**3GPP TSG-SA5 Meeting #158**

**, United States, 18th Nov 2024 - 22nd Nov 2024**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **28.312** | **CR** | **0254** | **rev** | **1** | **Current version:** | **18.5.0** |  |
|  |
| *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 | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Rel-19 CR TS 28.312 Enhance the use case and solution to support the scenario of delivering a radio service in a scheduled time |
|  |  |
| ***Source to WG:*** | Huawei, Deutsche Telekom |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | DUMMY |  | ***Date:*** | 2024-11-04 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | The use case, requirements and solutions for enhancing the radio service delivering use case was studied in TR 28.914 and recommended for normative work. So, it proposes to enhance the use case and solution for radio service delivering. |
|  |  |
| ***Summary of change:*** | 1. Enhance the use case and requirements for Intent containing an expectation for delivering a radio service2. Enhance the RadioServiceExpectation based on solution in clause 5.1.3.1 in TR 28.914. |
|  |  |
| ***Consequences if not approved:*** |  |
|  |  |
| ***Clauses affected:*** | 5.1.2.1, 5.1.2.2, 6.2.1.0, 6.2.1.3.12.2, 6.2.1.3.12.3, 6.2.1.4, 6.2.2.1.5.2, 6.2.2.1.5.X(new), 6.2.2.2, 8, D.9 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1437> at commit 1c25534256213277f8066ec167636422a624248f |
|  |  |
| ***This CR's revision history:*** | S5-247171 is the revision of S5-246365 |

|  |
| --- |
| **1st Change** |

### 5.1.2 Intent containing an expectation for delivering a radio service

#### 5.1.2.1 Introduction

This use case describes a scenario where a MnS consumer express intent containing an expectation for delivering radio service (radio network as service) in the specified area to a MnS producer.

In this scenario, MnS consumer expresses its intent containing an expectation for delivering a radio service to MnS producer, which may include coverage area information (e.g. geographical areas), and supported service capacity information (e.g. maxNumberofUEs, activityFactor) and service performance information (e.g. serviceType, dLThptPerUEPerSubnet, uLThptPerUEPerSubnet).

In addition, MnS consumer may expect the radio service to be delivered and assured at a scheduled time instead of all the time. The scheduled time can be one-time interval, daily periodicity, weekly periodicity or monthly periodicity.

Note: The slice agnostic parameters in RAN SliceProfile can be used for service capacity information and service performance information.

Based on the intent containing an expectation for delivering a radio service received, MnS producer decides to use radio network with slicing or radio network without slicing to support the intent:

- In case of using radio network with slicing, the use case for network slice subnet creation defined in 3GPP TS 28.531 [2] can be reused.

- In case of using radio network without slicing, MnS producer identifies corresponding RAN NEs and cells in the specified coverage area to support the intent, analyses and configure the service specific configuration parameters for corresponding RAN NE and Cells (e.g. RRM policies, supported services).

MnS producer notifies MnS consumer about the fulfilment information of the intent containing an expectation for delivering a radio service after the service configuration is finished.

#### 5.1.2.2 Requirements

**REQ-IDMS\_RadioServiceIntent -CON-1** The intent driven MnS producer for radio service shall have capability enabling MnS consumer to express intent containing an expectation for delivering a radio service for the specified area.

**REQ-IDMS\_RadioServiceIntent-CON-2** The intent driven MnS producer for radio service shall have capability enabling MnS consumer to obtain intent report information (including fulfilment information) for the intent containing an expectation for a service.

**REQ-IDMS\_RadioServiceIntent-CON-3:** The intent driven MnS producer for radio service shall have capability enabling MnS consumer to express intent containing an expectation for delivering a radio service in a scheduled time.

|  |
| --- |
| **2nd Change** |

#### 6.2.1.0 Imported information entities and local labels

|  |  |
| --- | --- |
| 3GPP TS 28.622 [6], DataType, DateTime | DateTime |
| 3GPP TS 28.622 [6], DataType, GeoArea | GeoArea |
| 3GPP TS 28.658 [10], DataType, PLMNId | PLMNId |
| 3GPP TS 28.622 [6], DataType, TimeWindow | TimeWindow |
| 3GPP TS 28.622 [6], DataType, GeoCoordinate | GeoCoordinate |
| 3GPP TS 28.622 [6], DataType, SchedulingTime | SchedulingTime |
| 3GPP TS 28.541 [5], DataType, PlmnInfo | PLMNInfo |

|  |
| --- |
| **3rd Change** |

##### 6.2.1.3.12 ValueRangeType<<choice>>

###### 6.2.1.3.12.1 Definition

This <<choice>> defines the data type for value of the "targetValueRange" and "contextValueRange".

###### 6.2.1.3.12.2 Attributes

Table 6.2.1.3.12.2-1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable  | isWritable | isInvariant | isNotifyable |
| CHOICE\_1.1 real | CM | T | T | F | F |
| CHOICE\_2.1 enum | CM | T | T | F | F |
| CHOICE\_3.1 string | CM | T | T | F | F |
| CHOICE\_4.1 boolean | CM | T | T | F | F |
| CHOICE\_5.1 integer | CM | T | T | F | F |
| CHOICE\_6.1 timeWindow | CM | T | T | F | F |
| CHOICE\_7.1 dateTime | CM | T | T | F | F |
| CHOICE\_8.1 geoArea | CM | T | T | F | F |
| CHOICE\_9.1 pLMNId | CM | T | T | F | F |
| CHOICE\_10.1 geoCoordinate | CM | T | T | F | F |
| CHOICE\_11.1 uEGroup | CM | T | T | F | F |
| CHOICE\_12.1 frequency | CM | T | T | F | F |
| CHOICE\_13.1 plmnInfo | CM | T | T | F | F |
| CHOICE\_14.1 schedulingTime | CM | T | T | F | F |

###### 6.2.1.3.12.3 Attribute constrains

Table 6.2.1.3.12.3-1

|  |  |
| --- | --- |
| Name | Definition |
| CHOICE\_1.1 real CM Support Qualifier | Condition: This attribute shall be supported, when the type is Real. |
| CHOICE\_2.1 enum CM Support Qualifier | Condition: This attribute shall be supported, when the type is Enum. |
| CHOICE\_3.1 string CM Support Qualifier | Condition: This attribute shall be supported, when the type is String. |
| CHOICE\_4.1 boolean CM Support Qualifier | Condition: This attribute shall be supported, when the type is Boolean. |
| CHOICE\_5.1 integer CM Support Qualifier | Condition: This attribute shall be supported, when the type is Integer. |
| CHOICE\_6.1 timeWindow CM Support Qualifier | Condition: This attribute shall be supported, when the type is TimeWindow. |
| CHOICE\_7.1 dateTime CM Support Qualifier | Condition: This attribute shall be supported, when the type is DateTime. |
| CHOICE\_8.1 geoArea CM Support Qualifier | Condition: This attribute shall be supported, when the type is GeoArea. |
| CHOICE\_9.1 pLMNId CM Support Qualifier | Condition: This attribute shall be supported, when the type is PLMNId. |
| CHOICE\_10.1 geoCoordinate CM Support Qualifier | Condition: This attribute shall be supported, when the type is GeoCoordinate. |
| CHOICE\_11.1 uEGroup CM Support Qualifier | Condition: This attribute shall be supported, when the type is UEGroup. |
| CHOICE\_12.1 frequency CM Support Qualifier | Condition: This attribute shall be supported, when the type is frequency. |
| CHOICE\_13.1 plmnInfo CM Support Qualifier | Condition: This attribute shall be supported, when the type is PLMNInfo. |
| CHOICE\_14.1 schedulingTime CM Support Qualifier | Condition: This attribute shall be supported, when the type is SchedulingTime. |

