipated message. See clause 5 of TS 22.104 [51]). | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| reliability | An attribute specifies in the context of network layer packet transmissions, percentage value of the amount of sent network layer packets successfully delivered to a given system entity within the time constraint required by the targeted service, divided by the total number of sent network layer packets, see TS 22.261 [28] and TS 22.104 [51]. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| NetworkSlice.networkSliceSubnetRef | This holds a DN of NetworkSliceSubnet relating to the NetworkSlice instance. | type: DN  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| NetworkSliceSubnet.networkSliceSubnetRef | This holds a list of DN of constituent NetworkSliceSubnet supporting NetworkSliceSubnet instance | type: DN  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| managedFunctionRef | This holds a list of DN of ManagedFunction instances supporting the NetworkSliceSubnet instance. | type: DN  multiplicity: \*  isOrdered: N/A  isUnique: N/A  defaultValue: None  allowedValues: N/A  isNullable: False |

## 6.5 Common notifications

This subclause presents a list of notifications, defined in [35], that provisioning management service consumer can receive. The notification parameter objectClass/objectInstance, defined in [26], would capture the DN of an instance of an IOC defined in the present document.

| Name | Qualifier | Notes |
| --- | --- | --- |
| notifyMOIAttributeValueChanges | O |  |
| notifyMOICreation | O |  |
| notifyMOIDeletion | O |  |