|  |
| --- |
| **4th Change** |

#### 6.2.1.4 Attribute definition

Table 6.2.1.4-1

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| userLabel | A user-friendly (and user assignable) name of the intent.allowedValues: Not Applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| intentExpectations | It describes the expectations including requirements, goals and contexts (including constraints and filter information) given to a 3GPP system. It states the list of specific outcomes desired to be realized for expectation object(s).The intentExpectations are arranged in an ordered list such that the most important intentExpectations are on the top of the list.allowedValues: Not Applicable | type: IntentExpectationmultiplicity: 1..\*isOrdered: TrueisUnique: TruedefaultValue: NoneisNullable: False  |
| intentFulfilmentInfo | It describes status of fulfilment of an intent and the related reasons for that status. allowedValues: Not Applicable | type: FulfilmentInfomultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| expectationFulfilmentInfo | It describes status of fulfilment of an intentExpectation and the related reasons for that status.allowedValues: Not Applicable | type: FulfilmentInfomultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| targetFulfilmentInfo | It describes status of fulfilment of an expectationTarget and the related reasons for that status. allowedValues: Not Applicable | type: FulfilmentInfomultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| fulfilmentStatus | It describes the current status of the fulfilment result for intent, intentExpectation or expectationTarget, which is configured by MnS producer and can be read by MnS consumer.allowedValues: "FULFILLED", "NOT\_FULFILLED" | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: "NOT\_FULFILLED"isNullable: False |
| notFulfilledState | It describes the current state for not achieving fulfilment for the intent, intentExpectation or expectationTarget. It is configured/written by MnS producer and can be read by MnS consumer.allowedValues: "ACKNOWLEDGED", "COMPLIANT", "DEGRADED", "SUSPENDED", "TERMINATED" "FULFILMENTFAILED" | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: "ACKNOWLEDGED"isNullable: False |
| notFulfilledReasons | It describes the reasons/observations related to the specific notFulfilledStateallowedValues: Not Applicable | type: Stringmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| intentContexts | It describes the list of IntentContext(s) which represents the constraints and conditions that should apply for the entire intent even if there may be specific contexts defined for specific parts of the intent.allowedValues: triple of (attribute, condition, value range) | type: Contextmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| expectationId | A unique identifier of the intentExpectation within the intent.allowedValues: Not Applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| expectationVerb | It describes the characteristic of the intentExpectation and is the property that describes the types of intentExpectations. Examples of verbs and their related types of expectation are Deliver: DeliveryIntentExpectation, e.g. Deliver a RAN network, Service, Slice, functionEnsure: AssuranceintentExpectation, e.g. Ensure the target performance value.allowedValues: DELIVER, ENSUREVendor extensions are allowed | type: Stringmultiplicity: 1isOrdered:N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| expectationObject | It describes the expectation objects to which the IntentExpectation should apply.allowedValues: Not Applicable | type: ExpectationObjectmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| objectType | It describes the type of expectation object of the IntentExpectation that is required to be applied to. It can be class name of the managed object.allowedValues: see scenario specific IntentExpectation | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| objectInstance | It describes a specific object instance (e.g. instance of managed object) to which the intentExpectation should apply.allowedValues: Not Applicable | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| objectContexts | It describes the list of ObjectContext(s) which represents the constraints and conditions to be used as filter information to identify the object(s) to which a given intentExpectation should apply. Note there may be other constraints and conditions defined either for the entire intent, for the specific intentExpectation or for the expectationTarget of the considered intentExpectation.The concrete ObjectContext depends on the ExpectationObject, which is defined in clause 6.2.2. All the concrete ObjectContexts follow the common structure of ObjectContext. | type: Contextmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| expectationTargets | It describes the list of ExpectationTarget(s) which represent specific outcomes on the metrics that characterize the performance of the object(s) or some abstract index that expresses the behavior of the object(s) that are desired to be realized for a given intentExpectation.The concrete ExpectationTarget depends on the ExpectationObject, which is defined in clause 6.2.2. All the concrete ExpectationTargets follow the common structure of ExpectationTarget.The expectionTargets are arranged in an ordered list such that the most important expectionTargets are on the top of the list. | type: ExpectationTargetmultiplicity: 1..\*isOrdered: TrueisUnique: TruedefaultValue: NoneisNullable: False |
| expectationContexts | It describes the list of context(s) which represents the constraints and conditions that should apply for a specific intentExpectation.Note there may be other constraints and conditions defined for the entire intent or for specific parts of the intentExpectation.allowedValues: depends on Expectation Object in the IntentExpectation | type: Contextmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| targetName | It describes the name of the expectation target which represents specific outcomes on the metrics that characterize the performance of the object(s) or some abstract index that expresses the behavior of the object(s) that are desired to be realized for a given intentExpectation.allowedValues: depends on ExpectationObject in the IntentExpectation | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| targetCondition | It expresses the limits within which the targetName is allowed/supposed to be. allowedValues: "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE", "IS\_ONE\_OF", " IS\_EQUAL\_TO\_OR\_LESS\_THAN”, "IS\_EQUAL\_TO\_OR\_GREATER\_THAN", "IS\_NOT\_ONE\_OF", "IS\_ALL\_OF" | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: "IS\_EQUAL\_TO"isNullable: False |
| targetValueRange | It describes the range of values that applicable to the targetName and the targetCondition.allowedValues: depends on the targetCondition.The value will be a single value when the targetCondition is either "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS EQUAL TO OR LESS THAN", "IS EQUAL TO OR GREATER THAN” The value will be a pair of values when the targetCondition is either "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE"The value will be a list when the targetCondition is "IS\_ONE\_OF", "IS\_NOT\_ONE\_OF","IS\_ALL\_OF". See NOTE 1.  | type: ValueRangeTypemultiplicity: 1..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: True |
| targetContexts | It describes the list of constraints and conditions that should apply for a specific expectationTarget. Note there may be other constraints and conditions defined for the entire intent or the intentExpectation.allowedValues: Not Applicable | type: Contextmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| contextAttribute | It describes a specific attribute of or related to the object or to characteristics thereof (e.g. its control parameter, gauge, counter, KPI, weighted metric, etc) to which the expectation should apply or an attribute related to the operating conditions of the object (such as weather conditions, load conditions, etc). | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| contextCondition | It expresses the limits within which the ContextAttribute is allowed/supposed to be allowedValues: "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE, "IS\_ONE\_OF", "IS\_EQUAL\_TO\_OR LESS\_THAN", "IS\_EQUAL\_TO\_OR\_GREATER\_THAN", "IS\_NOT\_ONE\_OF", "IS\_ALL\_OF" | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: "IS\_EQUAL\_TO"isNullable: False |
| contextValueRange | It describes the range of values that applicable to the ContextAttribute and the ContextCondition.AllowedValue: depends on the contextConditionThe value will be a single value when the contextCondition is either "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS\_EQUAL\_TO\_OR\_LESS\_THAN", "IS\_EQUAL\_TO\_OR\_GREATER\_THAN". The value will be a pair of values when the contextCondition is either "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE"The value will be a list when the contextCondition is "IS\_ONE\_OF", "IS\_NOT\_ONE\_OF","IS\_ALL\_OF".See NOTE 1. | type: ValueRangeTypemultiplicity: 1..\*isOrdered: False isUnique: TruedefaultValue: NoneisNullable: True |
| intentPriority | It expresses the priority of the stated intent within an MnS consumer. AllowedValue: values in the range [1-100] where 1 indicates the highest priority and 100 indicates the lowest priority.NOTE: The handing of the priorities across MnS consumers is left to implementation  | type: integermultiplicity: 1isOrdered: FalseisUnique: TruedefaultValue: 1isNullable: False |
| geoArea | It describes a geographical area defined in 3GPP TS 28.622[6].AllowedValue: As defined by the data type | type: GeoAreamultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: True |
| pLMNId | It describes the information of a PLMN identification defined in 3GPP 28.658[10]AllowedValue: As defined by the data type | type: PLMNIdmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| dateTime | It describes the information of a date time defined in 3GPP TS 28.622[6].AllowedValue: As defined by the data type | type: DateTimemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| timeWindow | It describes the information of a time window (including startTime, endTime) defined in 3GPP TS 28.622[6].AllowedValue: As defined by the data type | type: TimeWindowmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| geoCoordinate | It describes the information of a geoCoordinate defined in 3GPP TS 28.622[6].AllowedValue: As defined by the data type | type: GeoCoordinatemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| pLMNInfo | It describes the information of PLMNInfo (including PLMN and S-NSSAI in the PLMN in case of network slicing feature) defined in 3GPP TS 28.541[5].AllowedValue: As defined by the data type | type: PLMNInfomultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| schedulingTime | It describes the information of SchedulingTime (including one-time interval, daily periodicity, weekly periodicity or monthly periodicity) defined in 3GPP TS 28.622 [6]. | type: SchedulingTimemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| frequency | It desribes the RF reference frequency (i.e. Absolute Radio Frequency Channel Number) and/or the frequency operating band used for a given direction (UL or DL) in FDD or for both UL and DL directions in TDD.AllowedValue: As defined by the data type | type: Frequencymultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| arfcn | It desribes the RF reference frequency (i.e. Absolute Radio Frequency Channel Number).Allowed Value:For NR, see TS 38.104 [8] clause 5.4.2.1.For EUTRAN, see TS 36.104 [14] clause 5.7.3. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| freqband | It desribes the the frequency operating band.Allowed Value:For NR, see TS 38.104 [8] clause 5.4.2.3.For EUTRAN, see TS 36.104 [14] clause 5.7.3. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| uEGroup | It describes the information of a UE Group (represented by specific 5QI, specific S-NSSAI, or a specific combination of S-NSSAI and 5QI).AllowedValue: As defined by the data type | type: UEGroupmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| fiveQI | It describes the information of a 5QI defined in 3GPP TS 28.541[5].AllowedValue: 0 - 255 | type: integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| sNSSAI | It describes the information of a S-NSSAI defined in 3GPP TS 28.541[5].AllowedValue: As defined by the data type | type: S-NSSAImultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| intentAdminState | It describes the intent administrative state, which enables the MnS consumer to suspend an intent or cancel the suspension for a suspended intent. A suspended intent means this intent is not considered for fulfilmentallowedValues: "ACTIVATED", "DEACTIVATED" | type: Enummultiplicity: 1isOrdered: N/A isUnique: N/AdefaultValue: "ACTIVATED"isNullable: False |
| intentReference | It indicates the associated intent instanceallowedValues: Not Applicable | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| intentReportReference | It indicates the associated intent report instance(s)allowedValues: Not Applicable | type: DNmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| observationPeriod | It represents the observation period of the fulfilmentInfo for corresponding ExpectationTargets, IntentExpectations and Intent. At the end of the observation period, the corresponding fulfilment info is updated in the intent report. The observation period can be assigned by MnS consumer through requesting the MnS producer to set attribute "observationPeriod". MnS producer also can assign the observation period if MnS consumer didn’t assign it.The observation time is expressed in seconds.allowedValues: Not Applicable | type: Integermultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| intentFulfilmentReport | It describes the fulfillment information which is reported for the associated intent instance.allowedValues: Not Applicable | type: IntentFulfilmentReportmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| intentConflictReports | It describes the conflict information which is reported for associated intent instance if needed.allowedValues: Not Applicable | type: IntentConflictReportmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| conflictId | It is used to identify the detected conflict within an IntentReport instance.allowedValues: Not Applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| conflictType | It describes the type of intent conflict.allowedValues: INTENT\_CONFLICT, EXPECTATION\_CONFLICT, TARGET\_CONFLICT | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| conflictingIntent | It describes the DN of the conflicting intentallowedValues: Not Applicable | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| conflictingExpectation | It describes the expectationId of the conflicting IntentExpectation within an Intent.allowedValues: Not Applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| conflictingTarget | It describes the targetName of the conflicting ExpectationTarget within an IntentExpectation.allowedValues: Not Applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| recommendedSolutions | It describes the action recommended by the MnS producer to be undertaken by the MnS consumer to resolve intent conflict. The recommended solution applies only for the specific intent whose intent report contains this attribute.allowedValues: "MODIFY", "DELETE" | type: ENUMmultiplicity: 1isOrdered: FalseisUnique: TruedefaultValue: None isNullable: False |
| expectationFulfilmentResults | It includes the expectationFulfilmentInfo and targetFulfilmentResults for each IntentExpectation. The expectationFulfilmentInfo describes status of fulfilment of an intentExpectation and the related reasons for infeasible status.allowedValues: Not Applicable | type: ExpectationFulfilmentResultmultiplicity: 1..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| targetFulfilmentResults | It includes targetFulfilmentInfo and targetAchievedValue for each ExpectationTarget. The targetFulfilmentInfo describes status of fulfilment of an expectationTarget and the related reasons for infeasible status. The targetAchieveValue describes current performance value for the ExpectationTarget.allowedValues: Not Applicable | type: TargetFulfilmentResultmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| targetAchievedValue | It describes the value that has been achieved for the expectation target at the time at which the report is generated.allowedValues: Not Applicable | type: Numbermultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| intentFeasibilityCheckReport | It describes the intent feasibility check information which is reported if needed.allowedValues: Not Applicable | type: IntentFeasibilityCheckReportmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| feasibilityCheckResult | It describes the result of intent fulfilment feasibility checkallowedValues: FEASIBLE, INFEASIBLE | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| infeasibilityReasons | It describes the reason (e.g. invalid intent expression, the intent conflict) of the result of intent fulfilment feasibility check is INFEASIBLENOTE: The ENUM value for infeasibilityReason is not specified in present document. | type: ENUMmultiplicity: 1..\*isOrdered: FalseisUnique: TruedefaultValue: None isNullable: False |
| intentHandlingCapabilityList | It describes the list of expectation object information and expectation target information which can be supported by intent handling function.allowedValues: Not Applicable | type: IntentHandlingCapabilitymultiplicity: 1..\*isOrdered: FalseisUnique: TruedefaultValue: None isNullable: False |
| intentHandlingCapabilityId | A unique identifier of property of intent handling capability should be supported by the intent handling function of MnS producer.allowedValues: Not Applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| supportedExpectationObjectType | It describes the expectation object type which can be supported by a specific intent handling function of MnS producer.allowedValues: objectType defined in clause 6.2.1.3.2. | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| supportedExpectationTargetNames | It describes the supported expectation targets for the supported expectation object type.allowedValues: targetName defined in clause 6.2.1.3.3 | type: Stringmultiplicity: 1..\*isOrdered: FalseisUnique: TruedefaultValue: None isNullable: False |
| lastUpdatedTime | It describes the time for the latest update of the IntentReport Instance. | type: DateTimemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| ContextSelectivity | It expresses the may in which all or a subset of the expectationTargets may be applied.AllowedValue: "ALL\_OF", "ONE\_OF", "ANY\_OF" | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: "ALL\_OF"isNullable: False |
| intentPreemptionCapability | It describes the pre-emption capability. The attribute is used by MnS producer to decide the target of intent deletion or intent modificationallowedValue: TRUE, FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: "FALSE"isNullable: False |
| NOTE: For "IS\_ALL\_OF", the value shall be a match of the entire list. |

|  |
| --- |
| **5th Change** |

##### 6.2.2.1.5 Radio Service Expectation

###### 6.2.2.1.5.1 Definition

Radio Service Expectation is an IntentExpectation which can be used to represent MnS consumer's expectations for radio service (radio network as a service) delivering and assurance in the specified area.

The Radio Service Expectation is defined by utilizing the construct of the generic IntentExpectation <<dataType>> with set of allowed values and concrete dataTypes specified.

Following are the specific allowed values when implemented the IntentExpectation for Radio Service Expectation.

Table 6.2.2.1.5.1-1

|  |  |
| --- | --- |
| Attribute Name  | Allowed Values |
| objectType  | RadioService |

Editor’s Note:the allowed values for objectType needs further discussion (e.g., whether ObjectType value needs to refer to an IOC defined in an NRM fragment, the relation with RANSliceSubnet).

6.2.2.1.5.2 ObjectContexts

Following provides the concrete ObjectContexts for Radio Service Expectation based on the common structure of ObjectContext. The properties of the attributes in the following table should be the same with the properties of ObjectContexts defined in clause 6.2.1.3.

Table 6.2.2.1.5.2-1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| coverageAreaPolygonContext | M | T | T | F | F |
| serviceTypeContext | M | T | T | F | F |
| plmnInfoContext | M | T | T | F | F |

6.2.2.1.5.3 ExpectationTargets

Following provides the concrete ExpectationTargets for Radio Service Expectation based on the common structure of ExpectationTarget. The properties of the attributes in the following table should be the same with the properties of ExpectationTargets defined in clause 6.2.1.3.

Table 6.2.2.1.5.3-1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| dLLatencyTarget | O | T | T | F | F |
| uLLatencyTarget | O | T | T | F | F |
| dLThptPerUETarget | O | T | T | F | F |
| uLThptPerUETarget | O | T | T | F | F |
| numberofUEsTarget | O | T | T | F | F |

NOTE: At least one of above targets needs to be supported.

6.2.2.1.5.X ExpectationContexts

Following provides the concrete ExpectationContexts for Radio Service Expectation based on the common structure of ExpectationContext. The attribute properties defined in the table below should be the same as the properties defined for ExpectationContexts in clause 6.2.1.3.

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

|  |
| --- |
| **6th Change** |

#### 6.2.2.2 Attribute definition

Table 6.2.2.2-1

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| coverageAreaPolygonContext | It describes the coverage areas for the RAN SubNetwork that the intent expectation is applied in the form of polygon.CoverageAreaPolygonContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageAreaPolygon"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of GeoArea defined in 3GPP TS 28. 622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| coverageTACContext | It describes the coverage areas for the RAN SubNetwork that the intent expectation is applied in the form of TAC.CoverageTACContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageTAC"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of TAC defined in 3GPP TS 28. 622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| dlFrequencyContext | It describes the downlink frequency information (RF reference frequencies and/or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.dLFrequencyContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "dLFrequency"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of Frequency defined in clause 6.2.1.3.13 | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| ulFrequencyContext | It describes the uplink frequency information (RF reference frequencies and/ or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.uLFrequencyContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: uLFrequency"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of Frequency defined in clause 6.2.1.3.13 | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| rATContext | It describes the RAT supported by the RAN SubNetwork that the intent expectation is applied.RATContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "rAT"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of ENUM with allowed value: UTRAN, EUTRAN and NR | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| uEGroupContext | It describes the UE Groups (represented by specific 5QI, specific S-NSSAI, or specific combination of S-NSSAI and 5QI) that the intent expectation is applied.UEGroupContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "UEGroup"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of UEGroup <<dataType>> | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| targetAssuranceTimeContext | It describes the timeWindows (including startTime, endTime) when the targets in the Intent Expectation need to be assured.- contextAttribute: "targetAssuranceTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: a list of TimeWindow(s) defined in TS 28.622 [6]. | type: Contextmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: True |
| weakRSRPRatioTarget | It describes the downlink weak coverage ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with downlink weak RSRP, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.WeakRSRPRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "weakRSRPRatio"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] %- targetContext: WeakRSRPContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| weakRSRPRatioTarget.weakRSRPContext | It describes the threshold for downlink weak RSRP of the cells (see RSRP measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent expectation is applied.WeakRSRPContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "weakRSRPThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: Float | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowSINRRatioTarget | It describes the low SINR ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with low SINR, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.LowSINRRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContxt.Following are the allowed values:- targetName: "lowSINRRatio"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100]- targetContext: LowSINRContext | type:ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowSINRRatioTarget.lowSINRContext | It describes the threshold for low SINR of the cells (see SINR measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent expectation is applied.LowSINRContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "lowSINRThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: integer | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveULRANUEThptTarget | It describes the average UL RAN UE throughput target for RAN SubNetwork (see UL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent expectation is applied.AveULRANUEThptTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveULRANUEThpt"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveDLRANUEThptTarget | It describes the average DL RAN UE throughput target for RAN SubNetwork (see DL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent expectation is applied.AveDLRANUEThptTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveDLRANUEThpt"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowULRANUEThptRatioTarget | It describes the low UL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with low UL RAN UE throughput, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.LowULRANUEThptRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "lowULRANUEThptRatio"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] %- targetContext: LowULRANUEThptContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowULRANUEThptRatioTarget.lowULRANUEThptContext | It describes the threshold for the low UL RAN UE throughput cells (see average UL RAN UE throughput in gNB and distribution of UL UE throughput in gNB in TS 28.552[6]) of the RAN SubNetwork that the intent expectation is applied LowULRANUEThptContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "lowULRANUEThptThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: Float | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowDLRANUEThptRatioTarget | It describes the low DL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with low DL RAN UE throughput, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.LowDLRANUEThptRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "lowDLRANUEThptRatio"- targetCondition: "IS\_LESS\_THAN "- targetValueRange: integer with allowed value [0,100]- targetContext: LowDLRANUEThptContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowDLRANUEThptRatioTarget.lowDLRANUEThptContext | It describes the threshold for the low DL RAN UE throughput cells (see average DL RAN UE throughput in gNB and distribution of DL UE throughput in gNB in TS 28.552[6]) of the RAN SubNetwork that the intent expectation is applied.LowDLRANUEThptContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "lowDLRANUEThptThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: Float | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| nfTypeContext | It identifies the types of NF supported by the 5GC SubNetwork that the intent expectation is applied.nfTypeContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " nfType "- contextCondition:" IS\_ALL\_OF "- contextValueRange: a list of ENUM with allowed value: Enumeration NFType in 3GPP TS 29.510[13] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| nfInstanceLocationContext | It describes the location of NF instance supported by the 5GC SubNetwork that the intent expectation is applied.nfInstancelocationContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " nfInstanceLocation "- contextCondition:” IS\_ALL\_OF "- contextValueRange: a list of string.See Locality in TS 29.510 [13] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| taiContext | It describes the tracking area Identifiers supported by the 5GC SubNetwork that the intent expectation is applied.taiContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "tai"- contextCondition:" IS\_ALL\_OF "- contextValueRange: a list of tai defined in TS 28.622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| maxNumberofPDUsessionsTarget | It describes the maximum number of PDU sessions for 5GC SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofPDUsessions in clause 5.3.1.2 in TS 28.552 [12]maxNumberofPDUsessionsTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "maxNumberofPDUsessions"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: integer- targetContext: 5GSessionContext. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| maxNumberofPDUsessionsTarget.5GSessionContext | It describes the maximum supported 5G PDU session of the 5GC SubNetwork related to the intent expectation.5GSessionContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "5GSession"- contextCondition: "IS\_ LESS\_THAN"- contextValueRange: integer | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| maxNumberofRegisteredsubscribersTarget | It describes the maximum number of Registered subscribers for 5GC SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofRegisteredsubscribers in clause 5.6.2 in TS 28.552 [12]maxNumberofRegisteredsubscribersTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "maxNumberofRegisteredsubscribers"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highUlPrbLoadRatioTarget | It describes the high UL PRB load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with high UL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area. HighUlPrbLoadRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition,targetValueRange and targetContext.Following are the allowed values:- targetName: "highUlPrbLoadRatio"- targetCondition: "IS\_LESS\_THAN "- targetValueRange: integer with allowed value [0,100] %- targetContext: HighUlPrbLoadContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highUlPrbLoadRatioTarget.HighUlPrbLoadContext | It describes the threshold for high uplink PRB load (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN SubNetwork in the specified area that the intent expectation is applied.HighUlPrbLoadContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "HighUlPrbLoad"- contextCondition: "IS\_GREATER\_THAN"- contextValueRange: integer with allowed value [0,100] % | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highDlPrbLoadRatioTarget | It describes the high DL PRB load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with high DL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area. HighDlPrbLoadRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "highDlPrbLoadRatio"- targetCondition: "IS\_LESS\_THAN "- targetValueRange: integer with allowed value [0,100] %- targetContext: HighDlPrbLoadContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highDlPrbLoadRatioTarget.HighDlPrbLoadContext | It describes the threshold for high downlink PRB load (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) of the cells of the RAN SubNetwork in the specified area that the intent expectation is applied. HighDlPrbLoadContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "HighDlPrbLoad"- contextCondition: "IS\_GREATER\_THAN"- contextValueRange: integer with allowed value [0,100] % | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveUlPrbLoadTarget | It describes the average uplink PRB load target (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN SubNetwork that the intent expectation is applied.AveULPrbLoadTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveULPrbLoad"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] % | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveDlPrbLoadTarget | It describes the average dowlink PRB load (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) target for RAN SubNetwork that the intent expectation is applied.AveDLPrbLoadTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveDLPrbLoad"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] % | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| rANEnergyConsumptionTarget | It describes the RAN energy consumption target for RAN SubNetwork that the intent expectation is applied. The definition for RAN energy consumption see ECNG-RAN in clause 6.7.3.4.1 in TS 28.554 [11].RANEnergyConsumptionTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "rANEnergyConsumption"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| rANEnergyEfficiencyTarget | It describes the RAN energy efficiency target for RAN SubNetwork that the intent expectation is applied. The unit of this target is bit/J. The definition for RAN energy efficiency target for RAN SubNetwork see EEMN,DV in clause 6.7.1.1 in TS 28.554 [11]RANEnergyEfficiencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: " rANEnergyEfficiency "- targetCondition: " IS\_GREATER\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| serviceStartTimeContext | This describes the start time at which the service shall be available. This contributes to the selection of the appropriate edge data network to be used for service deployment.Following are the allowed values:- contextAttribute: "serviceStartTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: DateTime | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| serviceEndTimeContext | This describes the end time after which the service shall not be available. This contributes to the selection of the appropriate edge data network to be used for service deployment.Following are the allowed values:- contextAttribute: "serviceEndTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: DateTime | type:Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| edgeIdentificationIdContext | This identifies the edge network where the service needs to be deployed. For details see EDNidentifier defined in TS 28.538 [9]. This should be used when the edge identification is known to the consumerFollowing are the allowed values:- contextAttribute: "edgeIdentificationId"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: String | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| edgeIdentificationLocContext | This identifies the location where the service needs to be deployed. This should be used when the edge identification is not known to the consumerFollowing are the allowed values:- contextAttribute: "edgeIdentificationLoc"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: GeoCoordinate dfined in TS 28.622 [6].  | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| coverageAreaTAContext | It describes Tracking Coverage Areas for service supporting that the intent expectation is applied.coverageAreaTAContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageAreaTA"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of TAC defined in 3GPP TS 28.622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. dlThptPerUETarget | It describes the DL throughput target by the per UE for the edge service Supporting that the intent expectation is applied. For details see dlThptPerUE defined in clause 6.3.1 of TS 28.541 [5].DLThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange:- targetName: "DLThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer.  | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. ulThptPerUETarget | It describes the UL throughput target by the per UE for the edge service Supporting that the intent expectation is applied. For details see ulThptPerUE defined in clause 6.3.1 of TS 28.541 [5].ULThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "ulThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. dLLatencyTarget | It describes the DL latency target for the edge service Supporting that the intent expectation is applied.DLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange. For details see attribute dlLatency defined in clause 6.3.1 of TS 28.541 [5].- targetName: "dLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. uLLatencyTarget | It describes the UL latency target for the edge service Supporting that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5].uLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "uLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. maxNumberofUEsTarget | It describes the the number of UEs for edge service supporting that the intent expectation is applied. For details see attribute maxNumberofUE defined in clause 6.3.1 of of TS 28.541 [5].maxNumberofUEsContext is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "maxNumberofUEs"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. activityFactorTarget | It describes 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 for service supporting that the intent expectation is applied. For details see activityFactor in clause 6.3.1 in TS 28.541 [5.]activityFactorTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: " activityFactor "- targetCondition: " IS\_EQUAL\_TO"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. uESpeedTarget | It describes the speed (in km/hour) supportedfor edge service supporting that the intent expectation is applied. For details see uESpeed in clause 6.3.1 in TS 28.541[5].uESpeedTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "uESpeed"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. uEMobilityLevelContext | It describes the mobility level of UE for edge service supporting that the intent expectation is applied. For details see uEMobilityLevel in clause 6.3.1 in TS 28.541 [5.]uEMobilityLevelContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " uEMobilityLevel "- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: ENUM. | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. resourceSharingLevelContext | It describes the resource sharing level for which the intent expectation is applied. For details see resourceSharinglevel in clause 6.3.1 in TS 28.541 [5].resourceSharingLevelContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "resourceSharingLevel"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: ENUM | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.coverageAreaPolygonContext | It describes the coverage areas for the Radio Service that the intent expectation is applied in the form of polygon.CoverageAreaPolygonContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageAreaPolygon"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of CoverageArea defined in 3GPP TS 28.541 [5]. | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.serviceTypeContext | It describes the service type for the Radio Service that the intent expectation is applied. For details see sST in clause 6.4.1 in TS 28.541 [5].ServiceTypeContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "serviceType"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: string | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.plmnInfoContext | It describes the PLMN supported by the Radio Service that the intent expectation is applied. In case of network slicing feature is supported, this also represents the S-NSSAI in the PLMN supported by the Radio Service.For details see PLMNInfo <<dataType>> in clause 4.3.41 in TS 28.541 [5].ServiceTypeContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "plmnInfo"- contextCondition: " IS\_ALL\_OF "- contextValueRange: a list of PLMNInfo <<dataType>> defined in TS 28.541 [5] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.dlThptPerUETarget | It describes the DL throughput target per UE for the Radio Service that the intent expectation is applied. For details see dlThptPerUE defined in clause 6.3.1 of TS 28.541 [5].DLThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange:- targetName: "DLThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer.  | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.ulThptPerUETarget | It describes the UL throughput target per UE for the Radio Service that the intent expectation is applied. For details see ulThptPerUE defined in clause 6.3.1 of TS 28.541 [5].ULThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "ulThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.dLLatencyTarget | It describes the DL latency target for the Radio Service that the intent expectation is applied.DLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange. For details see attribute dlLatency defined in clause 6.3.1 of TS 28.541 [5].- targetName: "dLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioService Expectation.uLLatencyTarget | It describes the UL latency target for the Radio Service that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5].uLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "uLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.numberofUEsTarget | It describes the number of UEs target for the Radio Service that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5].numberofUEsContext is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "numberofUEs"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation. schedulingTimeContext | It describes the scheduled times (including one-time interval, daily periodicity, weekly periodicity or monthly periodicity) for the Radio Service that the intent expectation is applied. For details see SchedulingTime <<choice>> defined in clause 4.3.63 of TS 28.622 [6].schedulingTimeContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "schedulingTime"- contextCondition: " IS\_ALL\_OF "- contextValueRange: a list of SchedulingTime <<choice>> defined in TS 28.622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| servingScopeContext | It describes the served area(s) of the 5GC NF instance supported by the 5GC SubNetwork that the intent expectation is applied. For detail, see servingScope in TS 29.510[13].servingScopeContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " servingScope "- contextCondition:” IS\_ALL\_OF "- contextValueRange: a list of string.  | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| dnnContext | It describes the DNN of the 5GC NF instance supported by the 5GC SubNetwork that the intent expectation is applied.dnnContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " dnn "- contextCondition:” IS\_ALL\_OF "- contextValueRange: a list of string as specified in 3GPP TS 23.003 [15] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| incomingDataTarget | It describes the maximum incoming data packets for 5GC SubNetwork related to the intent expectation. For details, see N6 incoming link usage measurement in clause 5.4.2.1 in TS 28.552 [12]incomingDataTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "incomingData"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| outgoingDataTarget | It describes the maximum outgoing data packets for 5GC SubNetwork related to the intent expectation. For details, see N6 outgoing link usage measurement in clause 5.4.2.2 in TS 28.552 [12]outgoingDataTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "outgoingData"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| startTimeContext | This describes the start time at which the expected result of the expectation shall be available. Following are the allowed values:- contextAttribute: "startTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: DateTime | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |

|  |
| --- |
| **7th Change** |

# 8 Guidelines for using scenario specific intent expectation for intent driven use cases

This clause describes guidelines for using scenario specific intent expectation defined in clause 6.2.2 to satisfy the intent driven use cases defined in clause 5.1. Following table provides the information on which ObjectContexts and ExpectationTargets defined in clause 6.2.2 are used for the corresponding use case.

Table 8-1: Guidelines for using scenario specific intent expectation for intent driven use cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use case | Scenario specific IntentExpectation | ExpectationObject.ObjectContext | ExpectationTarget | ExpectationContext |
| Intent containing an expectation for delivering radio network (clause 5.1.1) | Radio Network Expectation | - coverageAreaPolygonContext- coverageTACContext- pLMNContext- dlFrequencyContext- ulFrequencyContext- rATContext | -weakRSRPRatioTarget- lowSINRRatioTarget- aveULRANUEThptTarget- aveDLRANUEthptTarget |  |
| Intent containing an expectation for delivering a service at the edge (clause 5.1.3) | Edge Service Support Expectation | - edgeIdentificationIdContext- edgeIdentificationLocContext- coverageAreaTAContext | - dlThptPerUETarget- ulThptPerUETarget- dLLatencyTarget- uLLatencyTarget- maxNumberofUEsTarget- activityFactorTarget- uESpeedTarget |  |
| Intent containing an expectation on coverage performance to be assured (clause 5.1.4) | Radio Network Expectation | - coverageAreaPolygonContext- dlFrequencyContext- ulFrequencyContext- rATContext | -weakRSRPRatioTarget-lowSINRRatioTarget |  |
| Intent containing an expectation on RAN UE throughput performance to be assured (clause 5.1.5) | Radio Network Expectation | - coverageAreaPolygonContext- dlFrequencyContext- ulFrequencyContext- rATContext- uEGroupContext | - aveULRANUEThptTarget- aveDLRANUEthptTarget- lowULRANUEThptRatioTarget- lowDLRANUEThptRatioTarget |  |
| Intent containing an expectation for delivering 5GC network (clause 5.1.8) | 5GC Network Expectation | - nfTypeContext- nfInstanceLocationContext- pLMNContext- taiContext- servingScopeContext- dnnContext | - maxNumberofPDUsessionsTarget- maxNumberofRegisteredsubscribersTarget- incomingDataTarget- outgogingDataTarget |  |
| Intent containing an expectation on RAN capacity performance to be assured (clause 5.1.5) | Radio Network Expectation | - coverageAreaPolygonContext- dlFrequencyContext- ulFrequencyContext- rATContext | - highUlPrbLoadRatioTarget- highDlPrbLoadRatioTarget- aveUlPrbLoadTarget- aveDlPrbLoadTarget |  |
| Intent containing an expectation on RAN energy saving (clause 5.1.7) | Radio Network Expectation | - coverageAreaPolygonContext- pLMNContext- dlFrequencyContext- ulFrequencyContext- rATContext | - rANEnergyConsumptionTarget-rANEnergyEfficiencyTarget- aveULRANUEThptTarget- aveDLRANUEThptTarget |  |
| Intent containing an expectation for delivering radio service (clause 5.1.2) | Radio Service Expectation | - coverageAreaPolygonContext- serviceTypeContext-plMNInfoContext | - dLLatencyTarget- uLLatencyTarget- dLThptPerUETarget- uLThptPerUETarget- numberofUEsTarget | schedulingTimeContext |

|  |
| --- |
| **8th Change** |

# D.9 YAML document example for Intent containing an expectation for delivering radio service

Intent:

 Id: 'intent\_8'

 userLabel: 'Radio\_Service\_Deliver'

 IntentExpectation:

 - expectationId: '1'

 expectationVerb: 'Deliver'

 expectationObjects:

 - objectType: 'Radio\_Service'

 - objectContexts:

 - contextAttribute: 'CoverageAreaPolygon'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - convexGeoPolygon:

 - latitude: '31.2696'

 longitude: '121.6322'

 - latitude: '31.2668'

 longitude: '121.6323'

 - latitude: '31.2669'

 longitude: '121.6412'

 - latitude: '31.2696'

 longitude: '121.6410'

 - contextAttribute: 'ServiceType'

 contextCondition: 'IS\_EQUAL\_TO'

 contextValueRange:

 - 'eMBB'

 - contextAttribute: 'plMNInfo'

 contextCondition: 'IS\_All\_OFF'

 contextValueRange:

 - pLMNId: '46000'

 - sNSSAI: '1'

 expectationTargets:

 - targetName: 'ULLatency'

 targetCondition: 'IS\_LESS\_THAN'

 targetValueRange: '15'

 - targetName: 'DLLatency'

 targetCondition: 'IS\_LESS\_THAN'

 targetValueRange: '20'

 - targetName: 'ULThptPerUE'

 targetCondition: 'IS\_GREATER\_THAN'

 targetValueRange: '100'

 - targetName: 'DLThptPerUE'

 targetCondition: 'IS\_GREATER\_THAN'

 targetValueRange: '300'

 - targetName: 'numberOfUEs'

 targetCondition: 'IS\_LESS\_THAN'

 targetValueRange: '500'

 expectationContexts:

 - contextAttribute: 'schedulingTime'

 targetCondition: 'IS\_ALL\_OFF'

 targetValueRange:

 - timeWindow :

 - startTime: '2024-11-01-08-00-00'

 - endTime: '2024-11-01-20-00-00'

 intentPriority: '8'

 observationPeriod: '60'

 intentReportReference: 'IntentReport\_8'

|  |
| --- |
| **9th Change** |

Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1437> at commit 1c25534256213277f8066ec167636422a624248f

\*\*\* START OF CHANGE 1 \*\*\*

\*\*\* OpenAPI/TS28312\_IntentExpectations.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

 title: Scenario specific Intent Expectations

 version: 18.4.0

 description: >-

 OAS 3.0.1 definition of scenario specific Intent Expectations

 © 2024, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

 All rights reserved.

externalDocs:

 description: 3GPP TS 28.312; Intent driven management services for mobile networks

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.312/

paths: {}

components:

 schemas:

 #-------Definition of the Scenario specific IntentExpectation dataType ----------#

 RadioNetworkExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for radio network delivering and performance assurance

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb"

 expectationObject:

 $ref: "#/components/schemas/RadioNetworkExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

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

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

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

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

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

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

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

 - $ref: "#/components/schemas/RANEnergyConsumptionTarget"

 - $ref: "#/components/schemas/RANEnergyEfficiencyTarget"

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget'

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 required:

 - expectationId

 RadioServiceExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for radio service delivering

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb"

 expectationObject:

 $ref: "#/components/schemas/RadioServiceExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

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

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget'

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 required:

 - expectationId

 EdgeServiceSupportExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for service deployment

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb'

 expectationObject:

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

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

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

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

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

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget'

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 required:

 - expectationId

 5GCNetworkExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for 5GC network delivering

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb"

 expectationObjects:

 type: array

 uniqueItems: true

 items:

 $ref: "#/components/schemas/5GCNetworkExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: "#/components/schemas/MaxNumberofPDUsessionsTarget"

 - $ref: "#/components/schemas/MaxNumberofRegisteredsubscribersTarget"

 - $ref: "#/components/schemas/IncomingDataTarget"

 - $ref: "#/components/schemas/OutgoingDataTarget"

 - $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget"

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

 - $ref: "TS28312\_IntentNrm.yaml#/components/schemas/Context"

 required:

 - expectationId

 #-------Definition of the IntentExpectation dataType ----------#

 #-------Definition of the scenario specific ExpectationObject dataType ----------#

 RadioNetworkExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for RadioNetworkExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - RAN\_SubNetwork

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

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

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

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

 - $ref: "#/components/schemas/UEGroupContext"

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 RadioServiceExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for RadioServicekExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - Radio\_Service

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 EdgeServiceSupportExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for EdgeServiceSupportExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - EdgeService\_Support #value for Edge Service Support Expectation--#

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

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

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

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

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 5GCNetworkExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for 5GCNetworkExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - 5GC\_SubNetwork #value for 5GC Network Expectation--#

 objectInstance:

 $ref: "TS28623\_ComDefs.yaml#/components/schemas/Dn"

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: "#/components/schemas/NfTypeContext"

 - $ref: "#/components/schemas/NfInstanceLocationContext"

 - $ref: "#/components/schemas/PLMNContext"

 - $ref: "#/components/schemas/TaiContext"

 - $ref: "#/components/schemas/ServingScopeContext"

 - $ref: "#/components/schemas/DnnContext"

 - $ref: "TS28312\_IntentNrm.yaml#/components/schemas/Context"

 #-------Definition of the ExpectationObject dataType ----------#

 #-------Definition of the Scenario specific ExpectationTarget dataType----------#

 WeakRSRPRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for WeakRSRPRatioTarget. It describes

 the downlink weak coverage ratio target for the RAN SubNetwork that the intent expectation is applied.

 The numerator is the number of the cells with downlink weak RSRP, and the denominator is the total number

 of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - WeakRSRPRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 WeakRSRPContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for WeakRSRPContext. It describes the threshold

 for downlink weak RSRP of the cells (see RSRP measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent

 expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - WeakRSRPThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: number

 LowSINRRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for LowSINRatioTarget.It describes the low SINR

 ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with

 low SINR, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - LowSINRRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 LowSINRContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for LowSINRContext.It describes the threshold for

 low SINR of the cells (see SINR measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - LowSINRThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: integer

 AveULRANUEThptTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveULRANUEThptTarget.It describes the average

 UL RAN UE throughput target for RAN SubNetwork (see UL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent

 expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveULRANUEThpt

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 type: integer

 AveDLRANUEThptTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveDLRANUEThptTarget.It describes the average

 DL RAN UE throughput target for RAN SubNetwork (see DL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent

 expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveDLRANUEThpt

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 type: integer

 LowULRANUEThptRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for LowULRANUEThptRatioTarget.It describes the low

 UL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number

 of the cells with low UL RAN UE throughput, and the denominator is the total number of cells of the RAN Subnetwork in the

 specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - LowULRANUEThptRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 LowULRANUEThptContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for LowULRANUEThptContext.It describes the threshold

 for the low UL RAN UE throughput cells (see average UL RAN UE throughput in gNB and distribution of UL UE throughput in gNB

 in TS 28.552[6]) of the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - LowULRANUEThptThreshold

 contextCondition:

 type: string

 enum:

 - Is\_less\_than

 contextValueRange:

 type: number

 LowDLRANUEThptRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for LowDLRANUEThptRatioTarget. It describes

 the low DL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied.The numerator

 is the number of the cells with low DL RAN UE throughput, and the denominator is the total number of cells of the

 RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - LowDLRANUEThptRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 LowDLRANUEThptContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for LowDLRANUEThptContext.It describes the threshold

 for the low DL RAN UE throughput cells ((see average DL RAN UE throughput in gNB and distribution of DL UE throughput in gNB

 in TS 28.552[6]) ) of the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - LowDLRANUEThptThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: number

 HighULPrbLoadRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for HighULPrbLoadRatioTarget. It describes the high UL

 PRB load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number

 of the cells with high UL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - HighULPrbLoadRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 HighULPrbLoadContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for HighULPrbLoadContext.It describes the threshold for high

 uplink PRB load (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN

 SubNetwork in the specified area that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - HighULPrbLoadThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: integer

 minimum: 0

 maximum: 100

 HighDLPrbLoadRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for HighDLPrbLoadRatioTarget.It describes the high DL PRB

 load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the

 cells with high DL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - HighDLPrbLoadRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 HighDLPrbLoadContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for HighDLPrbLoadContext.It describes the threshold for high downlink

 PRB load (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) of the cells of the RAN SubNetwork in the

 specified area that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - HighDLPrbLoadThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: integer

 minimum: 0

 maximum: 100

 AveULPrbLoadTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveULPrbLoadTarget.It describes the average uplink PRB load target

 (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN SubNetwork that the intent

 expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveULPrbLoad

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 AveDLPrbLoadTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveDLPrbLoadTarget.It describes the average dowlink PRB load

 (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) target for RAN SubNetwork that the intent expectation

 is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveDLPrbLoad

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 RANEnergyConsumptionTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for RANEnergyConsumptionTarget.It describes the RAN energy consumption

 target for RAN SubNetwork that the intent expectation is applied. The definition for RAN energy consumption see ECNG-RAN in clause 6.7.3.4.1 in

 TS 28.554 [11].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - RANEnergyConsumption

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 RANEnergyEfficiencyTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for RANEnergyEfficiencyTarget.It describes the RAN energy efficiency target

 for RAN SubNetwork that the intent expectation is applied. The unit of this target is bit/J. The definition for RAN energy efficiency target for RAN

 SubNetwork see EEMN,DV in clause 6.7.1.1 in TS 28.554 [11].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - RANEnergyEfficiency

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 type: integer

 NumberofUEsTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for NumberofUEsTarget.It describes

 the number of UEs target for the Radio Service that the intent expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - NumberofUEs

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 DLThptPerUETarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for DLThptPerUETarget. It describes the DL throughput target by the per UE for the

 edge service supporting or radio servicde that the intent expectation is applied. For details see dlThptPerUE defined in clause 6.3.1 of TS 28.541 [5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - DlThptPerUE

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 $ref: 'TS28541\_SliceNrm.yaml#/components/schemas/XLThpt'

 ULThptPerUETarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for ULThptPerUETarget.It describes the UL throughput target by the per UE for the edge

 service supporting or radio service that the intent expectation is applied. For details see ulThptPerUE defined in clause 6.3.1 of TS 28.541 [5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - UlThptPerUE

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 $ref: 'TS28541\_SliceNrm.yaml#/components/schemas/XLThpt'

 DLLatencyTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for DLLatencyTarget.It describes the DL latency target for the edge service supporting or radio service

 that the intent expectation is applied

 type: object

 properties:

 targetName:

 type: string

 enum:

 - DlLatency

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 ULLatencyTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for ULLatencyTarget. It describes the UL latency target for the edge service supporting or radioService

 that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5]

 type: object

 properties:

 targetName:

 type: string

 enum:

 - UlLatency

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 MaxNumberofUEsTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for MaxNumberofUEsTarget.It describes the the number of UEs for edge service supporting

 that the intent expectation is applied. For details see attribute maxNumberofUE defined in clause 6.3.1 of of TS 28.541 [5]

 type: object

 properties:

 targetName:

 type: string

 enum:

 - maxNumberofUEs

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 ActivityFactorTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for ActivityFactorTarget.It describes 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 edge service supporting that the intent expectation is applied.

 For details see activityFactor in clause 6.3.1 in TS 28.541 [5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - activityFactor

 targetCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 targetValueRange:

 type: integer

 UESpeedTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for UESpeedTarget.It describes the speed (in km/hour) supported for edge service supporting

 that the intent expectation is applied. For details see uESpeed in clause 6.3.1 in TS 28.541[5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - uESpeed

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 MaxNumberofPDUsessionsTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for MaxNumberofPDUsessionsTarget.It describes the maximum number of PDU sessions for 5GC

 SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofPDUsessions in clause 5.3.1.2 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - MaxNumberofPDUsessions

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 targetContexts:

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

 5GSessionContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for 5GSessionContext.It describes the maximum supported 5G PDU session of the 5GC SubNetwork

 related to the intent expectation.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - 5GSession

 contextCondition:

 type: string

 enum:

 - IS\_less\_THAN

 contextValueRange:

 type: integer

 MaxNumberofRegisteredsubscribersTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for MaxNumberofRegisteredsubscribersTarget.It describes the maximum number of Registered

 subscribers for 5GC SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofRegisteredsubscribers in clause 5.6.2 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - MaxNumberofRegisteredsubscribers

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 IncomingDataTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for IncomingDataTarget.It describes the maximum incoming data packets for 5GC SubNetwork

 related to the intent expectation. For details, see N6 incoming link usage measurement in clause 5.4.2.1 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - IncomingData

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 OutgoingDataTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for OutgoingDataTarget.It describes the maximum outgoing data packets for 5GC SubNetwork

 related to the intent expectation. For details, see N6 outgoing link usage measurement in clause 5.4.2.2 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - OutgoingData

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 #-------Definition of the concrete ExpectationTarget dataType----------#

 #-------Definition of the concrete ObjectTarget dataType----------------#

 CoverageAreaPolygonContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for CoverageAreaPolygonContext.It describes the coverage areas for the RAN SubNetwork that the

 intent expectation is applied in the form of polygon.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - CoverageAreaPolygon

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoArea'

 CoverageTACContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for CoverageTACContext.It describes the coverage areas for the RAN SubNetwork that the intent

 expectation is applied in the form of TAC.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - CoverageAreaTac

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28623\_ComDefs.yaml#/components/schemas/Tac"

 PLMNContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for PLMNContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - PLMN

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/PlmnId'

 DlFrequencyContext:

 description: >-

 This data type is the "Context" data type with specialisations for Object context "DLFrequencyContext". It describes the downlink frequency information (RF reference

 frequencies and/ or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - DlFrequency

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Frequency'

 UlFrequencyContext:

 description: >-

 This data type is the "Context" data type with specialisations for Object context "ULFrequencyContext".It describes the uplink frequency information (RF reference

 frequencies and/ or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - UlFrequency

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Frequency'

 RATContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for RATContext.It describes the RAT supported by the RAN SubNetwork that the intent expectation

 is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - RAT

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 enum:

 - UTRAN

 - EUTRAN

 - NR

 UEGroupContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for UEGroup([5QI, SNSSAI])

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - UEGroup

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/UEGroup"

 EdgeIdentificationIdContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for EdgeIdentificationIdContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - edgeIdentificationId

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 type: string

 EdgeIdentificationLocContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for EdgeIdentificationLocContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - edgeIdentificationTarget

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoCoordinate'

 CoverageAreaTAContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for CoverageAreaTAContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - coverageAreaTA

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28623\_ComDefs.yaml#/components/schemas/Tac"

 NfTypeContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for NfTypeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - NfType

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28541\_5GcNrm.yaml#/components/schemas/NFType"

 NfInstanceLocationContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for NfInstanceLocationContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - NfInstanceLocation

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 TaiContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for TaiContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - Tai

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28623\_GenericNrm.yaml#/components/schemas/Tai"

 ServingScopeContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for ServingScopeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServingScope

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 DnnContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for DnnContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - Dnn

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 #-------Definition of the scenario specific ObjectTarget dataType----------------#

 #-------Definition of the concrete ExpectationContext dataType----------------#

 TargetAssuranceTimeContext:

 description: >-

 This data type is the "Expectation Context" data type with specialisations for TargetAssuranceTimeContext.It describes the timeWindows

 (including startTime, endTime) when the targets in the Intent Expectation need to be assured.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - TargetAssuranceTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeWindow'

 ServiceStartTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ServiceStartTimeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServiceStartTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 ServiceEndTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ServiceEndTimeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServiceEndTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 UEMobilityLevelContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for UEMobilityLevelContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - UEMobilityLevel

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: "TS28541\_SliceNrm.yaml#/components/schemas/MobilityLevel"

 ResourceSharingLevelContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ResourceSharingLevelContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ResourceSharingLevel

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: "TS28541\_SliceNrm.yaml#/components/schemas/SharingLevel"

 ServiceTypeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ServiceTypeContext.It describes

 the service type for the Radio Service that the intent expectation is applied. For details see sST in clause 6.4.1 in TS 28.541 [5]

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServiceType

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: "TS28541\_NrNrm.yaml#/components/schemas/Sst"

 PlmnInfoContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for PlmnInfoContext.It describes

 the PLMN supported by the Radio Service that the intent expectation is applied. In case of network slicing

 feature is supported, this also represents the S-NSSAI in the PLMN supported by the Radio Service.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - PlmnInfo

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 $ref: "TS28541\_NrNrm.yaml#/components/schemas/PlmnInfo"

 SchedulingTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for SchedulingTimeContext.It describes

 the scheduled times (including one-time interval, daily periodicity, weekly periodicity or monthly periodicity)

 for the IntentObject that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - schedulingTime

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 $ref: "TS28623\_GenericNrm.yaml#/components/schemas/SchedulingTime"

 StartTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for StartTimeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - StartTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 #-------Definition of the concrete ExpectionContext dataType----------------#

<CODE ENDS>

\*\*\* END OF CHANGE 1 \*\*\*

\*\*\* START OF CHANGE 2 \*\*\*

\*\*\* OpenAPI/TS28312\_IntentNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

 title: Intent NRM

 version: 18.5.0

 description: >-

 OAS 3.0.1 definition of the Intent NRM

 © 2024, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

 All rights reserved.

externalDocs:

 description: 3GPP TS 28.312; Intent driven management services for mobile networks

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.312/

paths: {}

components:

 schemas:

 #-------- Definition of types for name-containments ------

 SubNetwork-ncO-IntentNrm:

 type: object

 properties:

 IntentHandlingFunction:

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

 #-------Definition of generic IOCs ----------#

 Intent-Single:

 description: >-

 This IOC represents the properties of an Intent driven management information between MnS consumer and MnS producer.

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 userLabel:

 type: string

 intentExpectations:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: "#/components/schemas/IntentExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/RadioNetworkExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/EdgeServiceSupportExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/5GCNetworkExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/RadioServiceExpectation"

 contextSelectivity:

 $ref: "#/components/schemas/Selectivity"

 intentContexts:

 type: array

 uniqueItems: true

 items:

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

 description: >-

 It describes the list of Context(s) which represents the constraints and conditions that should apply

 for the entire intent even if there may be specific contexts defined for specific parts of the intent

 intentAdminState:

 type: string

 enum:

 - ACTIVATED

 - DEACTIVATED

 description: >-

 It describes the intent administrative state.

 This attribute is used when MnS consumer-suspension mechanism is supported

 intentPriority:

 type: integer

 minimum: 1

 maximum: 100

 description: It expresses the priority of the stated intent within a MnS consumer.

 intentPreemptionCapability:

 type: boolean

 observationPeriod:

 type: integer

 description: >-

 It represents the observation period of the fulfilmentInfo for corresponding

 ExpectationTargets, IntentExpectations and Intent.

 intentReportReference:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 IntentReport-Single:

 description: It represents intent report information from MnS producer to MnS consumer.

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 intentFulfilmentReport:

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

 intentConflictReports:

 type: array

 uniqueItems: true

 items:

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

 intentFeasibilityCheckReport:

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

 lastUpdatedTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 intentReference:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 IntentHandlingFunction-Single:

 description: >-

 It represents the intent handling capabilities can be supported by a specific intent

 handling function of MnS producer.

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 intentHandlingCapabilityList:

 type: array

 uniqueItems: true

 items:

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

 Intent:

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

 IntentReport:

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

 #-------Definition of generic IOCs ----------#

 #-------Definition of the generic IntentExpectation dataType ----------#

 IntentExpectation:

 description: >-

 This data type is the "IntentExpectation" data type without specialisations

 It represents MnS consumer's requirements, goals and contexts given to a 3GPP system

 type: object

 properties:

 expectationId:

 type: string

 description: A unique identifier of the intentExpectation within the intent.

 expectationVerb:

 $ref: "#/components/schemas/ExpectationVerb"

 expectationObject:

 $ref: "#/components/schemas/ExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

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

 contextSelectivity:

 $ref: "#/components/schemas/Selectivity"

 expectationContexts:

 type: array

 uniqueItems: true

 items:

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

 required:

 - expectationId

 #-------Definition of the generic IntentExpectation dataType ----------#

 #-------Definition of the generic ExpectationObject dataType ----------#

 ExpectationObject:

 description: >-

 It represents the Object to which the IntentExpectation should apply.

 This data type is the "ExpectationObject" data type without specialisations

 type: object

 properties:

 objectType:

 type: string

 enum:

 - RAN\_SUBNETWORK #value for Radio Network Expectation--#

 - EDGE\_SERVICE\_SUPPORT #value for Edge Service Support Expectation--#

 - 5GC\_SUBNETWORK #value for 5GC Network Expectation--#

 - Radio\_Service #value for Radio Service Expectation--#

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

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

 description: >-

 It describes the list of Context(s) which represents the constraints and conditions to be

 used as filter information to identify the object(s) to which a given intentExpectation should apply.

 #-------Definition of the generic ExpectationObject dataType ----------#

 #-------Definition of the generic dataType --------------#

 Condition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 - IS\_LESS\_THAN

 - IS\_GREATER\_THAN

 - IS\_WITHIN\_RANGE

 - IS\_OUTSIDE\_RANGE

 - IS\_ONE\_OF

 - IS\_NOT\_ONE\_OF

 - IS\_EQUAL\_TO\_OR\_LESS\_THAN

 - IS\_EQUAL\_TO\_OR\_GREATER\_THAN

 - IS\_ALL\_OF

 Selectivity:

 type: string

 enum:

 - ALL\_OF

 - ONE\_OF

 - ANY\_OF

 FulfilmentStatus:

 type: string

 readOnly: true

 enum:

 - FULFILLED

 - NOT\_FULFILLED

 default: NOT\_FULFILLED

 description: It describes the current status of the intent fulfilment result.

 NotFulfilledState:

 type: string

 readOnly: true

 enum:

 - ACKNOWLEDGED

 - COMPLIANT

 - DEGRADED

 - SUSPENDED

 - TERMINATED

 - FULFILMENTFAILED

 default: ACKNOWLEDGED

 description: It describes the current progress of or the reason for not achieving fulfilment

 for the intent, intentExpectation or expectationTarget.

 An attribute which is used when FulfilmentInfo is implemented for IntentFulfilmentInfo

 FulfilmentInfo:

 description: >-

 This dataType represents the properties of a specific fulfilment information for an aspect of

 the intent (i.e. either an expectation, a target or the whole intent).

 type: object

 properties:

 fulfilmentStatus:

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

 notFullfilledState:

 $ref: "#/components/schemas/NotFulfilledState"

 notFulfilledReasons:

 type: array

 uniqueItems: true

 items:

 type: string

 readOnly: true

 description: An attribute which is used when FulfilmentInfo is implemented for IntentFulfilmentInfo

 ExpectationVerb:

 type: string

 enum:

 - DELIVER

 - ENSURE

 description: It describes the characteristic of the intentExpectation and is the property that describes the types of intentExpectations. Vendor extensions are allowed

 Frequency:

 description: >-

 It desribes the RF reference frequency (i.e. Absolute Radio Frequency Channel Number)

 and/or the frequency operating band used for a given direction (UL or DL) in FDD or

 for both UL and DL directions in TDD.

 type: object

 properties:

 arfcn:

 type: integer

 description: >-

 This attribute shall be supported, when the frequency information represent RF reference frequency.

 The allowed values for NR see TS 38.104 subclause 5.4.2.1; The allowed values for EUTRAN see TS 36.104 [X] subclause 5.7.3;

 freqband:

 type: string

 description: >-

 This attribute shall be supported, when the frequency information represent frequency operating band.

 The allowed values for NR see TS 38.104 subclause 5.4.2.3; The allowed value for EUTRAN see TS 36.104 subclause 5.7.3

 ValueRangeType:

 oneOf:

 - type: number

 - type: string

 - type: boolean

 - type: integer

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeWindow'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoArea'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/PlmnId'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoCoordinate'

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

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

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/SchedulingTime'

 - $ref: 'TS28541\_NrNrm.yaml#/components/schemas/PlmnInfo'

 UEGroup:

 description: >-

 It describes the UE Group, which is

 represented by specific 5QI, specific S-NSSAI, or a specific combination

 of S-NSSAI and 5QI

 type: object

 properties:

 fiveQI:

 type: integer

 minimum: 0

 maximum: 255

 sNssai:

 $ref: 'TS28541\_NrNrm.yaml#/components/schemas/Snssai'

 #-------Definition of the generic dataType --------------#

 #-------Definition of the generic ExpectationTarget dataType----------#

 ExpectationTarget:

 description: >-

 This data type represents the target of the IntentExpectation that are required to be achieved.

 This data type is the "ExpectationTarget" data type without specialisations

 type: object

 properties:

 targetName:

 type: string

 targetCondition:

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

 targetValueRange:

 oneOf:

 - type: array

 uniqueItems: true

 items:

 $ref: "#/components/schemas/ValueRangeType"

 - $ref: "#/components/schemas/ValueRangeType"

 contextSelectivity:

 $ref: "#/components/schemas/Selectivity"

 targetContexts:

 type: array

 uniqueItems: true

 items:

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

 description: It describes the list of constraints and conditions that should apply for a specific expectationTarget.

 #-------Definition of the generic ExpectationTarget dataType----------#

 #-------Definition of the generic Context dataType----------------#

 Context:

 description: >-

 This data type is the "Context" data type without specialisations

 type: object

 properties:

 contextAttribute:

 type: string

 contextCondition:

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

 contextValueRange:

 oneOf:

 - type: array

 uniqueItems: true

 items:

 $ref: "#/components/schemas/ValueRangeType"

 - $ref: "#/components/schemas/ValueRangeType"

 #-------Definition of the generic Context dataType----------------#

 #-------Definition of the generic IntentFulfilmentReport dataType----------------#

 IntentFulfilmentReport:

 description: >-

 It includes the intentFulfilmentInfo and expectationFulfilmetResult.

 This attribute shall be supported when intent fulfilment information is supported by IntentReport

 type: object

 properties:

 intentFulfilmentInfo:

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

 expectationFulfilmentResult:

 type: array

 uniqueItems: true

 items:

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

 #-------Definition of the concrete IntentFulfilmentReport dataType----------------#

 #-------Definition of the generic ExpectationFulfilmentResult dataType----------------#

 ExpectationFulfilmentResult:

 description: >-

 It includes the expectationFulfilmentInfo and targetFulfilmentResults for each IntentExpectation.

 type: object

 properties:

 expectaitonId:

 type: string

 readOnly: true

 expectationFulfilmentInfo:

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

 targetFulfilmentResult:

 type: array

 uniqueItems: true

 items:

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

 #-------Definition of the concrete ExpectationFulfilmentResult dataType----------------#

 #-------Definition of the generic TargetFulfilmentResult dataType----------------#

 TargetFulfilmentResult:

 description: >-

 This data type includes targetFulfilmentInfo and targetAchievedValue for each ExpectationTarget.

 type: object

 properties:

 targetName:

 type: string

 readOnly: true

 targetFulfilmentInfo:

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

 targetAchievedValue:

 type: number

 description: >-

 It describes the value that has been achieved for the expectation target at the time at which

 the report is generated.

 readOnly: true

 #-------Definition of the concrete TargetFulfilmentResult dataType----------------#

 #-------Definition of the generic IntentConflictReport dataType----------------#

 IntentConflictReport:

 description: >-

 It represents the conflict information for the detected conflict

 This attribute shall be supported when intent conflict information is supported by IntentReport

 type: object

 properties:

 conflictId:

 type: string

 readOnly: true

 conflictType:

 type: string

 readOnly: true

 enum:

 - INTENT\_CONFLICT

 - EXPECTATION\_CONFLICT

 - TARGET\_CONFLICT

 conflictingIntent:

 description: >-

 This will be present if the value of conflictType is INTENT\_CONFLICT. It describes the DN of the conflicting intent

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 conflictingExpectation:

 description: >-

 This will be present if the value of conflictType is EXPECTATION\_CONFLICT. It describes the expectationId of the conflicting IntentExpectation with an Intent

 type: string

 readOnly: true

 conflictingTarget:

 description: >-

 This will be present if the value of conflictType is TARGET\_CONFLICT. It describes the targetName of the conflicting ExpectationTarget with an IntentExpectation

 type: string

 readOnly: true

 recommendedSolutions:

 type: string

 readOnly: true

 enum:

 - MODIFY

 - DELETE

 #-------Definition of the concrete IntentConflictReport dataType----------------#

 #-------Definition of the generic IntentFeasibilityCheckReport dataType----------------#

 IntentFeasibilityCheckReport:

 description: >-

 It represents the intent feasibility check information

 This attribute shall be supported when intent feasibility check information information is supported by IntentReport

 type: object

 properties:

 feasibilityCheckResult:

 type: string

 readOnly: true

 enum:

 - FEASIBLE

 - INFEASIBLE

 infeasibilityReason:

 type: string

 readOnly: true

 description: An attribute which is used when feasibilityCheckResult is INFEASIBLE

 #-------Definition of the concrete IntentFeasibilityCheckReport dataType----------------#

 #-------Definition of the generic IntentHandlingCapability dataType----------------#

 IntentHandlingCapability:

 description: >-

 It represents expectation object information and expectation target information

 which can be supported by a specific intent handling function of MnS producer.

 type: object

 properties:

 intentHandlingCapabilityId:

 type: string

 readOnly: true

 supportedExpectationObjectType:

 type: string

 enum:

 - RAN\_SUBNETWORK

 - EDGE\_SERVICE\_SUPPORT

 - 5GC\_SUBNETWORK

 - Radio\_Service

 readOnly: true

 description: It describes the expectation object type which can be supported by a specific intent handling function of MnS producer.

 supportedExpectationTargetNames:

 type: array

 uniqueItems: true

 items:

 type: string

 readOnly: true

 description: It describes the supported expectation targets for the supported expectation object type.

 #-------Definition of the concrete IntentHandlingCapability dataType----------------#

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

 Intent-Multiple:

 type: array

 items:

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

 IntentReport-Multiple:

 type: array

 items:

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

 IntentHandlingFunction-Multiple:

 type: array

 items:

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

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

 #----- Definitions in TS 28.312 for TS 28.532 --------------------------#

 resources-intentNrm:

 oneOf:

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

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

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

 #----- Definitions in TS 28.312 for TS 28.532 --------------------------#

<CODE ENDS>

\*\*\* END OF CHANGE 2 \*\*\*

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